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Customization of the Telecommunication Market Based on the Application of the Concept of Service Products

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<http://dx.doi.org/10.5772/intechopen.79030>

Abstract

The analysis of the structure and dynamics of the main indicators of the Russian telecommunication services market shows the achievement of saturation state of this market and the exhaustion of extensive sources of growth. Given the presence of a complex of negative socioeconomic factors, the source of maintaining the market positions of telecommunication companies is the customization of the services offered. For this purpose, the concept of the service products can be applied, involving the inclusion of the additional, accompanying and derivative services into the customer service package. The prerequisites for the application of the concept of the service product in the telecommunication field are the availability of the multiattribute properties and interdependence of elements in the product of that field. On the telecommunication market we can consider three types of service products. Customization of the Russian market of telecommunication services is carried out taking into account its strong state protectionism, which is conditioned by the strategic importance and the high social significance of the telecommunication industry. Saturation of the market in the conditions of oligopoly and sophistication of consumers stimulate the telecommunication companies to include in their market offer the service products of all three types.

Keywords: telecommunications, technologies, services, telecommunication services market, service product, customization, additional service, accompanying service, derivative service

1. Introduction

The economy and the society of the twenty-first century are functioning in the conditions of the rapidly developing telecommunication technologies. Their ubiquitous application accelerates

the economic development, contributes to higher living standards and welfare of the population, and creates new sources of competitive advantages for the enterprises, industries and national economies in general.

In the modern conditions, the telecommunications industry belongs to one of the most strategically important sectors of the Russian economy, performing the infrastructural function of ensuring the needs of society in the transmission of various kinds of information. Advanced development of the telecommunications is a prerequisite for creating of the business infrastructure and the favorable conditions for investment attracting, for solving of the employment problems.

“The Concept for the Development of the Telecommunications Services Market in the Russian Federation” (<http://www.inforeg.ru>) identifies the main segments of the telecommunication services market:

- the mobile communication services, leading in the total volume of telecommunication services and characterized by a high level of competition in the conditions, on the one hand, of the steady growth of the number of Russian mobile subscribers (1.5–1.8 times per year) and, on the other hand, a steady decrease of the tariffs for the corresponding services;
- the local telephone services, whose operators concentrate their efforts on the attracting of the most solvent customers, offering a wide range of modern services;
- long distance and international telecommunication services that are monopolized by Rostelecom in Russia, but the operators of other communication networks can use some elements of the infrastructure of this company;
- the data transmission services (including the Internet), developing most rapidly compared to other segments of the telecommunications market in terms of subscribers growth and infrastructure development.

The Russian market of the telecommunication services reached a volume of 1672.0 billion rubles by 2015. According to data in **Table 1**, the share of the mobile communication services in the total volume of telecommunication services increases from 25.5 to 34.5% in the period of 2000–2015, gradually replacing the services provided by fixed telephones (from 53.9 to 11.7%, respectively). Even more clearly, this trend was manifested for services rendered to the population, for which the share of the mobile communication services increased from 26.6 to 54.8%, and the share of fixed communication decreased from 58.6 to 9.8%.

At the same time, the share of the mobile communication services has declined over the past 5 years in the total volume of telecommunication services from 43.8 to 34.5%, being replaced by Internet-based data services, whose share shows steady growth, reaching 16.1% by 2015.

It should be noted that over the past 10 years, the telecommunications market in Russia has reached its saturation. This process was due to two basic circumstances.

First, by the stabilization of the market structure in terms of the main types of consumers (see **Table 2**).

Second, by stabilization of the number of telephone sets of the public switched telephone network and mobile cellular subscribers (see **Table 3**).

	2000	2005	2010	2015
<i>Total</i>				
Mobile communication	25.5	42.9	43.8	34.5
Local telephone communication	21.9	16.0	11.7	7.8
Intercity, intrazonal and international telephone communication	32.0	11.9	8.1	3.9
Traffic connection	10.8	13.8	16.1
Other services	20.6	18.4	22.7	37.7
<i>Services rendered to the population</i>				
Mobile communication	22.6	63.8	70.5	54.8
Local telephone communication	26.5	17.8	11.4	8.2
Intercity, intrazonal and international telephone communication	32.1	9.7	4.8	1.6
Other services	18.8	8.7	13.4	35.3

Source: Calculated by "Transport and Communications in Russia". 2016: Stat.sb./Rosstat. – M., 2016. – 86 p.

Table 1. The Structure of the Russian telecommunications services market by main segment (the share in total volume, %).

	2000	2005	2010	2015
Share in the total volume of services rendered to business and the public sector	64.4	46.8	44.6	46.9
Share in the total volume of services rendered to the population	35.6	53.2	55.4	53.1

Source: Calculated by "Transport and Communications in Russia". 2016: Stat.sb./Rosstat. – M., 2016. – 86 p.

Table 2. The structure of the Russian market of the telecommunication services by main types of consumers (share in total volume, %).

	2005	2010	2013	2014
Number of telephones	29.9	31.4	28.9	26.8
The number of cellular subscribers	86.3	166.4	193.3	190.3

Source: Compiled by "Transport and Communications in Russia". 2016: Stat.sb./Rosstat. – M., 2016. – 86 p.

Table 3. The volume of telephone sets of public telephone network and mobile cellular subscribers in Russia (at the end of the year, per 100 population).

The preservation of the described trends in 2016–2017 is confirmed by the results of a study conducted by the Analytical Research "Russian Telecommunications Market–2017. Preliminary Results" made by Agency TMT Consulting (<http://tmt-consulting.ru>). In this study is the following expanded structure of the telecommunications services market presented: mobile communications–55%, Internet access–12%, postal services–10%, fixed telephony–8%, pay TV–5%, inter-operator services–4%, others–6% .

At present, the main providers of telecommunications services can be divided (with some degree of conventionality) into two groups, differing by the technologies used and by the set of telecommunication services provided (**Table 4**).

No	Type of provider	Types of services provided
1	Fixed-line operators	<ul style="list-style-type: none"> • local telephony, • long-distance and international telephone communication, • access to the Internet, • cable TV, • digital television, etc.
2	Cellular operators	<ul style="list-style-type: none"> • voice services, • data-services, • mobile Internet, • mobile on-line-services, etc.

Table 4. The main types of the telecommunication service providers.

The data in **Table 4** confirm that the development of the telecommunications services market is primarily due to the dissemination of the new technologies [1]:

- the mobile communication technologies supplant the fixed communication services due to the high level of competitiveness of the mobile communication and IP telephony;
- a wired connection is currently dominated in the Internet access. It is explained by the faster connection speed compared to a wireless connection, the ability to transmit the large amounts of information as well as a high degree of reliability and security;
- with the introduction of fourth and fifth generations of the technologies, which have a higher data transfer rate and lower delay in sending packets than 3G technology, a gradual decrease in the share of fixed communication and in the provision of data services is predicted.

Despite the fact that the technologies provide continuous improvement of the quality of telecommunication services, the key aspect of the market interaction between producer and consumer remains the process of the telecommunication services providing.

A number of negative factors can be identified for the further development of the Russian market of telecommunication services [2, 3]:

- a slowdown of GDP growth rates, a decrease in the income level of the population, which, in order to optimize the expenditures, reduces the consumption of services with the high elasticity, which require or the support by the telecommunication services, or the telecommunications services themselves;
- the saturation of the mobile communication services market, which means the exhaustion of opportunities for extensive development (there are 151 active subscribers per 100 population in Russia, which exceeds the level of the developed countries by a quarter (120)

and the level of the developing countries by two-thirds (91). Every second Russian visits Internet daily (<https://issek.hse.ru>);

- a steady tendency to reduce the average price per minute, which dropped in Russia from 2.23 rubles to 0.38 rubles in 2004–2014, as well as tendency to reduce the average price of 1 megabyte—from 21.43 rubles (2006) to 0.11 rubles (2014), which complicates the task of preserving the market positions of telecommunication services providers;
- shortening of the life cycle of technologies used in the telecommunications industry, leading to the need for substantial investment into the infrastructure changes at the threat of loss of the market positions;
- the sophistication of consumers requiring the high-quality service and attention to their desires from the mobile operators that offering essentially homogeneous products (in terms of minutes, SMS, megabytes). In these conditions, it is necessary to search for those sources of growth that will ensure the growth in revenue of mobile operators in the near future. To solve this problem, the authors consider promising the application of the concept of the service product.

2. Customization of the telecommunication market through the customization of the telecommunication service products

2.1. The concept of the service product

The basis for the formation of the concept of the telecommunication service product is a stable tendency to change the structure of the world economy in favor of the service sector. This major institutional change is accompanied by the fragmentation of the industrial monopolies into industrial and service components and leads to the complication of economic ties and relations in which the consumer begins to play an increasingly important role. Subjective assessment of the value of services and the technological achievements contribute to the individualization of consumption and as a response of producers to the needs of the market—to the customization of the production. The proposed concept of the service product allows to divide the value delivered to the consumer of services into its components and to orient service organizations to strategic product innovations.

The service product is an independent service or a system that combines the material products and related services [4].

The expediency of linking services and goods in a service product is confirmed by modern trends in the development of the service sector. First, the provision of a number of services involves the consumption of certain goods, items of material nature. At the same time, many material objects are closely tied to the services and only to the services. To obtain a mobile communication service [5], the consumer needs to purchase a special device (phone, tablet, etc.) and a SIM card that will allow using the communication service. With the development of technical progress, with the spread of high technology, this trend is increasing.

Second, the consumption of some goods is supplemented by the acquisition of accompanying services. Such an addition can increase the attractiveness of the goods for consumers. Therefore, the purchase of the smartphone becomes attractive, as it allows access to the Internet and to various mobile applications that allow the customer make purchases, manage financial resources, etc.

Third, the basic service is accompanied by the receipt of related goods and services [6]. For example, air passengers can receive the food, press, duty-free goods in the flight, baggage transportation services, etc. When staying at the hotel, the customer can order a taxi to the airport, tickets for the concert, etc. Modern Internet technologies allow almost any service to be accompanied by financial online operations.

An important property of the service product is its multiattributivity. The service product is a collection of many attributes with different properties and purposes. Therefore, one can single out in it a basic, or a primary utility, directly correlated with the satisfaction of the customer need, which has become an incentive for the purchase of the service product.

The customer can add to the primary utility the additional attributes that create additional or secondary utility and increase the beneficial effect for the consumer due to greater comfort, lower time costs, etc.

The additional attributes can be both functional (objective) and emotional (subjective) results of the perception.

In this case, the most important difference between the multiattributivity of the service product and the multiattributivity of a good is that for different consumers, the basic utility can be formed by various services and goods that are part of the same service product.

The multiattributivity of the service product and the “floating” (under the influence of consumer preferences) nature of the primary utility explain the second important property of the service product—the interdependence between all its parts. This interdependence determines the inclusion into the service product of the maximum possible (from the point of view of economic feasibility) number of attributes with the possibility of choosing the attribute which is important for the consumer.

To order the attributes of the service product, it is useful to divide them into two groups [7]:

- invariable attribute of the service product, without which the consumer cannot imagine the realization of the basic function (the primary perceived utility);
- variable attribute of the service product, the presence or absence of which will signal to the consumer about the class and status of the goods (secondary perceived utility).

In this case, as a rule, both basic and additional utilities are most often created and offered not by one firm, but by a group of participants of the industrial market [8]. This premise makes it possible to combine optimally the model of multiattributive goods with the model of the industrial “chain” of the added value creating, and, accordingly, of the utility creating.

The results of research in the field of the quality of services assessing [9–11] confirm that the degree of perception of the service product is formed for the consumer as a cumulative estimate of the consumption of all its components. The competition in the provision of the services, correlated with the primary utility, has already led to a situation where further improvement in their quality depends on the achievements of scientific and technological progress and significant investments. Therefore, the opportunities for gaining competitive advantages due to the perception of the consumer value of the service product are associated with the added components of it, which are variable from the point of view of the offer of various service organizations. This is about a secondary perceived utility.

To determine the composition of the service product in terms of the secondary perceived utility, it is advisable to consider three types of services [12]:

- additional services,
- accompanying services,
- derivative services.

The additional services can be divided into two groups:

- compulsory services, provided by the service organization, since their absence or poor quality adversely affects the final assessment of the consumer;
- noncompulsory services, fulfilling the role of strengthening of the consumer perception and giving a certain individuality to the service organization.

The accompanying services do not appear on the market as an independent object of purchase and sale. They are provided to consumers in the form of a free supplement as the price of the accompanying service does not appear as an independent part of the payment, but is included by the seller into the market price of the service product. The accompanying services act as the ensuring of the purchased product delivery to a location specified by the buyer, as the setting up or adjusting of the purchased product, as the providing of some additional information, as the training to use the purchased product, as the spare parts supplying, as the providing of the special guarantees, insurance services, etc.

The derivative services include the services, the availability of which is established by the rules for the provision of services preceding the derivative services in accordance with their nature and purpose. The need for derivative services arises in the conditions when the consumer receives the right to provide him with some kind of basic service. Together with this right, a potential opportunity to use a whole bunch of derivative services (of both paid and partially paid or already included into the price) is acquired.

The diversity and compatibility of the telecommunication services with other services, as well as with some material objects, for example, devices and equipment, create the prerequisites for the application of the concept of the service product for the telecommunications industry.

2.2. The types of telecommunication service products

In the Federal Law of the Russian Federation “On the Communications,” the communication services are treated as the activities for receiving, processing, storing, transferring, and delivering of the messages by electricity connections or postal items. According to the all-Russian classifier of economic activity types, these services are included in the section “The activity in the field of the electricity connection” (Code 64.2 in the classifier of economic activity types, OKVED). In the conditions of the rapid development of information, electronic and digital technologies, the services in the field of the electricity connection are increasingly beginning to be considered as telecommunication services.

The term “telecommunications” comes from the Latin word “communico,” which means “the form of communication,” and from the Greek word “tele,” which means “acting at a great distance.” To date, telecommunications is a complex of methods for the transfer of information, which is based on the transmission and transformation of electromagnetic signals. From a technical point of view, the main type of a good produced by the telecommunications industry is the exchange of information at remote (and near) distances, which can take place in different forms, depending on the mode of transmission, the type of channel, and the type of signal.

From the economic point of view, the telecommunication service can be described by the benefits to the consumer. Such benefits are reflected in the attributes of the service [13]. The multiattributivity of the mobile communication service is shown in **Table 5**.

By selecting and combining the most important attributes for consumers, the telecommunication services provider attracts attention to them, forming a demand from potential customers. Depending on the predicted primary utility of a certain consumer segment, the values indicated in **Table 5** will be either invariant or variable.

The interdependence of the components of the service telecommunications product is manifested (in accordance with the neoclassical economic theory) in two aspects: interchangeability and complementarity.

The prerequisite for the interchangeability of the telecommunication services is the availability of various ways of the information conveying. Therefore, to send a message, it is possible to use a direct call, send an SMS or MMS message, write a letter by e-mail, leave a message in your voice mail, and so on.

The interchangeability of some ways of the information conveying leads to the emergence of new services on the market with improved quality parameters and to the decrease in the demand for traditional services. According to the reporting of telecommunication companies, the number of fixed telephony subscribers in Russia decreased by 0.8–1.0 million people per year in the period 2010–2013. More than 1.8 million subscribers refused to use mobile telephony services in 2015. The factor of pressure on the price of calls in the network of mobile operators, especially on the price of long-distance and international calls, is the VoIP system, which ensures the transmission of the voice signal over the Internet [2].

No	Title	Content
1	The technical quality of communication	<ul style="list-style-type: none"> • The quality of the voice transfer • The reliability and the speed of delivery of messages • The opportunity to call at any time • The breadth of coverage in the place of residence of the consumer and other settlements
2	The range of services provided by the mobile operator	<ul style="list-style-type: none"> • The differentiation of the services • The reliability in obtaining the necessary services • The ease of activation, use and cancelation of services
3	The level of consumer costs (tariffs)	<ul style="list-style-type: none"> • The differentiation of tariff plans • The simplicity and clarity of tariff plans • The total cost of mobile communications
4	The billing	<ul style="list-style-type: none"> • The update rate of the balance • The convenience of replenishment of the account and payment for the provided services • Accuracy and correctness of withdrawal of money from the account
5	Strategies for interaction with the consumers of services (CRM)	<ul style="list-style-type: none"> • The volume and methods of information providing • Availability of loyalty programs • A list of services that can be obtained through the automatic menu on the website • Availability and convenience of the call-center services

Note: compiled on the basis of the research data of the agency UMG–International.

Table 5. The mobile service attributes.

The development of one of the mutually complementary services in the telecommunications market ensures the activation of the demand for another service. Therefore, the drivers of the demand for SIM-cards of mobile operators at first were the voice services, then short messages without the need for an immediate response (SMS), and finally, mobile Internet traffic. However, it should be noted that the more and more subscribers start to use the special applications for data transfer, as the cost of traffic (megabytes) is cheaper than standard calls and SMS. The active development of wi-fi networks with free access replaces paid mobile Internet services.

The market of these services, in particular the market of mobile communication services, is a network market [14]. This fact is of a significant importance for the formation of the usefulness of the telecommunication services. This means that the utility of the service on the network market depends on its prevalence among the potential consumers. The positive external effect from the introduction of a new service or a new service product on the network market can be a result [15].

The primary and secondary perceived utilities of the telecommunication services product components can vary from one group of consumers to another. To cover a larger number of

potential consumers, the companies that participate in the formation of the telecommunication service products use several strategies:

- the mobile device manufacturers supply them with numerous unified sets of built-in applications, giving the possibility to the consumer to expand these sets, individualizing the consumption;
- the mobile communication service operators, based on a constant analysis of the market situation of telecommunications services, differentiate the offer through the implantation of various combinations of homogeneous products into different tariff plans;
- the companies that provide other types of services using digital technologies and develop new services, for example, electronic store, electronic reservation system, mobile bank, mobile television, etc.

The service products from the point of view of the telecommunications industry participation in them can be divided into three types:

- internal, covering the products and services produced by enterprises and organizations of the telecommunications industry, for example, the services packages of mobile operators;
- external in terms of resources, including the necessary material elements, produced, in particular, by enterprises of the electrotechnical industry, for example, mobile phones, tablets, computers, etc.;
- external in terms of the target function that assumes that the consumer uses the telecommunication services product as a means of access to some basic good or service, for example, opening a deposit through a mobile bank or booking a table in a restaurant through a mobile operator.

Let us consider each type of service product in detail.

To characterize the internal telecommunications service products, the service package model [16] and the corresponding batch sales technology [17] can be applied.

In accordance with this approach, the product of the telecommunications industry is provided as a set of different services, which together form the aggregate service product, including (from the manufacturer's point of view).

- the main service for the providing of which the company-operator enters the market;
- auxiliary services that promote the consumption of the main service, so without them, the package cannot be sold to the consumer;
- supporting services aimed at increasing the attractiveness of the main service for consumers and creating the prerequisites for forming a competitive advantage of the company offering them.

If the main service provided by the company is the connection of a telephone, the Internet or a pay-TV, then the customer support, payment methods, etc. can be considered as the auxiliary services, and the training, the provision of information materials, etc., can be considered as supporting services.

The main advantage of the technology of the package sales is that the provision of a services package reduces sales costs due to economies of scale and the ability to use the discounts that exist in the company. Therefore, it is not necessary to reduce further the cost of telecommunication services. Therefore, this technology can be considered a non-price tool to increase the customer loyalty.

It is important to understand that from the positions of the customer and the performer of the telecommunication service product the designation of its components is not the same (Table 6), so that modern companies operating in the telecommunication services market, offering service packages of different substantive content, in some cases be combined with each other [18].

The data in Table 6 confirm that the basis of the packet sales technology in relation to the internal telecommunication service products is detailed elaboration of proposals for the formation of packages of services with a justification of their composition for a variety of conditions (for different groups of customers).

The inclusion of telecommunication services to external in terms of resources telecommunication service products due to their dependence from the technology development, causing the improvement of the material components of the service product—devices and equipment (hard) and information and network infrastructure (soft). Thus, the external in terms of resources telecommunication service products include not only telecommunication companies’ services but also products of the electronic industry and other industries, as well as the results of operations for the development of software and databases for the functioning of social networks.

Many achievements in the field of microelectronics, computer technology, space research, new material technologies and many others are immediately used to form new and to improve

On the part of the telecommunication services customer	On the part of the telecommunication services provider
1. The basic service that has the primary utility for the consumer,	1. The main service for which the company-operator enters the market;
2. The additional services: <ul style="list-style-type: none">• compulsory, providing a standard level of technical quality of the service,• optional, focused on the individualization of the supply,	2. The auxiliary services that technologically support the implementation of the main service;
3. The accompanying services that create an increased level of consumer comfort in accordance with the customer's strategy,	3. The supporting services aimed at attracting of the consumers
4. The derived services, access to which the consumer receives when paying for the basic service.	

Table 6. The structure of the telecommunication service product.

functioning technical and computing facilities, communication networks [19]. All this contributes to the emergence of new information technologies and meeting the needs for telecommunication services. Manufacturers of mobile devices determine the rate of development and modernization of the telecommunication services market because they supply the base stations, controllers and switching centers for cellular operators. For example, in Russia, the equipment for “Megafon” is mainly supplied by Nokia and Siemens; for “VimpelCom” –by Alcatel, Sony, Nokia; for MTS–by Siemens, Sony, Motorola.

According to Cisco's data, by 2017, about two-thirds of the world's mobile traffic falls to the share of smartphones (Cisco Visual Networking Index: Global Mobile Data Traffic Forecast Update, 2012–2017). Monthly traffic volumes per device increase from 342 to 2660 MB over the same period. From 2012 to 2017, the average speed of the mobile channel increases 7.4 times, and the average connection speed for smartphones and tablets increases 3.2 times. One of the main factors of this increase is the improvement of the technical characteristics of mobile devices.

The social networks are the main driver of the growth of mobile VoIP services. VoIP services are increasingly being built into the social networking applications that provide economic benefits for making international and long distance telephone calls, as well as for creating the distributed corporate telephone networks (Table 7).

Depending on the specifics of the formation of external in terms of resources telecommunication service products, the commodity policy of telecommunications companies should include the planning of an assortment of telecommunications equipment, without which it is impossible to provide the corresponding services. This allows not only to demonstrate the quality of service in the company but also to strengthen the “material component” of the service.

Some examples of the external telecommunications service products are as follows:

- sale of SIM-cards with USB-modems, telephone sets, routers and other equipment under the brand of a mobile operator,
- sell the service “Internet access” with modems under the brand of an Internet provider.

No	Service name	Features and possibilities
1	Skype–messenger, including on mobile platforms	<ul style="list-style-type: none">• Making and receiving calls to ordinary phones• Provision of video communication and videoconferences up to 10 people
2	Google Hangouts–service for business communications, including on mobile platforms	<ul style="list-style-type: none">• Application for group video communication (Meet)• Application for group chat (Chat)
3	Viber–mobile VoIP application for iPhone, integrates into the address book	<ul style="list-style-type: none">• Making free calls in high quality between smartphones with Viber installed• Making calls to ordinary and mobile phones at low rates

Source: <http://www.voipoffice.ru>.

Table 7. The most common IP telephony services (VoIP).

Expediency of functioning on the market of the external in terms of the target function telecommunication service products is caused by infrastructural function of telecommunications in relation to other economy branches.

The telecommunications sector permeates in the modern conditions virtually all areas of the economic activity plays a leading role in the productions processes organizing, improving the efficiency of public administration, solving of security problems, and so on. This trend will increase with the development of the digital economy, which is based on the means of communications. The consumers will need not only the transfer of information in itself, as access to the various platforms and services in the electronic form. Hence, the development of the external in terms of the target function telecommunication service products is associated with the process of digitalization of the services.

The most important difference between the types of service products being considered from the other two types of service products is that the primary utility for the consumer can be associated with any service provided by digital technologies. The digital technology is a fusion of information technology and telecommunications. Telecommunication services that generate secondary utility can be a part of the additional, accompanying or derivative services. It will depend on the generated service product and the customer preferences (**Table 8**).

A special place in the external in terms of the target function telecommunication service products is occupied by financial services. In this case, the integration of two infrastructure functions is realized. The result of this process is the transfer of information for the movement of electronic funds, implying a change of their owner (e.g., in the case of payment for goods or services) or a change of their forms (e.g., in the situation of the credit deal).

The integrated component of the service product in this area is mobile banking as well as various payment systems. According to OKchanger.ru, the most popular payment systems are PayPal (24.32% user voices), Perfect Money (14.47%) and Payeer (11.74%).

The modern telecommunications companies have a direct impact on the customization of the service products of all types. This problem is discussed in the next section of the chapter.

No	The primary utility	The type of the economic activity	The role of the telecommunication services in the secondary utility	The type of the telecommunication services in the service product
1	Acquisition of the right to receive the service	the service at the pharmacy	electronic queue	additional (mandatory)
2	Acquisition of the right to receive services	the distribution of tickets for the entertainment events	on-line booking service	additional (optional)
3	Purchase of a good	e-commerce, logistics services	on-line services of the goods orders and their tracking	accompanying
4	Reception of the service	passenger transport	on-line registration service	derivative

Table 8. The examples of the structure of the external in terms of the target function telecommunication service products.

2.3. The features of the Russian telecommunication market and the customization of telecommunication service products

The customization is the adaptation of the mass products or services to the needs of the individual consumer. At the core of customization lies the individualization of consumer demand, prepared by the development of modern technology, which created the prerequisites for personifying of the service conditions.

The personalization of the supply requires the increasing of the telecommunication industry companies' flexibility, which could not be achieved in the conditions of the natural monopoly, classically justified for the communications industry. The experience of many countries shows that the modern telecommunication services market is undergoing the transformation toward imperfect competition. This market is an oligopoly in Russia (**Table 9**).

Currently, the Russian telecommunications market is formed by four main public corporations with 80% of the market approximately: "MTS," "Megafon," "VimpelCom" (brand "Beeline," currently within the EON Ltd. group of companies), and "Rostelecom." These companies are actively competitive among themselves within the whole period of their existence.

On the Russian telecommunications market, there are also several dozens of independent mobile phone operators. The largest is "T2 Mobile (Tele2)" company, which is in the competition with the "big three" of federal operators. However, ComNews Research analysts agree that the market share of the independent mobile phone operators will be reduced in the future in favor of the federal level players.

An important feature of the Russian telecommunication services market is the State protectionism, which manifests itself in the foreign investment restricting into the telecommunication industry, which the Russian government considers as strategic industry [20].

The main tasks of the government policy in the sphere of telecommunications in Russia can be as follows:

- the improvement of the system of regulatory legal regulation of the industry aimed at developing of telecommunication services market;
- the construction of modern national telecommunications infrastructure;
- the development of the competitive environment in the telecommunications market;
- the increasing of the telecommunications industry investment attractiveness;
- the development of new technologies supporting telecommunication services;
- the integration of the Russian telecommunication complex into the European and world telecommunication complexes taking into account national interests.

Another important feature of the Russian telecommunication services market is their social significance, generated by numerous external effects, including the effects in the field of personal and public security [21]. For these purposes, the concept of universal service has been formed in the regulatory framework. Such a service is characterized as

No	The sign name	The sign demonstration	
		In the conditions of a natural monopoly	In the Russian telecommunication market
1	The Supply Formation	One company	Several communication operators
2	The service substitutes	None	Differentiation of services and service products
3	The barriers to entry	High barriers are associated with significant institutional constraints	The weakening of the institutional and technological barriers
4	The source to low the average costs	Increase of the volume of service supply	Constant updating of the technologies used by new market participants

Table 9. The comparative analysis of the signs of the natural monopoly and oligopoly in relation to the Russian market of telecommunication services.

a certain minimum set of services of an established quality that are accessible to all users regardless of their geographical location at an acceptable price, established depending on certain national conditions. A universal service is a minimum guaranteed telecommunications service product. Universal service does not imply the customization, being essentially mass.

The high level of competition, the saturation of the market and the sophistication of consumers stimulate telecommunication companies to differentiate their supply. However, the copying of the claimed components of the service product leads to the fact that gradually a number of services are offered by the majority of participants in the telecommunications market, for example, the services of the promised payment or the possibility of changing the mobile operator with the maintaining of the mobile phone number. In this situation, the advantage is gained by the market participant who realizes more efficiently the customization of the service products offered to the consumer.

The formation of the service products allows to solve the following tasks to telecommunication companies [16]:

- to provide the consumers with discounts on services, tariffs for which are regulated by the state;
- to differentiate the standard set of the telecommunication services;
- to develop a wide range of niche offers, which is economically unjustifiably when they are individually representing at the market. At the same time, the service products may differ in the possibility of price management, the form of payment and the composition of the services provided in the service product.

The service products can perform on the telecommunications market in the following forms:

- integrated service packages [22], combining the voice services and the DATA-services in the tariff plans for at a fixed monthly fee, which provides a guaranteed return for the company;

- asymmetrical packages [23], covering the service with low profitability that leads in terms of customer loyalty, and driven high profitability service with low consumer loyalty.

The use of service products in the form of integrated packages of services from the point of view of the consumer is essentially the purchase of services in bulk (a single tariff including voice, Internet, text messaging), which is much cheaper than connecting services separately. For sales offices of telecommunications companies, the implementation of integrated packages is also convenient, since in this situation they offer a single integrated package of service. Previously, in addition to sell the basic service, it was also necessary to sell additional options, depending on the client needs.

In the service product, created in the form of an asymmetric package of services, the differences between the leading and the driven services, which are usually very noticeable when sold separately, are smoothed out. A leading service with the high loyalty can level out the low loyalty for slave, profitable service, when the consumer is interested in acquiring the leading service in any form, either separately or as part of a service product. Thus, such a service product increases customer loyalty primarily to a profitable service, as its consumption grows with the growth in sales for a “leader” service. As a result, the total revenue on two services, taken separately, is less than the revenue for the service product. The application of the concept of the service product developing for the telecommunication services market in the three types of telecommunications service products should take into account the following trends in changes in consumer preferences in the current state of technologies:

- the availability of any of the services regardless of the location of the consumer;
- the receiving of the content “on demand”, in particular, as a mobile video, the share of which in 2017, according to Cisco, was 66.5% of total mobile traffic, compared with 36% in 2012;
- access to the gaming capabilities of mobile devices, especially smartphones.

To strengthen the market positions, the telecommunications companies should:

- to introduce the new technologies to improve the quality and to reduce the cost of services;
- to increase the share of the supply of service products of these types, depending on the preferences of the telecommunication services consumers;
- to create the strategic alliances for the expanding of the resource capabilities to offer not only internal, but also external telecommunication service products in terms of resources and of the target function.

3. Conclusion

Currently, the development of the Russian market of telecommunication services, associated with the dissemination of the new technologies, is constrained by the population decrease of the revenues, the need for significant investments to the infrastructure change, by the

reduction in average prices per minute and per transfer of one megabyte of data and by increasing the exactingness of consumers of the telecommunication services.

Despite the fact that the technologies provide the continuous improvement of the quality of telecommunication services, the key aspect of interaction between the customers and the companies is currently the characteristics of the customer service process. In the conditions of saturation of the telecommunications services market, customization can be achieved through the formation and supply of the service products. By combining a set of products and services, the service product allows to satisfy simultaneously the needs of various groups of consumers due to the "floating" nature of the primary and secondary perceived utilities, as well as due to the interdependence of the invariant and variable attributes of the service product. In terms of secondary utility in the service product, it is necessary to distinguish additional, accompanying and derivative services.

From the economic point of view, the telecommunication service can be described by the benefits to the consumer, reflected in the invariant and variable attributes of the service. These attributes are combined in the service products in such a way to ensure demand on the basis of maximum possible compliance with consumers' expectations. The interchangeability of telecommunications services, due to the availability of various methods of the information transferring, usually leads to the emergence of new services on the market with improved quality parameters. Complementarity of services in the telecommunications market is supported by its network nature.

The "floating" nature of the primary utility and the digitalization of the economy led to the formation of three types of the service products involving telecommunications services. Domestic telecommunications products, formed on the basis of packet sales technology, combine products and services produced by enterprises and organizations of the telecommunications industry. The external telecommunication service products in terms of resources include the provision of equipment and mobile applications, including the network applications. To ensure this, the telecommunications companies, as a rule, have their own online stores. They also introduce themselves into the social resources network.

The prerequisite for the formation of the external telecommunication service products in terms of target function is the digitization of services in the modern economy. It is these services that represent the primary utility for the consumer. The telecommunication services can form the secondary utility for the consumer when they are a part of the service product together with the additional, accompanying, derivative services.

The main characteristics of the modern Russian market of telecommunication services should be considered the transition from a natural monopoly to an oligopoly, a strategic character of the telecommunication services market to ensure the implementation of state interests, the social significance of this market. The main forms of customization of the telecommunication services market offer are integrated and asymmetric packages of services.

The development of service products of all types plays an important role to increase the performance of telecommunication companies' activity. It is the service products that are the tools that make it possible to increase in the modern market conditions the attractiveness of both telecommunications services and telecommunications companies themselves for existing and potential customers.

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References

- [1] Suhanov PS. Perspektivnye napravlenija razvitija mirovogo rynka telekommunikacij [Prospective directions of development of the world telecommunications market]. Vestnik of the Plekhanov Russian University of Economics. 2013;**11**(65):102-109
- [2] Sigarev A, Kosov M. Threats to competitiveness of Russian telecommunication companies in modern economy. Financial Life. 2016;**4**:4-8
- [3] Yang Y, Yang B, Humphreys P, McIvor R, Cadden T. An investigation into E-business service in the UK telecommunication manufacturing industry. Production Planning & Control. 2017;**28**(3):256-266. DOI: 10.1080/09537287.2017.1280622
- [4] Oskina TA. Conditions of occurrence and the tendency of developing of service economy. RISK: Resources, Information, Supply, Competition. 2009;**2**:177-181
- [5] Kibkalo JV. Organizacionno-jekonomicheskoe obespechenie standartov telekommunikacionnyh uslug [Organizational and Economic Support of Telecommunication Services Standards]. Samara: SGJeU; 2012. 25 p
- [6] Kiselev SV, Shakirov MM. Soderzhanie, harakteristika i klassifikacija telekommunikacionnyh uslug kak ob#ekta issledovanija. [The content, characterization and classification of the telecommunication services as a research object]. Bulletin of Kazan Technological University. 2013;**16**(10):311-316
- [7] Neretina TG. Organizacija servisnoj dejatel'nosti [Organization of Service Activities]. Moskva: FLINTA; 2014. 102 p
- [8] Mumuni AG, Luqmani M, Quraeshi ZA. Telecom market liberalization and service performance outcomes of an incumbent monopoly. International Business Review. 2017;**26**(2):214-224
- [9] Gronroos CA. Service Management and Marketing: Customer Management in Service Competition. 3rd ed. Chichester: John Wiley & Sons; 2007
- [10] Parasuraman A, Berry LL, Zeithaml VA. Conceptual model of service quality and its implications for future research. Journal of Marketing. 1985;**49**(4):41-50

- [11] Zeithaml VA, Parasuraman A, Berry LL. Problems and strategies in services marketing. *Journal of Marketing*. 1985;**49**:33-46
- [12] Rajzberg BA. Vvedenie v jekonomiku uslug [Introduction to the Services Economics]. Moskva: MPSU; 2014. 152 p
- [13] Dagli O, Jenkins G. Consumer preferences for improvements in mobile telecommunication services. *Telematics and Informatics*. 2016;**33**(1):205-216. DOI: 10.1016/j.tele.2015.07.002
- [14] Chung JH, Yoo TH. Government policy, network externalities and mobile telecommunication services: Evidence from OECD countries. *Applied Economics*. 2015;**47**(21):2173-2183. DOI: 10.1080/00036846.2015.1005816
- [15] Kokovihin AJ, Ogorodnikova ES, Plahin AE, Pavlova AV. Strategicheskie al'ternativy rynka sotovoj svjazi Rossii. *Jekonomika: teorija i praktika* [Strategic alternatives to the cellular market in Russia]. *Economics: Theory and Practice*. 2017;**3**(47):42-46
- [16] Fedotov AV. Marketingovyje aspekty razvitija rynka telekommunikacionnyh uslug [Marketing Aspects of Development of the Market of Telecommunication Services]. Moskva: Publishing house of Nasirddinova V.V; 2012. 52 p
- [17] Granaturov V, Kaptur V, Politova I. Determination of tariffs on telecommunication services based on modeling the cost of their providing: Methodological and practical aspects of application. *Economic Annals-XXI*. 2016;**156**(1-2):83-87. DOI: 10.21003/ea.V156-0019
- [18] Chen LK, Yang WN. Perceived service quality discrepancies between telecommunication service provider and customer. *Computer Standards & Interfaces*. 2015;**41**:85-97. DOI: 10.1016/j.csi.2015.02.012
- [19] Alzami S, Shakya S, Boyd I. Transforming telecommunications service execution. *Journal of The Institute of Telecommunications Professionals*. 2017;**11**:22-26
- [20] Tarasova OY, Pakhomova YV. Influence of current trends of development of the Russian market of telecommunications on financial management of the enterprises of cellular communication. *Social and Economic Phenomena and Processes*. 2015;**10**(8):124-130
- [21] Milne C, Batura O. Liberalisation of telecommunications services: Social embedding of the liberalised market as a regulatory challenge. In: Batura O, editor. *Universal Service in WTO and EU Law: Liberalisation and Social Regulation in Telecommunications*. Berlin: Springer; 2016. pp. 11-61. DOI: 10.1007/978-94-6265-081-7_2
- [22] Perevoznikova MV. Clustering criteria of cellular communication market. *Vestnik of Astrakhan State Technical University. Series: Economic*. 2015;**4**:49-55
- [23] Makarov VV, Bershev SM, Aliev NM. Metodika adaptivnogo upravlenija potreblenijem uslug, predostavljajemyh v sostave paketov [The method of adaptive management of the consumption of services provided in the package]. *Journal of Creative Economy*. 2009;**11**:79-87

