

Digital Transformation of Economy: The Need for Integrated Introduction of Availability Rate of Telecommunication Services Within the Sustainable Development of Rural Territories

Proskura N.V.*

Nizhny Novgorod State University of Engineering and
Economics
Knyaginino, Russia
e-mail: Nvpro@mail.ru

Proskura D.V.

Rostelecom PJSC for digitalization of the industry
Kirov, Russia
e-mail: Nvpro@mail.ru

Shamin A.

Nizhny Novgorod State Engineering and Economic
University
Knyaginino, Russia
E-mail: ekfakngiei@yandex.ru

Denisova N.V.

Nizhny Novgorod State University of Engineering and
Economics
Russia, Knyaginino
e-mail: n.d.2704ngieiu@gmail.com

Abstract — In the course of the research, scientific works of both domestic and foreign researchers on the issue of sustainable development of rural areas, in terms of the possibility of using telecommunication technologies in agricultural production, as well as official statistics and documents were systematized. The methodology of the work was a dialectical method of cognition and a systematic approach. In the process of research, such General scientific methods and techniques as scientific abstraction, analysis and synthesis, and the method of comparison were used. This article analyses the target criteria presented in the Strategy for the Development of Rural Areas, proves the need for the introduction of an indicator of the provision of telecommunication services in rural areas of the Russian Federation in order to improve the well-being and quality of life of the rural population, to ensure the availability of services produced in the digital economy using modern digital technologies, to increase awareness and digital literacy, as well as one of the conditions contributing to the achievement of the Strategy targets, which is impossible without a telecommunication network and a whole range of telecommunication services. The main objective of the study was development of the complex of indicators on the availability of telecommunications services in rural areas in order to reflect their true significance in sustainable development. The stages of development of fixed telecommunications services in rural areas are identified, the need for a list of indicators for the provision of telecommunications services is identified, which, according to the author, will help achieve sustainable development targets for rural areas in conditions of the digital transformation of the economy.

Keywords — Sustainable development, rural areas, telecommunication services, strategy, development stages, rural telecommunication support.

I. INTRODUCTION

The Strategy for Sustainable Development of Rural Areas approved by decree of February 2, 2015 No. 151-r proposes a

number of indicators for continuous monitoring and improvement. Achieving positive results of key indicators should directly lead to the formulation and implementation of the main goals. The main goal of the analyzed strategy is to create favorable socio-economic conditions for rural areas to fulfill their socially significant functions and solve territorial development tasks, as well as to increase the efficiency of agriculture and the contribution of rural territories to the country's socio-economic development. Currently, the country is at the end of the transition phase, which has been going on since 2015 and, according to the idea of the strategy, will be completed in 2020. It is important to understand that 2020 is a key year in determining work efficiency and the quality of rendered telecommunication services. Since 2021, it is planned to move to the main stage of the strategy implementation.

During this stage along with measures to improve the quality of life and the level of welfare of the rural population, mechanisms will be formed to increase the attractiveness of the village among young people by providing social services and guarantees, increasing the availability of telecommunications services, ensuring spirituality and meeting leisure needs.

Achieving the goals and objectives of the Strategy is determined by bringing to a certain level by 2030 the main targets presented in table 1.

According to the table, it is seen that the main targets of the Rural Development Strategy are indicators characterizing not only stabilization of the rural population, but also poverty reduction by increasing the employment level of rural residents, as well as promoting sustainable consumption and production patterns. An important role in the number of targets is assigned to the rural development policy, which is

analyzed from the point of view of the living conditions of the rural population, the level of infrastructure (kindergartens, schools, the presence of fieldsher-obstetric points, paved roads, etc.).

TABLE I. MAIN TARGETS PRESENTED

No.	Rate	Units of measurement	2030
1	Stabilisation of the rural population	million people	35
2	Increase in rural life expectancy	years	75,6
3	Reduction of the migration outflow of the rural population	thousand people	74,1
4	Ensuring the average annual growth rate of agricultural production	%	5,5
5	Increased level of rural employment	%	65,5
6	Expansion of the network of fieldsher-midwife centres and (or) offices of general practitioners in rural areas	thousand units	1,7
7	Increase in the share of the rural population systematically engaged in physical education and sports	%	37,7
8	Increase in the proportion of rural settlements connected to paved roads with a road network	%	80

^a Source: it is compiled by the author based on studies

II. MATERIALS AND METHODS

Digitalization of processes in the economy is becoming a comprehensive trend, covering not only the information and communication industry, but also all areas of economic activity, including rural areas [16]. In modern conditions, the development of rural areas and the information and telecommunications sector must take into account the "digital reality" in which the country's population is located, namely, the provision of households operating in the Russian Federation with Internet access (table 2).

TABLE II. INTERNET ACCESS IN HOUSEHOLDS,% OF THE TOTAL NUMBER OF HOUSEHOLDS

Rate	2010	2013	2014	2015	2016	2017	201.
Internet	48.4	67.2	69.9	72.1	74.8	76.3	76.6
Broadband internet	-	56.5	64.1	66.8	70.7	72.6	73.2

^b Source: it is developed by the author based on research materials.

It should be noted that the share of household access to the Internet over the period under review has increased significantly. It should be noted that this growth was mainly due to the adoption of administrative decisions at the state level for the development of the digital economy. However, there are disproportions between the availability of the Internet network of the urban and rural population (table 3).

According to the studies, the main factors hindering the use of the Internet in households in urban and rural areas include lack of user interest, lack of Internet skills, high connection costs, lack of technical connectivity, as well as for security reasons.

It is important to note that in the framework of the Strategy currently in force in the list of targets presented as indicators of the sustainable development of rural areas, there is no

indicator of the effectiveness of work and the provision of telecommunication services. The only mention of it is given in paragraph 16 "The share of rural households that have access to the information and telecommunication network "Internet" from a home computer". This indicator is clearly not enough for rural areas to develop at a steady pace, because access to the Internet in today's realities is no longer measured simply by the existence of the very fact of this access.

TABLE III. INTERNET ACCESS IN HOUSEHOLDS IN URBAN AND RURAL AREAS FOR 2018, IN % OF THE TOTAL NUMBER OF HOUSEHOLDS

Rate	All in all	Urban area	Countryside
Internet	76,6	79,7	67,1
Broadband Internet	73,2	77,3	60,7
Access to the Internet from a personal computer	69,0	73,4	55,4

^c Source: it is developed by the author based on research materials.

TABLE IV. INDICATORS OF RURAL TELECOMMUNICATION SUPPORT THAT DIRECTLY DEPEND ON INTERNET ACCESS TO ASSESS THE MAIN COMPREHENSIVE INDICATOR OF SUSTAINABLE DEVELOPMENT OF RURAL AREAS OF THE RUSSIAN FEDERATION

№	The main indicator in the Strategy	Strategy paragraph Number
1.	The index of agricultural production in farms of all categories (in comparable prices) to the previous year	p.4
2.	The share of peasant (farmer) households and individual entrepreneurs in the production of agricultural products	p.5
3.	The growth rate of revenue from the sale of goods, products, works, services of agricultural consumer cooperatives (in comparable prices) to the previous year	p.6
4	The proportion of the total area of residential premises in rural settlements equipped with all types of improvement	p.11
5.	The proportion of educational institutions in rural areas with water supply, central heating, sewage	p.13
6.	The share of rural households which have access to the Internet telecommunications network from the home computer	p.16
7.	Availability of stationary premises for veterinary hospitals, sites and points administered by executive authorities of the constituent entities of the Russian Federation authorised in the field of veterinary medicine, stationary premises	p.18

^d Source: it is compiled by the author based on the study and analysis of the text of the Strategy.

When analyzing the indicator of telecommunication services, we will adhere to the hypothesis that it is fixed services that provide the opportunity to interest and retain the population in rural areas and to develop local agriculture, thereby contributing to the sustainable development of rural areas. Consequently, an integrated approach to considering the use of telecommunication services is necessary.

The Appendix to the Strategy provides a list of indicators for which there is a systematic monitoring of areas for further development, which helps to increase the attractiveness of rural life. During the monitoring of indicators, numerous disadvantages were identified for a comprehensive review and use of telecommunication services resources, which are currently involved in all spheres of life and activity, and not

just in the use in the segment of individuals on a personal computer.

Therefore, for further analysis, it is necessary to identify a number of critical points:

- The Internet is presented only as a resource and not a service (paragraph 16);
- The impossibility of the functioning of other indicators of the list, directly or indirectly dependent on access to the Internet, is not indicated. Among these indicators include – 4, 5, 6, 11, 12, 13, 18 the wording of which is presented in table 4. Of the 18 indicators, 7 indicators directly discussed in table 1 depend on;
- Identification of indicators in the telecommunications sector in rural areas
- Development of a comprehensive indicator on telecommunications services necessary to increase the sustainability of rural development.

Thus, achieving the target indicators presented in the Rural Development Strategy is impossible without availability of rural areas with a telecommunication network and a whole range of telecommunication services.

III. RESULTS

In order to prove how telecommunication services are integrated into everyday life, including in rural areas, it is necessary to identify the stages of development of fixed telecommunication services in rural areas (table 5).

Within the framework of the first period of development of fixed telecommunication services with order to providing them, the telecom operator built a communication network in the village based on copper cable and installed a telephone exchange. At first it was a coordinate telephone exchange, later it was a digital one. The level of telephony in rural areas, depending on the level of rural development, now ranges from 60 to 90 %.

In the period from 2000 to 2010, which characterizes the second stage of the period of development of telecommunication services, the Internet appears, access to which was provided using a modem. The modem worked on the same copper pair as the telephone and provided data transfer at speeds up to 56 Kbps. The next step was the emergence of Asymmetric Spectral Signal Compression (ADSL) technology, which made it possible to increase the information reception rate to 6–8 Mbit/s and the transmission speed to 256–1024 Kbit/second. However, in conditions of the digital transformation of the economy and the development of the information society, this is clearly not enough to get a full-fledged Internet access service. It is difficult to talk about packaging with other services, since the addition of each subsequent service leads to a multiple fragmentation of the incoming speed.

As a result of the implementation of the federal target program “Social development of the village until 2012” approved by Decree of the Government of the Russian Federation of December 3, 2002 No. 858, a payphone was

installed in each settlement with the aim of obtaining uninterrupted telephone communication with the outside world. The implementation of this program marked the beginning of the third stage in the development of fixed telecommunication services. All territories where there was not even a telephone connection before, not to mention the Internet, were given the opportunity to make calls and communicate.

TABLE V. STAGES OF DEVELOPMENT OF FIXED TELECOMMUNICATION SERVICES IN RURAL AREAS

The boundaries	The stage	Characteristic
The first stage – The end of the 1960–2000	«Installation of telephones»	1)The provision of a fixed service using a copper cable line connecting the automatic telephone exchange (PBX) of the telecom operator with the telephone of the subscriber at a specific address. 2)To ensure intra-zone and long-distance communication, the telephone exchange of the settlement is connected to the district center by the inter-office communication line (ICL)
The second stage – The end of the 1960–2000	«Cooper cable internetization»	1) The advent of the Internet access, which was provided using modems. 2)Introduction of Asymmetric Spectral Signal Compression ADSL) technology
The third stage – 2006–2012	«Payphone»	installation of payphones in remote rural areas of the Russian Federation in order to ensure the possibility of uninterrupted telephone communication with the outside world
The fourth stage – 2014–2017	«Eliminating the digital inequality»	1)creation of an additional optical network for the 2012 Web election 2)providing access to the Internet network of settlements of the Russian Federation with a population of 250 to 500 people
The fifth stage – 2019–2024	«Socially significant objects»	1)construction of optical communication lines 2)Internet access equipment to each socially significant object

^e Source: it is compiled by the author based on studies.

The fourth stage in the development of telecommunications services is associated with amendments to the Federal Law “On Communications” on February 3, 2014, within which data transmission services and providing access to the Internet telecommunication network using access points should be organized in all settlements of the Russian Federation with a population of 250 to 500 people. This helped to reduce social inequality in the provision of data services, access to the Internet, as well as obtaining the necessary government services in digital format.

By order of the Government of the Russian Federation dated July 28, 2017 No. 1632-r, the program "Digital Economy of the Russian Federation" was approved under which, from 2019 to 2024, the program access to a unified data transmission network and the Internet will be provided to socially significant objects, which include: feldsher-obstetric centers (FAPs), schools, rural administrations and a number of

other objects. The contract sets the data transfer rate from 10 to 100 Mbit/s. depending on the category of socially significant object (SZO). To implement the project, the telecom operator must be prepared for the maneuverability of its actions. If there was no operator's communication center in the village, then the contract obliges the operator to organize such a center to connect the SZO and further connect other users.

As we see, from the five stages of development of fixed telecommunication services in rural areas that we proposed, their development proceeds in a cycle, with an increase in the quality filling of the services provided. This, of course, leads to the sustainability of development, that is, to the ability to promptly and adequately respond to changes in the world. The concept of "Sustainable Development" came from the technical sciences, in particular, mechanics. In this case, stability is defined as the ability of the body, when moving or at rest, to withstand internal and external influences that are aimed at changing the initial position. Therefore, this interpretation is already suitable for the economic aspect: "the stability of the system is the higher, the less it depends on external factors ...".

The experience of foreign countries in developing the industry of information and telecommunication technologies is interesting, namely, Internet access in households of countries of different levels of economic development.

There is a negative point. The fact is that Russia is not quite a leader in comparison with other economically developed countries, inferior to the United States, France, Germany by 1, 12, 17 %, respectively. The Republic of Korea currently holds the leading position in the chain of countries, where the value of the analyzed indicator is 99% of the total number of households.

In this regard, right now, fixed telecommunications services are the main mechanism for the sustainable development of rural areas. They are able to "link" both a villager and rural production to the area where sustainable development is taking place and there is the opportunity to develop not only as individuals, but also to receive modern education and decent social services.

Based on the list of indicators of sustainable development of rural territories, we plan to comprehensively approach its calculation in terms of the indicator of telecommunication services, with the aim of improving the quality and reducing imbalances in the development of rural territories. The fact that only one indicator on telecommunication services is included in the methodology once again serves as proof of the small number of research projects on the development of rural territories. But, nevertheless, there are interesting and deserving close study and further development of scientific works.

IV. DISCUSSION

A great contribution to the study of rural areas was made by Akimova V.V. The author analyses the specifics of rural areas of Russia in terms of natural living conditions, uneven settlement, long-term migrations of the rural population to

cities and a rare network of large cities that have a strong impact on the suburban area. It notes the strengthening of the territorial division of labor and the polarization of rural space, which led to significant environmental consequences. The necessity of developing infrastructure and equalizing the opportunities for rural residents in different regions to access services is emphasized.

In her work "Institutional Issues of Sustainable Development of Rural Territories of Russia" Loginova D.A. and Stokov A.S. indicate insufficient elaboration of indicators of the effectiveness of rural development, the need for certainty in the presentation of indicators. And this means that information security and systematic control are important criteria.

The telecommunications industry is now one of the main sectors responsible for life support. This fact gives impetus to the formation of completely new needs that did not exist before: telemetry services based on machine2machine technology, virtual data warehousing, etc. For balanced development, this principle should apply not only to urban areas, but also to rural ones.

Based on the stages of development of fixed telecommunication services presented in table 1 in rural areas, the study of the works of domestic and foreign specialists, as well as the Strategy for the sustainable development of territories, we can draw the following conclusions, make suggestions and recommendations:

1. Information lack, and in some cases its absence, is detrimental to the functioning of rural territories. Problems in providing information require a high-quality and transparent approach to solving them.

2. To fulfil eight of the eighteen indicators outlined in the Strategy, a number of additional indicators characterising the telecommunications component of rural development are needed.

3. In connection with the continuous development of telecommunication services using broadband Internet access, new needs are being formed.

4. It is necessary to determine a comprehensive indicator of telecommunication services that takes into account the requirements of constantly changing or emerging new needs. Such an indicator will represent the sustainability of rural telecommunications and allow systematic monitoring of the socio-economic and technical condition of rural areas.

The logic of development of any territory, and even more so of the rural one, is based on the successive passage of each stage, the quality development of each selected indicator. It often happens that the further development of the territory may be difficult not so much because of its impassability or risky natural and climatic conditions, but because of the untimely provision or lack of any information. This determines the relevance of the implementation of the proposed comprehensive indicator of telecommunications services.

Consequently, only one of the indicators proposed in the Strategy for Sustainable Development of Rural Areas - this is clause 16 "the proportion of rural households that have access to the information and telecommunication network" "Internet "from a home computer" indicates the need for the presence of

telecommunication services. In the remaining seventeen there is no direct or indirect indication of the need for the availability of quantitative and qualitative telecommunication services. In fact, it is important to understand that in modern living conditions almost no indicator can be performed without the presence of a telecommunication wrapper. So, in

order to carry out agricultural production (for example, paragraph 4 "Target indicators of sustainable development of rural territories of the Russian Federation"), it is necessary that, as a basis for each of the complexes (industrial premises, etc.) an optical cable be connected to each of the complexes.

TABLE VI. INDICATORS OF RURAL TELECOMMUNICATION SUPPORT FOR THE MAIN COMPREHENSIVE INDICATOR OF SUSTAINABLE DEVELOPMENT OF RURAL TERRITORIES OF THE RUSSIAN FEDERATION

Strategy item no.	The main indicator in the Strategy	Opportunities for residents and organizations with telecommunication services	telecommunication resources and services for the implementation of the Indicator	Necessary additional telecommunication indicators for the main comprehensive indicator of the Strategy
p.4	The index of agricultural production in farms of all categories (in comparable prices) to the previous year	1) Uninterrupted production; 2) Acceleration of workflow; 3) The ability to monitor activities; 4) The possibility of saving resources (electricity, water, etc.); 5) Interactions with counter-parties; 6) The ability to receive / pay loans for business; 7) Conducting web-elections and voting	1) broadband access; 2) Geoservices; 3) M2M 4) ESED	1) The share of arable land located in the monitoring zone of 2) The proportion of cattle falling under the monitoring of; 3) The share of organisations using the ESED Desed system,%; 4) The proportion of buildings connected to M2M (= broadband access and IPU)
p.5	The share of peasant (farmer) farms and individual entrepreneurs in the production of agricultural product			
p.6	The growth rate of revenue from the sale of goods, products, works, services of agricultural consumer cooperatives (in comparable prices) to the previous year			
p.12	Commissioning of FAPs and (or) offices of general practitioners in rural areas	1) Access to medical information systems 2) The ability to receive patient data 3) Conducting videoconferencing 4) Online consultations	1) broadband access; 2) CCTV / Camcorders; 3) Telemedicine; 4) Virtual COD	1) The proportion of FAPs connected to broadband access, %
p.18	Provision of veterinary hospitals, sites and points under the authority of the executive bodies of the constituent entities of the Russian Federation authorized in the field of veterinary medicine with stationary premises			1) The share of veterinary hospitals connected to broadband access,%;
p.13	The proportion of educational institutions in rural areas with water supply, central heating, sewage	1)Conduct online lessons 2) Monitoring the quality of education	1)Broadband access; 2) Video surveillance of the exam; 3) Student platforms "Lyceum"	1) The proportion of TOEs connected to broadband access,%; 2) The share of public organisations equipped with a CCTV system,%; 3) The proportion of NGOs with student platforms,%
p.11	The proportion of the total area of residential premises in rural settlements equipped with all types of amenities	1) Obtaining relevant information, keep abreast of all events; 2) video surveillance of the household; 3) entertainment, leisure; 4) raising the level of education; 5) Access to online government services, services of banks, shops, etc. 7) The ability to receive / pay loans; 8) monitoring of life-support systems metering devices: electricity, water supply	1) Broadband access 2) Video surveillance / Camcorders; 3) Interactive digital television	1) The share of the HF connected to the broadband access,%;
p.16	The share of rural households with Internet access from the home computer			2) The proportion of households equipped with video surveillance system,%; 3) The proportion of households with IPA,%

In this regard, the following should be provided as priorities: a broadband Internet access service at a speed of 100 Mbps, IP telephony, geo services, video surveillance,

video conferencing systems and a single electronic document management system, smart electricity and water meters, "smart" street lighting, interactive digital television and more. All these telecommunication services are intended not only to assist in the production of agricultural products, but also significantly save resources due to systematic monitoring. In this regard, there is a scientific and practical interest in

analyzing the indicators proposed in the Strategy from this point of view. The list of abbreviations used in the table is: TLK – telecommunication, VKS – video conferencing, DH – household, ESED – single electronic document management, IPU – individual metering device, M2M – Machine to Machine, public educational institutions, FAP – feldsher-obstetric point, BA – Broadband access.

Thus, table 6 presents the author's list of indicators, which can be given the general term "rural telecommunication support". In fact, an analysis is made of the

telecommunications component of rural development, based on the above grouping of telecommunication services by the degree of influence on the sustainability of rural development. The list of identified indicators is organically inscribed in the initial list of indicators of sustainable development of rural territories. Each of the telecommunications components is at the same time an independent indicator. Therefore, in our opinion it is not advisable to prioritize any of them at this stage, since the importance of each indicator directly affects the comprehensive positive result of the development of the information and telecommunication network in rural areas.

V. CONCLUSIONS

Thus, for the sustainable development of rural areas, it is necessary to assess not only economic and economic indicators, but also indicators characterizing social factors that improve the quality of life of the rural population. Today rural territories are huge reserve in terms of developing agricultural production, reducing imports and increasing the level of provision of the country's population with products of its own production. At the same time, in modern economic conditions (sanctions, food embargo and pandemic) the state should have a significant impact on the regulation of issues related to the sustainable development of villages and rural territories in general. This determines the level of well-being, quality of life of rural villagers, the attractiveness of village, the development of sub-sectors of agriculture and related industries (the importance of which is increasing in the conditions of digitalization of the economy), which affects not only the provision with resources of rural population, including telecommunications, but also the achievement of programs' targets currently operating in the Russian Federation. In this regard, we propose a set of indicators characterizing the level of digitalization of the rural population. We believe that the implementation of these measures in a complex will solve the main tasks of the Strategy and will allow bringing rural areas to a qualitatively new level of development, providing a balanced solution of economic, social and environmental problems while maintaining the natural resource and historical and cultural potential of the countryside.

References

[1] G.I. Abdrakhmanova, K.O. Vishnevsky, L.M. Gokhber et al., Indicators of the digital economy: 2019 – statistical collection. Moscow: HSE, 2019, 248 p.

- [2] V.V. Akimov, E.V. Belousova, "Development of methodological foundations of sustainable development of rural areas", *Bulletin of Moscow University. S.V. Witte. Series 1: Economics and Management*, vol. 2, no. 29, pp. 16–23, 2019.
- [3] M.S. Arzumanyan, "Sustainable Development of Rural Areas", *Azimuth of Scientific Research: Economics and Management*, vol. 8, no. 4, iss. 29, pp. 57–60, 2019.
- [4] V.M. Juha, A.N. Kuzminov, R.R. Pogosyan, "Problems and main factors of sustainable development of rural territories", *Accounting and Statistics*, vol. 3, no. 55, pp. 84–91, 2019.
- [5] O.O. Zaitseva, "Rural territories as an object of management: concept, functions, typologies" *Fundamental Research*, no. 6-2, pp. 416–420, 2013.
- [6] I.V. Kovaleva, "Formation and development of territorial and industrial localization of rural territories: theo-retical and methodological approach", *Modern Economy Success*, no. 4, pp. 58–61, 2019.
- [7] The concept of long-term socio-economic development of the Russian Federation for the period until 2020. Retrieved from: http://www.consultant.ru/document/cons_doc_LAW_8213 (accessed March 15, 2019).
- [8] D.A. Loginova, A.S. Stokov, "Institutional issues of sustainable development of rural territories of Russia", *Issues of state and municipal administration*, no. 2, pp. 115–140, 2019.
- [9] A.V. Mikhilev, N.L. Kharina, "Development of rural territories as an instrument for managing the quality of life of the population of Russia", *Bulletin of the Kursk State Agricultural Academy*, no. 7, pp. 27–29, 2014.
- [10] A.Yu. Pavlov, A.A. Kudryavtsev, "Analysis of changes in rural development indicators in the Russian Federation" *International agricultural journal*, no. 1, pp. 14–21, 2020.
- [11] Program "Digital Economy of the Russian Federation". Retrieved from: <http://www.consultant.ru> (accessed March 15, 2020)
- [12] N.V. Proskura, "Possibilities of applying telecommunication technologies in agriculture", *Achievements of science and technology of the agro-industrial complex*, no. 12, pp. 66–67, 2012.
- [13] D.V. Proskura, N.V. Proskura, "Analysis of telecommunication services in the context of the basic characteristics of a service", *Economics and Management*, vol. 12, no. 121, pp. 75–79, 2014.
- [14] The strategy of sustainable development of rural territories of the Russian Federation for the period until 2035. Retrieved from: http://www.consultant.ru/document/cons_doc_LAW_174933
- [15] N.S. Timofeeva, "Strategic planning as the most important element of sustainable development management in rural areas", *Bulletin of the Kemerovo State University. Series: Political, Sociological, and Economic Sciences*, vol. 4, no. 1, pp. 143–148, 2019.
- [16] G. Eason, B. Noble, I.N. Sneddon, "On certain integrals of Lipschitz-Hankel type involving products of Bessel functions", *Phil. Trans. Roy. Soc. London*, vol. A247, pp. 529–551, April 1955.
- [17] A. Shamin, O. Frolova, V. Makarychev, N. Yashkova, L. Kornilova, A. Akimov, "Digital transformation of agricultural industry", *IOP Conference Series: Earth and Environmental Science*, no. 346, 2019. 012029.10.1088 / 1755-1315 / 346/1/012029.
- [18] V.V. Maslova, N.F. Zaruk, K. Fuchs, M.V. Avdeev, "Competitiveness of agricultural products in the eurasian economic union" *Agriculture*, vol. 9, no. 3, pp. 7, 2019.