

BUSINESS OVERVIEW



In addition to the growth of key business indicators, in 2019 we successfully implemented a number of projects aimed at developing the Company in the long term, including reducing the number of target markets and focusing on the key market; we introduced a matrix organizational structure built around four main business areas: telecommunications, fintech, media, cloud and digital business solutions. Key positions were occupied by talented young leaders who will strengthen their functions thanks to a flexible management system. We approved a new business strategy until 2022, aimed at creating a digital ecosystem based on the main telecommunications business, and we continue to invest in promising growing areas.

Aleksey Kornya,
President of MTS

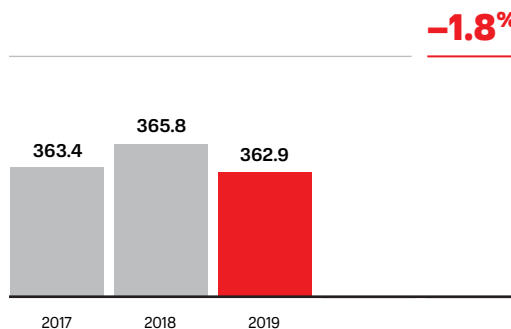
TELECOMMUNICATION BUSINESS

MOBILE BUSINESS

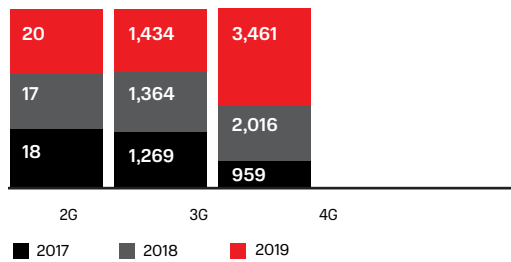
Russia

From launch up to the present, the line of SMART billing plans is the main product sold by MTS. The Voice & Data package is oriented toward the fast-growing segment of smartphone users and meets the needs of current market subscribers. For a given subscriber fee, a data plan includes packages of minutes, SMS and internet traffic. With a significant increase in mobile-traffic consumption, both in absolute terms and per subscriber, our subscribers retained the same level of voice-service consumption, which made it possible for us to stabilize the ARPU level. The share of subscribers served under package tariffs exceeded 63% of the subscriber base.

\\ Voice traffic, million minutes



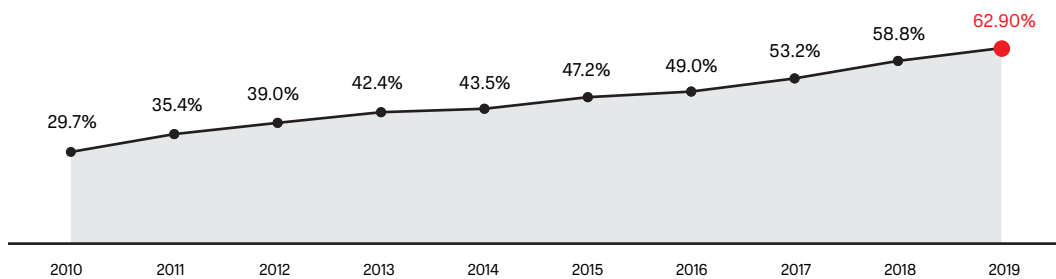
\\ Mobile traffic, PB



Consolidated revenue

476.1
billion rubles
+5.5% compared to 2018

\\ Penetration of mobile internet users in % of monthly active users, 2010-2019



Focusing on global practices in the development of digital services, MTS develops current offers for different segments. In December 2019, MTS for the first time offered its customers the opportunity to formulate their billing plan based on artificial intelligence algorithms. Within a month, artificial intelligence analyzes the client's communication style and forms a personal tariff that will take into account the needs and optimize the cost of mobile communications and the internet.

For young and active MTS subscribers, an X billing plan has been developed, focused on unlimited internet, on popular social networks, games, and video and online music services. On other resources, traffic is consumed from the internet package included in the tariff.

Travelling subscribers are offered the Favorite Number service to the Zabugorishche option, thanks to which customers will be able to make unlimited calls from abroad to one number of any Russian operator. Users who have activated the Zabugorishche option will be able to make and receive calls from the selected number without restrictions.

The introduction of both personal and target-oriented billing plans helps increase customer loyalty and emotional affection for the brand, as well as improve customer experience, which is reflected in the strategic priorities of the Company for 2020–2022.

Fixed-Line Communication

Growth rates of the Russian internet broadband-access (BBA) market continue to fall — in 2019, subscriber growth was 1.4% (in 2018 – 1.8%, in 2017 – 4.1%). The service is developed mainly due to the growth in the number of private users (including through the connection of a new housing stock), but, considering the penetration of 60% at the end of 2019, the market is saturated not only in the large but also in the majority of medium-sized cities. This is largely due to the gradual exhaustion of growth opportunities due to the old housing fund. According to the results of 2019, ARPU as of the end of 2019 amounted to RUB 355, which is 2.8% higher than the actual of 2018. The increase in the indicator is due to the increase in tariffs at the beginning of the year, as well as the rejection of “slow” tariffs by subscribers and their migration to faster and, accordingly, more expensive billing plans within the framework of updated tariff lines of telecom operators.

As of year-end 2019, penetration in cities with a population of more than 50 thousand people exceeded 70%. With that, the competitive situation in these cities is generally quite tough – services are offered by at least three operators, both federal and local. The operators have already exhausted the opportunities for organic growth. Nevertheless, according to the results of 2019, MTS showed an increase in subscriber base by 5.7%, and an increase in revenues by 4.3%¹.

In the context of market saturation, the main strategy in the fixed broadband market is attraction and retention of subscribers through promotion of bundled offers, access speed, introduction of convergent services. In 2019 the leading providers continued the work to develop convergent fixed-line and mobile services. As of the end of 2019, mobile communication services (including in the MVNO format) are presented in the offers of all broadband access operators in Russia, with the exception of Er-Telecom, which completely abandoned its convergent business in 2019. MTS continued to actively develop this area of convergent products in all regions where the fixed business is present in 2019.

Fixed-Line Communication Services

MTS continues to systematically follow the strategy of improving the quality of our fixed-line products by upgrading the networks, launching digital and interactive TV services, expanding the capacities of the main channels for the growth of speed rates for the subscribers.

MTS was the first of terrestrial pay-TV operators to launch the UltraHD channel in its cable network DVB-C and on the satellite platform. Broadcasting in UltraHD format is considered by MTS as one of the pay-TV market growth drivers for the short-term. Supersharp UltraHD broadcasting was always the prerogative of the satellite TV market. Launch of UltraHD in the cable segment, directly in MTS, will give momentum to development of the new generation TV market in Russia, stimulates demand and opens new opportunities and markets for owners of high quality content. We provide more than 180 TV channels of digital quality, including more than 40 HD channels and 4 TV channels in ultrahigh definition 4K standard.

DTV penetration in 2019 remains at 90%. The basic package includes about 140 channels, including more than 20 HD channels and 1 UltraHD channel. It is the largest basic package of the regional markets, which is also included in all package offers with broadband access and telephony. As a part of the implementation of the investment program for the development and modernization of fixed networks, MTS plans to develop high-speed internet in the target regions with the provision of access speeds of up to 500 Mbit/s in 2020–2023.

In 2019, MTS continued the development of a new TV platform which extends the capabilities of conventional TV through interactive components.

Convergent

The launch of convergent services is a part of the MTS ecosystem development program. Convergent products are one of the key tools to retain subscribers and increase their loyalty. Combining the capabilities of fixed and mobile communications, the Company designs and develops convergent services. As a part of the new strategy, MTS intends to significantly increase the number of convergent subscribers. All MTS billing plan is a package of services in three telecommunication areas: home internet + TV + mobile communications. The Company is the only operator in Russia, which, in addition to standard telephony, internet, cable or IPTV, also allows connection to satellite TV services. The development of convergent products is seen as one of the main drivers of fixed-line sales growth. Currently, the share of users of the All MTS billing plan is 26% of the total MTS subscriber base.

Developing the direction of convergent products, the Company introduced two new solutions to the market in 2019: Satellite TV and 4G router

¹ Revenue gross 2019.

and Mobile connection as a gift for Satellite TV. As a part of the convergent product Satellite TV and 4G router, a user will be able to purchase a mobile router with the possibility of organizing a Wi-Fi network, satellite equipment at a discount and access to 192 satellite TV channels. Mobile communication as a gift to Satellite TV combines access to 201 channels of satellite TV and all the advantages of the Tarifishche billing plan with unlimited internet access.

As of the end of 2019, the geography of convergent services covers 51 region of Russia.

All existing services of mobile and fixed-line communications are available for additional connection in the All MTS package:

- > thematic/premium TV packages,
- > high-speed home internet,
- > rewind and record function in interactive TV,
- > protection for children against unwanted content in the interactive package,
- > MTS mobile communications discounts, and
- > payment of all services from a single account – mobile telephone number.

RETAIL DISTRIBUTION

SALES CHANNELS

The MTS retail chain remains the primary channel for attracting MTS subscribers, more than 40% of all SIM-cards are sold at MTS outlets. MTS own network demonstrates the highest rates in the number and quality of SIM-card connections.

MTS remains the largest non-food retail chain in Russia. At the end of 2019, the number of MTS outlets amounted to 5,700.

At MTS offices, subscribers receive a full range of services provided by the operator, including services involving broadband access to the internet and television. Being points of contact with the ecosystem of the Company, MTS outlets allow increasing cross-sales. Any new service released by the Company automatically becomes available for sale in the retail chain office. Furthermore, we offer to retail chain customers an extensive list of financial services, such as: consumer lending, money transfers, credit repayment, life insurance (voluntary medical insurance), product insurance, and MTS Money cards.

Together with the M.Video – Eldorado Group, retail electronics stores were opened in 2019. The first pilot project in the framework of the partnership was the MTS + M.Video co-branded store of digital electronics and communications, located in Moscow. The synergistic effect of the interaction for both buyers and customers and for the companies themselves will be achieved through the expertise of M.Video in the field of retail management and through the digital services of the MTS ecosystem. Opening a new store format for the Russian market will help attract a new audience and increase ARPU.

Earlier this year, another retail format was also introduced – special MTS racks were installed in large M.Video stores in Moscow and Kirov, as well as in Detsky Mir stores in 18 cities of Russia. According to the results of the six-month “pilot,” more than 12 thousand SIM-cards were sold at the racks.

Our own sales channel enables us to more effectively manage the number and quality of activations, as well as to maintain our level of service.

The main priorities of MTS sales channel management in 2019 were as follows:

- > development of sales of convergent products, including mobile communication and data services, broadband internet access, as well as Satellite TV MTS,
- > leadership in service quality among single-brand retail,
- > retail network optimization and increased operational efficiency, and
- > maintaining high client flow at MTS outlets.

B2B/B2G

B2B

The MTS B2B segment in 2019 showed steady growth by 2%. The main drivers of segment growth remain cloud solutions, Big Data, ISS services, M2M/IoT services, Digital advertising and VPN. They accounted for more than 12% of total B2B segment revenues. Cloud solutions continue to be the most actively developing area. In many respects, this was facilitated by the development of the #CloudMTS cloud provider based on its own data centers, as well as activity in the M&A market – the purchase of the provider IT Grad 1 Cloud LL provider. The launches of a whole range of cloud services, such as an antivirus for the public cloud, a new service for the Russian market together with Kaspersky Lab, has also aided the development of MTS' cloud business.

In October 2019, the #CloudMTS cloud provider launched services for creating private and hybrid clouds based on the Avantage data center. Hybrid cloud spheres involve the simultaneous use of both private and public clouds. As a part of private cloud projects, companies are provided with dedicated IT equipment that runs an individual cloud for each client. Using private clouds, banks, for example, will be able to reduce IT costs and fulfill their characteristic requirements associated with bank secrecy and personal data. By creating hybrid schemes, retail companies, for example, will be able to process all incoming orders at the peak of sales, distributing the increasing load.

Among the new IoT products, a comprehensive solution has been in demand to increase the level of employee safety in the production, mining and construction sectors. The product allows the user to create a “digital copy” of an employee in real time and observe their movements and the nature of their activity. This helps to simultaneously increase safety and control labor efficiency.

In addition, a new platform was launched to implement vertical industry-specific IoT solutions and manage IoT devices. It belongs to the industrial class and allows millions of smart devices, sensors and robots to simultaneously connect. Platform users will be able to simultaneously monitor indicators of water and light consumption, operation of production lines, air conditioning and ventilation systems, and manage the office building, parking lot, and video surveillance. The platform supports

10 thousand models of various devices using any available connection method, including 2G, 3G, 4G, WI-FI, Ethernet, as well as the energy-intensive Internet of Things network NB-IoT.

One of the largest system integrators in Russia, NVision Group JSC, a member of the MTS Group, has begun construction of the first Russian corporate wireless broadband LTE networks (private LTE), which will later become the technological base for digitalization of large businesses. The partner in this agreement is Ericsson, the world leader in ICT. Private LTE networks are a universal digital base for the introduction of a wide range of services at socially significant and industrial facilities with increased safety and reliability requirements: in urban public transport and utilities, in energy, chemical and other key industries.

Continuing to diversify the activities of the Company, MTS announced that it was the first Russian telecom operator to enter the market of electronic trading platforms. At the moment, the MTS Bidding service is represented by lots with real estate, IT and technological equipment, metal, cars, household appliances, furniture, and other categories of goods. One of the main advantages of the service is the ability to sell unused or to-be-disposed goods that are listed on the balance of large IT, telecommunication, financial and industrial companies.

In 2019, MTS continued to develop services for small and medium-sized businesses. So, at the beginning of the year, the Company began to provide online ticket offices for rent. This decision is aimed at entrepreneurs who were obliged to switch to online cash desks before July 1, 2019. Renting a cash register will allow entrepreneurs to minimize one-time costs for cash registers, gain access to a goods accounting system and round-the-clock technical support.

B2G

MTS is faced with the task of significantly increasing its share at the B2G market in the coming years. The main sources of growth for the Company in this market are:

- > participation in projects for socially significant facilities,
- > communication coverage of motorways, and
- > development of a single cloud platform for information systems and resources of federal authorities and state funds.

Within the framework of the national project “Digital Economy of the Russian Federation,” MTS received an order to connect about 5 thousand socially significant facilities in nine regions of Russia to a fixed BBA and signed contracts worth 3.9 billion rubles with VAT. The list of facilities includes feldsher and feldsher-midwife stations, schools, professional educational institutions, state authorities and local self-government, fire departments, local police stations and units of the Russian Guard in the Amur, Kaliningrad, Kemerovo, Leningrad, Tambov, Tver, Yaroslavl Regions, Moscow and St. Petersburg. Connecting socially significant facilities to fixed internet gives them access to the ecosystem of MTS digital services that the Company is ready to offer customers depending on their needs and tasks.

During the St. Petersburg International Economic Forum (SPIEF), an agreement was reached with Russian Railways to improve the quality of mobile communications along 9 federal railway lines, as well as at 49 railway stations in Russia. The agreement involves the construction of about 400 additional LTE standard base stations along the Moscow – St. Petersburg, Moscow – Kaluga, Moscow – Tula, Moscow – Lipetsk, Moscow – Nizhny Novgorod, Moscow – Yaroslavl, Moscow – Sochi, St. Petersburg – Buslovskaya, and Novosibirsk – Barnaul railway lines with a total length of about 4.5 thousand km.

QUALITY AND IMPROVEMENT OF CUSTOMER EXPERIENCE

In 2019, MTS adopted the Company's development strategy for 2020–2022 as a global ecosystem. At the heart of successful ecosystem building is the best customer experience in every area/ product/service. To achieve this goal, MTS changed its approach to assessing results and formed a unified system based on a study of customer experience and opinions, cross-cutting for all areas of business. At each point of interaction, clients can leave feedback, report a problem and be sure that they will be answered. MTS takes as its basis the opinion of customers and, introducing customer assessment as the main internal indicator of performance, improves products and processes. At the end of 2019, the main results of improving customer experience were:

- > reduced load on the call center by 23%,
- > service in retail stores — tNPS (customer reference rate) + 6pp,
- > customer service through a call center – tNPS +5 pp, and
- > chat customer service — tNPS +15 pp.

The company strives to make customer communication with the company seamless, simple and unobtrusive, to earn trust and become a real “lifestyle” partner. The main focus is on long-term interaction with the client by increasing loyalty and providing favorable conditions when using the product package. For this purpose, internal systems are optimized, processes are automated, and convenient single service templates are created, thanks to which customers can simply and clearly solve their problem in any channel or product where it arose. The key condition for attracting new customers and maintaining strong and trusting relationships with existing ones has been the introduction of personalized communication systems in online channels. Along with the introduction of new technologies into digital channels, MTS transforms customer experience in traditional channels, which still remain in demand by the clients. Building an ecosystem involves bringing additional value to the client from the use of several services of the Company; this requires integration and operation of the entire system as a whole. Using a single customer ID will increase customer engagement and collect their data in order to use it for further product promotion.

In addition to building service and interaction processes, the Company seeks to provide customers with reliable high-tech products. The speed of development and the ability to satisfy the most demanding customer requirements depend on the quality and scale of technological transformation. In 2019, MTS restructured its approach to assessing the quality of products: instead of monitoring the performance of IT platforms, we built an end-to-end performance management system for client products at each stage of the life cycle, starting from the very early stages of development. The modulation of proven core customer use scenarios for each product allowed us to create an “ecosystemic” seamlessness, reduce the time-to-market and increase end-user satisfaction.

A common practice for ecosystem building by technology companies is to use a smart speaker with a voice assistant as the core of the ecosystem. By using this, companies “penetrate” the client’s space: mobile devices, cars, houses, which further contributes to the development of IoT, smart home solutions, etc. MTS is not behind its competitors in this area, and at the end of 2019, the Company began to develop a smart speaker with a voice assistant – Marvin. The speaker will be able to report the news, play music or audiobooks, manage a smart home, and answer different questions. At the end of 2019, the device was in beta testing.

Despite global digitalization, voice communication and mobile internet remain the main MTS services. Building a quality network and increasing LTE coverage remains a key area of our business. In 2019, the implementation of planned volumes of construction reached 100%. In 2019, the 4G network was finally completed in all tunnels and stations of the Moscow Metro. More than 2 million subscribers use the MTS network in the metro daily. Since the beginning of 2019, the total data traffic has grown five times, and LTE network traffic – 8 times.

In addition to the record pace of expansion of existing networks caused by the need to ensure the quality of new services, MTS continues to develop new technologies. 5G test pilot zones have already been launched in the two capitals, and in the future the project will be scaled to other regions of Russia. The signing of an agreement with Huawei, which involves the introduction of 5G and IoT technologies and solutions on the existing MTS infrastructure, has become a good help for the development of 5G pilot projects.

- › With the assistance of the Moscow Government, an active 5G pilot zone was launched in August at VDNKh in the vicinity of the Smart City pavilion of the Moscow Department of Information Technology. This zone will be designed for testing Smart City solutions, including those aimed at improving security, developing a transportation system and designing products for the city based on augmented and virtual reality.
- › With the assistance of the St. Petersburg Administration, the first fifth-generation large-scale pilot user communication network in Russia was launched in Kronstadt, which made it possible to cover the populated part of the city with a 5G signal. When connected to a 5G network, a commercial smartphone showed a peak speed of 1.2 Gb/s.
- › At the end of 2019, between the pilot sites of the 5G network deployment — Moscow and Kronstadt — a two-way holographic teleconference bridge was held on the 5G network. During the conference and exhibition of high technologies – Russian internet Week – RIW 2019, the forum’s participants at the World Trade Center in Moscow and their interlocutors on the stage of the Baltic Fleet Drama Theater in Kronstadt watched holographic 3D images of each other, discussing the prospects for the development of digital technologies and 5G networks.

BUSINESS IN OUR MARKETS OF OPERATION

ARMENIA

Since September 2007, the leading mobile operator in the Armenian market – MTS Armenia CJSC (formerly K-Telecom CJSC) – has been a subsidiary of MTS.

Under the brand name Viva-MTS, the Company offers communication services in the GSM, UMTS and LTE standard. Viva-MTS subscribers are granted access to innovative rates and services, as well as convenient service formats meeting international standards applicable in MTS Group.

In 2019, the Company obtained a license to use the 800 MHz frequency band, the most optimal for the implementation of 4G+/LTE Advanced technology in the regions. In general, in 2019, 4G/LTE technology became available to 78% of the population of Armenia. At the end of 2019, 84% of base stations support 4G/4G+ technology.

Viva-MTS maintains its leadership, far ahead of its competitors. By the end of 2019, the market share remains at 58%.

The main priority of MTS in the Armenian market in 2019 was the further expansion of the line of V&D tariffs targeted at the youth segment, in addition to the existing ones. The demand for billing plans has increased due to the expansion of the LTE network.

2019 business results:

- > maintained high market share in terms of subscribers and incomes,
- > increased number of mobile internet consumers by 4 pp compared to last year,
- > growth of V&D tariff users amounted to +7 pp compared to last year, and
- > the share of the new youth line – XYZ – in the database was 21%.

UKRAINE

In the fourth quarter of 2019, MTS, through its 100% subsidiary Allegretto Holding S.a.r.l. (Luxembourg) entered into an agreement to sell a 100% stake in Preludium BV (Netherlands), the sole shareholder of VF Ukraine PrJSC.

The deal was driven by MTS' updated strategy, which involves focusing on the Russian market, which generates more than 90% of the Group's revenue, and developing a set of modern digital services based on the basic telecom business.

MOBILE APPS FOR MTS CUSTOMERS¹

My MTS mobile application is the main entry point into the MTS Ecosystem, mainly for telecom clients, to cover their needs with the Group's portfolio.

The most important changes made to the My MTS application in 2019 are as follows.

1. Chat and chat bot have been launched.
2. The opportunity to apply for a virtual Cashback card in My MTS (full-format with a credit limit and simplified without a credit limit) has been provided.
3. A strategic initiative was implemented to recommend a personal tariff based on Big Data on expenses and traffic consumption of a particular subscriber.
4. A part of the most demanded functionality of the loyalty program has been singled out.
5. The "Promotions" section has been launched to display unique offers of the Company.
6. Access to the application has been opened to fixed-line subscribers.
7. Payment for Apple Music services using Apple Pay in push notifications has been implemented.
8. A promotion with promotional codes, QR codes and gifts from MTS and partners (Dodo Pizza, Biglion and BlackStar Burgers) are supported.
9. Access to the application has been opened to users of smart devices (IOT).

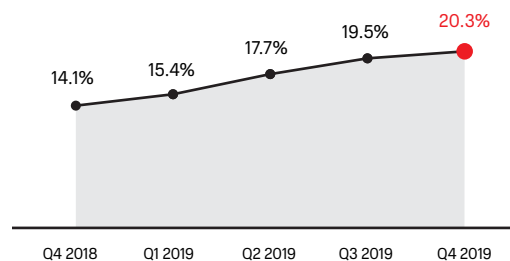
In 2019, the My MTS mobile application totaled nearly 20.3 million active users. A team of dozens of people is constantly working on the program. The key task of the development team is to make the application a single entry point for resolving all user issues across the entire portfolio of the Ecosystem, providing the best customer experience on the market.



MY MTS

MTS Product Ecosystem Center

\\ The growth of one-month users of the My MTS application (million people)



- > Allows users to manage a range of products from MTS, from traditional telecom services to financial and entertainment services, an online store and loyalty programs.
- > The application supports all customer accounts: mobile and fixed-line, cable and satellite TV; it is fully integrated with MTS Bank MTS Cashback credit cards.
- > An integrated artificial intelligence chat bot app resolves customers' issues with an accuracy of over 80 percent.

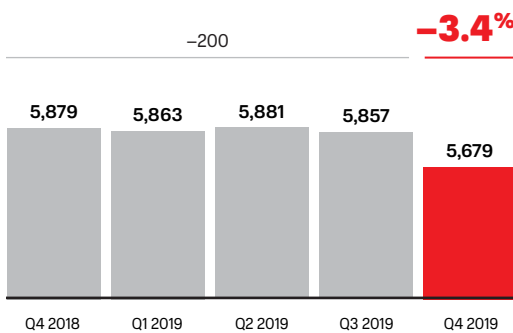


High ratings
on the App Store

4.6/5

¹ Key mobile apps as of the end of 2019.

\\ Retail chain reduction (number of outlets)



- > Reduction of the retail chain by 200 outlets by the end of 2019.
- > Prioritization of sales during 2020 and promotion of MTS' own digital services: TV platforms, fintech products, ticket services, digital B2B services, streaming platform, entertainment and educational applications.



MTS MUSIC

The MTS Music app provides access to the MTS music portal and the ability to listen to any music on your device, and is optimized to run on Android and IOS.

Main Achievements in 2019

- > Significant growth in the active user base.
- > Launching the application on the MTS | Yandex. Avto platform (head multimedia device for cars).
- > Home page redesign.
- > Integration into MTS Cashback.
- > Best price among music offers: TV campaign "60 rubles per month" for everyone, not only for MTS customers.

Key Objectives for 2020

- > Increasing the MTS Music user base.
- > Development of new functionality aimed at increasing customer return to the product.
- > Integration of MTS Music into the MTS ecosystem, support for the player in the storefronts of MTS products: MTS Marvin (smart speaker), MTS Goodok (RBT), MTS Afisha (concerts, ticket sales).



High ratings on Google Play

4.6/5



MTS TV

MTS TV is 150+ TV channels, including TV channels in HD and 4K quality, thousands of films, cartoons and series. One account – 5 devices and the opportunity to watch online on a smartphone, tablet, Smart TV, Android TV, and PC through the site <https://mtstv.mts.ru>.

Main Achievements in 2019

- > Launch on the new Huawei platform.
- > Exclusive launch of MTS TV in the Google certified OTT set-top box on the Android TV platform.
- > Integration of online cinemas Ivi, Megogo, Amediateka and Start and the creation of a single package offer with TV channels, own VOD subscriptions “Entertaining” and “For Children” and online cinemas, unique on the market, with the launch of federal promotion in November – December 2019.
- > Running the application on the MTS | Yandex.Auto platform.
- > Integration and launch in the MTS.Cashback program.
- > Integration and launch in the Prize Machine.

Key Objectives for 2020

- > Growth in the active user base.
- > Generation of a unique content offer.
- > Launch of a multiscreen with other TV environments.
- > Development and promotion of convergent packages with other MTS products.



MTS CONNECT

MTS Connect is an application for calls over the internet like through a mobile network. Currently, the product’s functionality allows you to make calls to any numbers, including fixed-line, short, as well as to numbers of other telecom operators, while additional payment for calls through the MTS Connect application is not charged. The cost of calls to MTS is 0 rubles/min.; in case of a package tariff, the subscriber’s minutes are not spent. Calls to other destinations are paid according to the terms of the billing plan.

This functionality helps users solve several key tasks:

- > making and receiving calls from places with poor mobile network coverage or complete absence thereof,
- > saving on calls when roaming, and
- > reduced costs for calls within the network.
- > Fourfold increase in MAU product up to 140 thousand users.
- > Launch of MTS Connect in 45 regions of the Russian Federation.

Main Achievements in 2019

- > Fourfold increase in MAU product.
- > Launch of MTS Connect in 45 regions of the Russian Federation.

Key Objectives for 2020

- > Further growth in the active user base.
- > Expansion of functionality by introducing the latest services.
- > Monetization of the product through additional services.
- > Redesign.

FINANCIAL SERVICES

2019 was a turning point in the development of financial services under the MTS brand. The consolidation of MTS Bank in 2019 and the consolidation of management of all financial services of the Group in one vertical with submission to a single decision center allow MTS to implement a more ambitious development strategy in the field of finance.

MTS is making a big bet on the development of financial services, which should have the most favorable effect on customer satisfaction throughout the MTS ecosystem, reduce their outflow and increase the frequency of use of MTS digital applications by filling them with financial services.

The growth in demand for MTS financial services was facilitated by a number of high-quality achievements, chief of which were: a significant addition of financial functionality in the My MTS flagship application, replacement of partner payment and transfer services with our own, direct connection to payment and transfer systems of the largest banks, launch of microloans at PCEC, etc.

Today, about 7 million MTS subscribers regularly (“at least once in three months”) use the opportunity to make payments and transfers from their subscriber account.

In 2019, MTS Bank becomes the core of the development of all types of financial services in the MTS ecosystem.

According to the results of 2019, sales of POS loans of MTS Bank amounted to 39.2 billion rubles, which is 46% higher than the results of 2018. This allowed the bank to gain a foothold among the top five largest Russian POS-lenders. At the end of the year, the bank’s POS loan portfolio amounted to 25.4 billion rubles, which is 54.7% more than in 2018.

Credit card issuances almost doubled in 2019, partly due to the launch of the federal advertising campaign of the MTS CASHBACK line of bank cards, and reached 31.2 billion rubles (+92% year-on-year). MTS Bank’s credit card portfolio grew by 5.4 billion rubles (59.7% year-on-year).

By the end of 2019, the largest volume was reached by the non-targeted loans portfolio (NCPC) amounting to 38 billion rubles (+160% year-on-year). These dynamics was facilitated by growing sales, which reached 36.2 billion rubles in 2019 (+139% year-on-year), which was facilitated by the successful launch and scaling of the refinancing service.

In general, in 2019, MTS Bank gave out 106.6 billion rubles, which allowed to increase the grand portfolio of retail loans by 72.8%, reaching the level of 91 billion rubles.

The optimization of a number of processes resulted in an increase in the number of card products issued by the Bank. The scaling up of MTS Bank’s presence in MTS digital applications, the development of its own digital customer acquisition, the preparation of individual offers to MTS subscribers made it possible to issue 1.14 million credit and debit cards in 2019, which was almost twice the result shown a year earlier (+72% year-on-year). An important priority for 2020 is the development of success achieved in this area in order to increase the satisfaction of cardholders with the quality of service of MTS Bank.

Improving the quality of products and services, customized offers to MTS subscriber base, as well as a jump in sales efficiency contributed to an increase in the number of banking service users in MTS and MTS Bank applications from 3.2 million people at the beginning of 2019 to 5 million people at the end of the year.

Payment of Municipal and Federal Services Through the Payment Infrastructure of the Bank

In 2019, MTS Bank scaled up its successfully proven payment service for residents of Moscow who used the Bank’s and MTS infrastructure to make payments for various municipal services – by the end of the year, almost 120 thousand people regularly used this service. Since the middle of the year, the Bank has been implementing the “Regional Payment Service,” which provides the best customer experience to residents of the regions when paying for municipal and federal services. Currently, a number of pilots of this platform are being held in the regions of Russia.

SINGLE FINANCIAL STOREFRONT

After the consolidation of the Bank, it became possible to implement a large-scale project of a 100% “merger” of the MTS Money financial application and the funds of RBS (remote banking services) of MTS Bank. A joint development team for the Unified Financial Storefront has

been created on the basis of the Bank, which is at the same time a full-format RBS of the Bank, accessible to users of the MTS Money electronic wallet. The unified financial storefront is designed to promote the formation within the MTS ecosystem of a seamless and maximally convenient way to use full-fledged banking by MTS subscribers loyal to the MTS Money electronic wallet.

CLOUD AND DIGITAL BUSINESS SOLUTIONS

MAIN OUTCOMES FOR 2019

In 2019, MTS actively expanded its competencies in creating modern services and products for B2B and B2G clients. Cloud, IoT and system integration were combined into a single business vertical “Cloud and digital solutions.”

The product portfolio of digital solutions for B2B and B2G clients is built on both proprietary products and partner solutions. This made it possible to introduce the MTS brand as a universal partner in the market of digital products and services.

The new strategy for the development of cloud and digital business solutions was approved by the Board of Directors; the strategy is aimed at creating a product portfolio of replicated digital solutions and services. The strategy takes into account modern trends in the development of cloud technologies and Internet of Things solutions, as a result of which customers receive modern and popular services that ensure the economic effect of digitalizing a business. This approach allows us to build profitable and long-term relationships with customers.

Clients of financial services

11.24

mln people

Key Facts About the Vertical 2019

MTS Cloud Ecosystem

- > The product line has been expanded: services have been launched to protect customer data, a cloud service for high-speed computing has appeared, etc.
- > The development of digital services allowed MTS to quickly increase its presence in the country’s cloud market.

IoT

- > The territory of the NB-IoT network services has been expanded to 62 regions. Currently, the NB-IoT network is the second network by coverage area after the 2G network.
- > New IoT products in the areas of digital real estate and utilities, transportation, etc. Products have been also created and launched which act as a basis for the construction of “Smart Cities” in Russia.

IAC

- > The Industrial Automation Center (IAC), specializing in industrial solutions, has been established.

System integration

- > An information communication platform (ICP) was created to ensure the interaction of plant and machine personnel at the enterprise.

Private LTE

- > Private LTE service was introduced. 4 pilots were launched. The service is in demand by large industrial enterprises from the mining, oil and gas, engineering and other industries that seek to solve complex technological problems.

NIS JSC

- > NIS JSC together with Bauman Moscow State Technical University won the competition of the Ministry of Education and Science for the development of technology in the area of “Safe City” in terms of ensuring life safety.



DEVELOPMENT OF CLOUD AND DIGITAL SOLUTIONS FOR BUSINESS

MTS Cloud Ecosystem

Cloud services are the foundation for any digital business. The transition to cloud technologies is a significant trend, part of the digital transformation of the economy.

- > The MTS cloud ecosystem is formed by the providers #CloudMTS, IT-GRAD, 1cloud, and its own data centers, including one of the country's largest data centers, Avantage. The cloud area includes infrastructure solutions in the format of private, public and hybrid clouds, a range of consulting and professional services, data center services, and telecom services. MTS cloud business is based on its own infrastructure: more than 10 data centers and a developed network of communication channels.
- > MTS quickly increased its presence in the Russian cloud market. In 2019, the cloud services ecosystem ensured a 4-fold increase in revenue from cloud services. The clients of the MTS cloud ecosystem are more than 1.5 thousand representatives of large business: both Russian and international companies. The provider is trusted by such companies as ABBYY, Belka Car, S7, OTIS, Tutu.ru, Gazprombank.
- > MTS is actively developing services for developers: container computing and DevOps services, which provide businesses and programmers with faster development, deployment and administration of IT solutions in the cloud. There are plans to launch services for working with big data and artificial intelligence.

Clouds Are the Basis for Increasing Efficiency and Introducing Innovations by Russian Business

- > The #CloudMTS provider organized a cloud infrastructure for the agricultural assets of Dymov Group, one of the largest meat producers in Russia. The project allowed them to increase the efficiency of interaction between geographically distributed units through the consolidation of IT resources and centralized access to them.
- > The development of Gazprombank Autoleasing is based on cloud services that enable rapid launches of new services and customer service through remote channels. With the help of cloud technologies, MTS has opened more than twenty branches across the country. The project won the "Innovation Time 2019" award.
- > VR Technologies, an innovative design bureau, a subsidiary of Russian Helicopters holding, uses the cloud technologies of the IT-GRAD provider in a project to develop a light multi-purpose helicopter VRT500, which belongs to the world's largest single-engine rotorcraft category. The use of cloud services ensured high system availability and accelerated development.
- > In 2019, a project was launched to implement a digital management platform based on SAP solutions for Segezha Group, one of the largest Russian vertically integrated forestry holdings. The digital platform will be hosted in a private cloud, which was created in the MTS data center – Avantage. The provider enabled the launch of the digital platform in the cloud, and will ensure the operation and maintenance of the project infrastructure at the level of both the cloud and IT equipment.
- > The new digital areas of MTS are developing mainly on the basis of their own cloud. SmartMed telemedicine service uses a certified cloud segment to store electronic patient records. Cloud resources are a part of Smart University, a distance education platform. The media platform for gamers – WASD.TV – also uses # CloudMTS resources, which ensures high availability, operability and scalability of the service.

New Cloud Services for Business

In 2019, MTS expanded its line of cloud services for corporate clients. Among more than twenty services, the following were launched.

- > Superfast computing from the cloud. The provider has launched one of the fastest and most affordable cloud services in Russia for high-speed data processing based on a supercomputer, capable of accelerating calculations and cutting associated costs by more than 100 times.
- > A unique service for the Russian market in anti-virus protection of IT resources located in a public cloud. The solution was developed in a technological partnership with Kaspersky Lab and integrated into the virtual infrastructure of the MTS cloud.
- > Cloud container services of our own design. MTS has become one of the few in the Russian market that has launched a service for managing container applications in the cloud – Containerum Managed Kubernetes. The service halves the time and cost of launching IT solutions, increasing the competitiveness of Russian business.
- > A cloud service on privacy of data processed by medical institutions and related to customers' state of health. The solution will make it possible to fulfill the requirements of the Russian legislation and to optimize the companies' costs for IT infrastructure for personal data processing and storage.
- > Private and hybrid cloud services based on the Avantage data center. Corporate customers will be able to implement large-scale IT projects using the provider's cloud solutions and reliable data center infrastructure certified by the Tier III Constructed Facility.

IOT AREA

- > In 2019, the portfolio of integrated IoT solutions for various industries was expanded: Smart City, real estate, housing and utilities/power, transport, agriculture, and industry.
- > MTS holds a leading position by the number of SIM cards for Internet of Things devices with a market share of over 40%.
- > MTS won the nomination of the best "IoT-operator" at the first professional award – IoT Awards 2019. The jury noted the launch of the network of the new standard – Narrow Band IoT (NB-IoT).
- > A 5G development agreement has been signed with Ericsson and Huawei, with the Moscow Government; 5G pilot zones have been deployed in Moscow and Kronstadt.
- > The average growth rate of IoT revenue in all areas was 20% compared to 2018.

Network and IoT Platforms

- > MTS has expanded the coverage of the NB-IoT Internet of Things network to 62 regions.
- > IoT.Platform has been launched for various business sectors that allows managing a digital enterprise or Smart City elements, even if they use different protocols to connect to the internet, including 2G, 3G, 4G, WI-FI, or NB-IoT.
- > MTS successfully conducted the first in Russia testing of international roaming in the NB-IoT network.
- > MTS was the first in Russia to launch the SCEF node on the NB-IoT network to ensure the interaction of any devices with the Internet of Things via a single interface. The service is integrated into the M2M Manager platform. Integration of the service was implemented by NVision Group JSC.
- > The M2M Manager platform has been updated, the "technology messaging" service has been enabled for controlling subscriber equipment by sending commands.

Smart City

- > In the IoT department, a Smart City center has been created to implement regional programs for the digitalization of cities.
- > MTS became a member of the National Competence Center "Smart City", created with the support of the Ministry of Construction of Russia.
- > In 2019, digitalization agreements were signed with 28 regions, and more than 10 pilot projects were launched.
- > MTS will take part in the creation of the digital twin elements of the city of Vladivostok. With the District Administration of the city of Yakutsk, the implementation of pilot projects in the field of digitalization of housing and municipal services is now starting.

- > In the Republic of Tatarstan, the first in Russia smart multi-functional support Smart City Pole was installed, equipped with a system for displaying information, eco-monitoring, and a “smart parking” system.
- > Piloting of the Active Citizen platform began in a number of regions of the Russian Federation, including a city with a population of over one million.
- > In Samara and Nizhny Novgorod, pilot projects have been launched to monitor municipal solid waste using sensors to monitor the level of filling the garbage collection containers and video analytics.
- > MTS launched the “Digital Model” of the Region product for generating reports on geo-analytics based on anonymized data. More than 15 projects were implemented. The product is highly sought after by leading Russian regions.

Smart Real Estate

- > MTS launched the VDome platform for managing apartment buildings (registering tenants and owners, submitting applications, transmitting meter readings to the MC, paying apartment bills online, and voting). Pilot and commercial implementations were introduced in several regions of Russia (Samara, Rostov-on-Don, Yakutsk, and Petropavlovsk-Kamchatsky).
- > MTS concluded an agreement with NPP KP Kvant on a strategic partnership in the field of the Internet of Things for equipping plant meters with NB-IoT SIM cards. The geography of sales of Kvant plant meters with NB-IoT SIM-cards will cover six more cities of the country: Moscow, St. Petersburg, Krasnodar, Rostov-on-Don, Ryazan, and Stavropol. There are plans to enter the international market.

Transport

- > MTS installs SIM chips in cars on the assembly line. Projects were implemented with Geely, Hyundai, Toyota, Renault, Nissan, and other leading automakers. Telematics solutions are also used by insurance, car sharing and security search companies.
- > MTS and Yandex launched MTS | Yandex.Auto on-board computer with services that have a single interface and voice control. Services: navigator, Alice voice assistant, Yandex.Music and applications for listening to music, radio and watching TV and movies from MTS.

Other

- > The TVBit Digital Infopanel platform has been launched for commercial use to broadcast content displayed on information panels in real time. Implemented in the flagship office of RTC/M. Video, as well as in a pilot project for one of the residential complexes in Moscow.

INDUSTRIAL AUTOMATION CENTER

- > The Industrial Automation Center (IAC) was formed; its products are designed to help industrial enterprises cope with the tasks of developing digital production, and introduce modern innovative business solutions Industry 4.0.

System integration¹

New products

- > In 2019, NVision Group JSC and Kirovsky Zavod Group of Companies, as a part of a strategic partnership, created an information and communication platform to ensure the interaction of plant personnel and plant machines. The system was put into trial operation at the sites of the United Drilling Equipment Plant named after V. V. Vorovsky and the Kirov-Energomash plant (a part of the Kirovsky Zavod Group); it allows users to collect information on the current state of equipment operation from sensors installed on the machines.
- > In 2019, NVision Group JSC also created an information system for working hours accounting, SWHA, using biometric identification technologies based on the image of a person's face.
- > In 2019, the NVision Group JSC specialists were entrusted with the provision of monitoring and maintenance services for diesel generator sets and electrical installations at 21 facilities of VimpelCom PJSC in Moscow and the Moscow Region to solve the communication problem between operating organizations.

Growth of Revenue from System Integration

- > The growth in gross revenue in relative terms was 26%, which is more than IDC forecast for the entire IT market in 2019 (26% against the projected average growth of 4.8%).
- > Revenues from service projects increased by 61% due to the extension of key service projects and projects in new areas: Cloud VPN, NB-IoT

¹ NVision Group JSC, a subsidiary of MTS PJSC

Application Gateway (SCEF – OCSG), Radio Network Optimization System (SON), support and operation of data center engineering systems.

Growth in Number of Contracts

- > Compared to 2018, the growth in the number of contracts amounted to 21%.

Private LTE

- > In 2019, Private LTE was developed for large industrial customers, providing a corporate wireless technology network that integrates elements of the enterprise ecosystem into a closed loop. Private LTE is the technological infrastructure for the implementation of industrial IoT solutions in the enterprise and automation of production.
- > 4 pilots of Private LTE were successfully completed (Siburholding PJSC, Kamaz PJSC, etc.).

NIS

- > NIS JSC in partnership with Bauman MSTU will develop smart tools for the evaluation and management of anthropogenic and natural risks in the territory of the constituent entity of the Russian Federation using the Internet of Things, big data and artificial intelligence technologies in the field of “Safe City.”

BIG DATA

The Big Data project has been actively developing in the Company since 2015.

During this time, the project team grew from 20 to more than 300 people, and the accumulated net economic effect amounted to more than 6 billion rubles. The key goal of the Big Data team at MTS is to ensure a more efficient development of the Company’s main product verticals through the use of big data technologies. Priority areas are telecom, fintech, media business, and digital business solutions. A dedicated team has been formed for each of the areas within the Big Data division. In addition, MTS successfully develops and plans to strengthen the area of external monetization of big data both within the framework of existing products, such as MTS Marketologist, bank scoring, geo-analytics, and by introducing new products to the market that are based on data and expertise accumulated in the Big Data team.

Telecom for Big Data remains the main area, in which high-tech products are created and the potential for optimizing processes through ML technologies and big data is being unlocked. In 2019, we put many useful solutions for this area into commercial operation, for example, the SpamBlackList and WhoCalls product series – customer protection against unwanted calls, recommendation systems for MTS Cashback and MTS Library, and many others. We continue to actively optimize retail processes in terms of sales of subscriber devices and after-sales services through recommendation systems, assortment and pricing optimization systems, as well as through the WorkForceManagement system. In 2019, a B2B customer lifecycle management system was developed and is currently being scaled (targeted attraction, development of customer profitability through the sale of additional services, and monitoring the tendency to outflow).



MTS ARTIFICIAL INTELLIGENCE CENTER

As a part of the fintech business, the Big Data team has implemented a number of successful projects for MTS Bank. Currently, Big Data technologies are actively used in many business processes of the Bank, from risk assessment and antifraud models to smart promotion of banking products and personalization of offers for Bank customers. The active introduction of Big Data technologies for MTS Bank has allowed to significantly increase both sales of banking products and the lifetime value of existing customers by engaging in a more active use of bank products and reducing outflows, as well as reducing the number of defaults on issued bank loans.

In addition to creating products for specific business verticals, Big Data focused on developing utility services that help increase the speed of product development and scale unique Big Data competencies across all the Company's project teams. One of such services, Golden Record, was scaled up at MTS Bank in 2019 and combined the functions of searching, recording and clearing data on clients of the MTS business ecosystem.

The MTS Artificial Intelligence Center, a subsidiary of the largest mobile operator – MTS, began its work in 2017 and is engaged in the development of unique innovative products; it supplements the Company's existing services with new functions based on artificial intelligence systems, and implements R&D projects in the field of AI and ML.

MTS AI Center both automates and implements business solutions within the Company, and offers them for external customers.

Now the work of the Center is carried out in several areas: jurisprudence, customer service, medicine, education and research projects, and work with data. The Center's specialists use technologies such as natural language processing, automatic speech recognition, machine learning and computer vision; the Center's product package currently includes an internal and external chat bot – an automated dialogue system, as well as Norma – a "virtual lawyer." In the first half of 2020, it is planned to launch into commercial operation a smart speaker with a virtual assistant and a smart home system. The Marvin Voice Assistant service is currently in the testing phase.

As a part of the implementation of the National Artificial Intelligence Strategy, a project is underway to develop an innovative AI platform based on the MTS data collection and separation research center in Skolkovo, which helps increase the level of openness of the industry and encourages its participants to have an active dialogue.

The MTS AI Center is actively working in the field of education and scientific projects, collaborating with leading technical universities of the country and taking part in relevant scientific and business conferences.

In 2019, MTS became a member of the Alliance for the Development of Artificial Intelligence in Russia; the Company is taking part in the development of a national strategy for the development of artificial intelligence in the country.

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AND INFRASTRUCTURE

PRODUCTS AND PROJECTS OF THE MTS ARTIFICIAL INTELLIGENCE CENTER

1. Chat bot

Chat bot is a customer service specialist robot – an automated dialogue system that allows interaction with a client without involving people.

Chat bot solves customer requests, provides a high level of automation, demonstrates high quality: 8 out of 10 client requests are resolved without involving people.

The solution, which is offered for business customers, adapts to the pool of tasks required by a specific company.

Key results for 2019

1. Chat bot began to work both on the website and in the My MTS application.
2. The efficiency of the bot exceeded 80%.
3. Chat bot is scaled to the whole of Russia.
4. Bot sales started for external customers.
5. A bot advertising campaign was conducted on federal channels.

2. LegalTech

LegalTech is a division of the MTS Artificial Intelligence Center, which develops innovative products in the field of law. The development of the LegalTech team is Norma – a “virtual lawyer,” sales of which started in December 2019.

NORMA Contract management is a “virtual lawyer,” a system of automatic work with documents and life cycle management of contracts. The solution is based on artificial intelligence technologies such as natural language processing and computer vision.

Norma capabilities

1. Automatically detects and analyses the content of any legal documents, extracts the key information from them and systematize the documents based on such data.
2. Forms a set of priority tasks and offers the best options for solving them for the employee, managing their work schedule.
3. Monitoring and control of the performance of current contracts.
4. The platform may independently cooperate with contractors.

The project was tested inside MTS and put into commercial operation. Norma correctly recognizes more than 90% of document texts.

3. Smart Speaker with Marvin Voice Assistant and Smart Home

The MTS Smart Speaker is a home multimedia device with a voice assistant – Marvin, which runs voice commands and is designed to solve a large number of everyday tasks. Marvin is developed on the basis of artificial intelligence technologies and can already do a lot on his own: it reads the news, plays music and audio books, controls the smart home, answers various questions, and much more.

2019 results

- > Smart speaker software has been developed.
- > A platform for the product of a virtual assistant has been created.
- > Virtual assistant application has been created.
- > On December 26, 2019, the internal beta test of the MTS Marvin product (smart speaker with virtual assistant) was launched for MTS Group employees.

4. MedicalTech

MedicalTech is a division of the Artificial Intelligence Center, which is engaged in the development and application of AI technologies in the field of medicine. A smart medical assistant is developed and partially implemented – a service that offers the users to list their symptoms in a dialogue mode, after which the application correlates them with the diagnosis base, makes an assumption about a possible diagnosis, and gives a recommendation for a visit to the doctor or an online consultation in SmartMed.

5. Data Collection and Separation Center

In April, MTS opened a Data Collection and Separation Center in Skolkovo.

As a part of the implementation of the National Artificial Intelligence Strategy, a project is underway to develop an innovative AI platform based on the MTS research institute in Skolkovo, which helps increase the level of openness of the industry and encourages its participants to have an active dialogue.

MTS intends to create the largest voice database in Russian, collecting and marking up more than 15 thousand hours of Russian speech using Skolkovo personnel and technical resources.

Key activities of the Center:

- > Platform development in the Data as a service concept.
- > Collection of datasets.
- > Development of a unified methodology for data collection and separation for various areas of artificial intelligence training.

2019 results

- > The first symposium was held, the draft methodology was assembled, and the main areas were outlined that required detailed study at round tables.
- > An internal MTS Voice project for collecting voice data in Moscow was launched, followed by the participation of regional divisions of the Company.

6. Artificial Intelligence Alliance

On November 9, 2019, the Alliance for the Development of Artificial Intelligence was created. The founders of the Alliance, together with MTS, were Sberbank, Yandex, Mail.ru Group, the Russian Direct Investment Fund (RDIF), and Gazprom Neft.

The main goal of the association is to accelerate the technological development of organizations participating in the Alliance through the joint development of their competencies in the field of AI technologies, as well as to expand the possibilities for the practical application of these technologies in the activities of companies with a growing economic effect.

Within the framework of the Alliance, MTS will be responsible for the “Data” area. The result of work in this area will be the created register of dataset marketplaces, datasets based on state data, and promotion of a unified methodology among market participants.

7. Work with Science and Universities

- > A document was signed on the creation of the MTS Laboratory of Artificial Intelligence based at ITMO University.
- > A joint research project was conducted with ITMO University to analyze speech recognition systems, noise generation and analysis.
- > An agreement was signed on cooperation with Samara State Medical University and the creation of the Machine Learning Technologies in Medicine laboratory.
- > Skolkovo¹.
 - A research center has been established to create open datasets.
 - The first symposium in Russia on the methodology for collecting a dataset was held

PARTNERSHIPS**NTI 2019 Olympics in Big Data and Machine Learning²**

MTS was a partner of Big Data and Machine Learning area within the framework of the All-Russian Engineering NTI Olympics among students in grades 7–11. The winners received prizes from MTS and the opportunity to get a summer internship. Our colleagues prepared the task for the qualifying stage and the final of the competition. In 2019, this profile became the most popular among the participants – about 20 thousand applications were submitted.

UMNIK-MTS Contest³

The UMNIK program of the Innovation Support Fund is aimed at supporting commercially oriented scientific and technical projects of young researchers. The program’s participants are young scientists, undergraduate or graduate students aged 18 to 30. The best projects receive financial support in the amount of 500 thousand rubles for two years. Projects must comply with the cross-cutting digital technologies of the national Digital Economy program.

In 2019, MTS was a partner of the UMNIK-MTS contest; there was a separate track on artificial intelligence. Our colleagues participated in the selection of decisions and were in the jury of the final (consultation and examination).

¹ <https://www.kommersant.ru/doc/4250444>.

² <https://nti-contest.ru/mts-supports-bdml/>, https://www.cnews.ru/news/line/2019-03-29_shkolniki_razrabotali_sistemu_iskusstvennogo.

³ <http://fasie.ru/press/fund/umnik-mts-fin/>, <http://fasie.ru/press/fund/umnik-mts/>.