

BUSINESS OVERVIEW

ECOSYSTEM DEVELOPMENT

\\ BUILDING A WORLD-CLASS ECOSYSTEM

APPLICATIONS



BANKING

- MTS
- MTS BANK
- MTS CASHBACK

TV / VOD

- MTS TV

INNOVATION

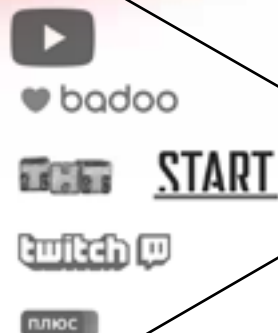


PARTNERS

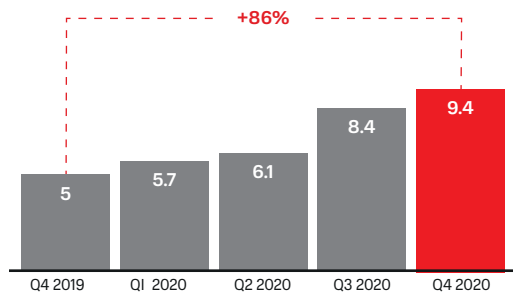


ENTERTAINMENT

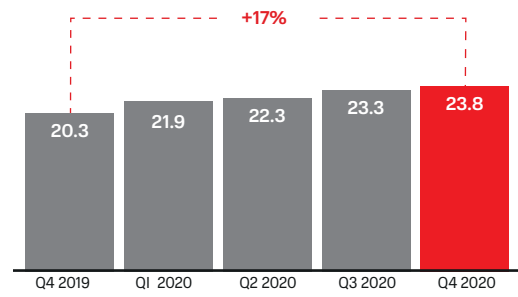
- MTS TICKETLAND
- MTS LIVE ARENA



\\ MTC Cashback users, mil



\\ My MTS, monthly active users, mil



GROWTH IN ECOSYSTEM PARAMETERS

TELECOM

+5 GB

of mobile traffic

>4 million

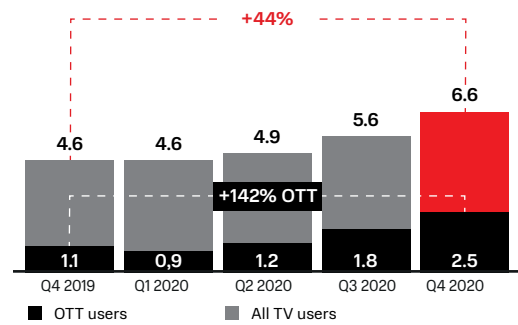
MTS users Premium

- > free Antispam service
- > Discounts for other services
- > CONTENT
- > Subscription to MTS TV online cinema
- > Bank
- > Exclusive rates
- > Shopping
- > Special offers
- > Servicing
- > Dedicated line in contact center

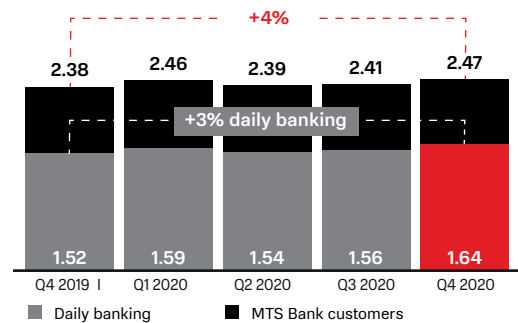
New offers to make clients happy

- > New ecosystem partnership

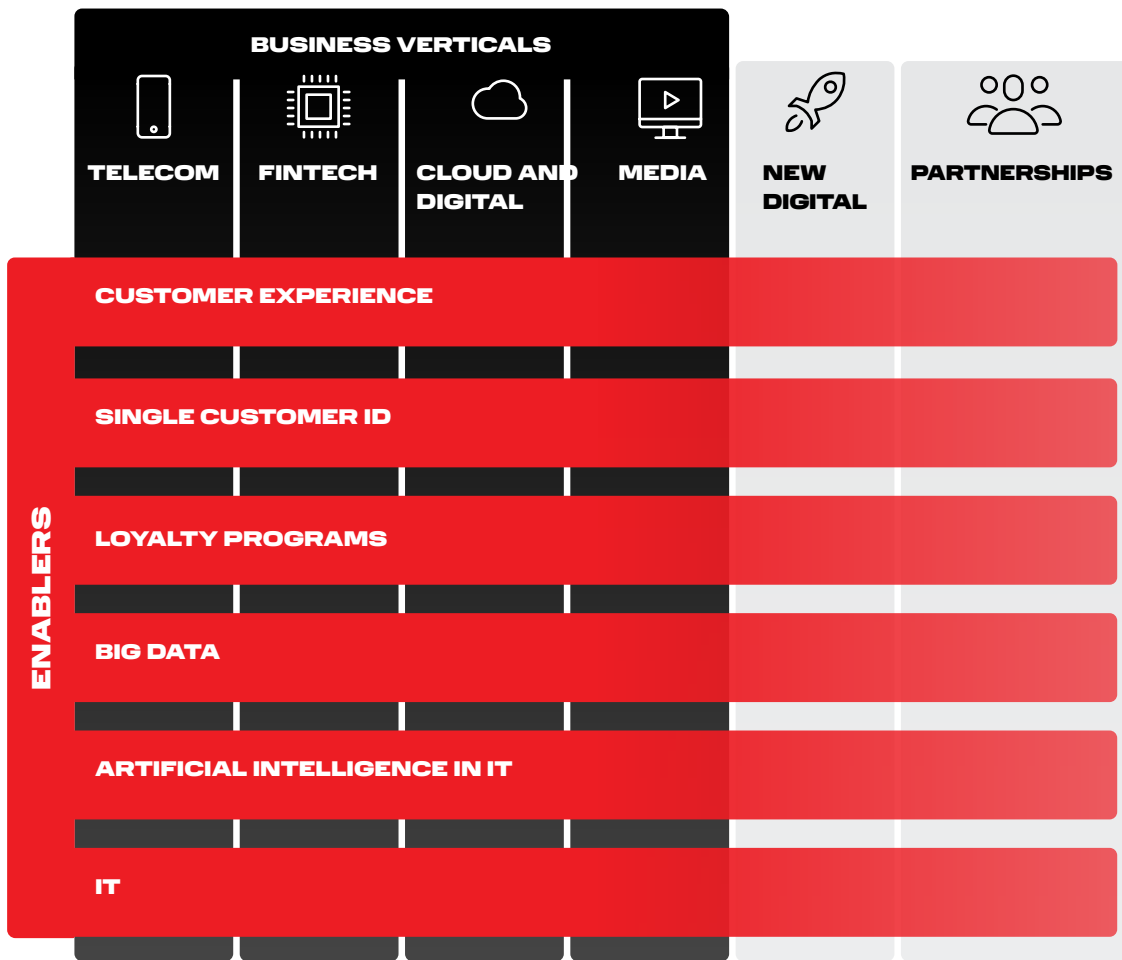
\\ Paid TV users, mil



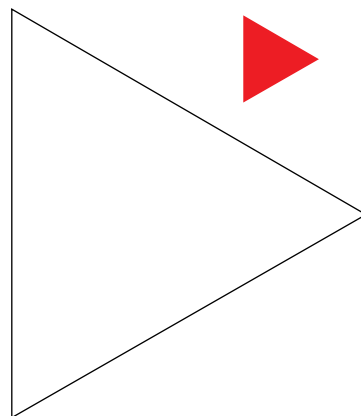
\\ MTS Bank customers, mil



Business verticals for better results



+



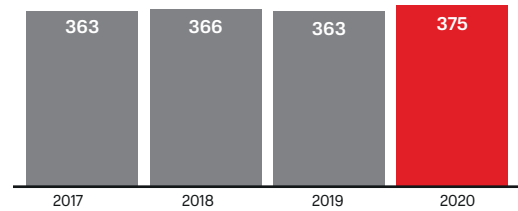
+

TELECOM

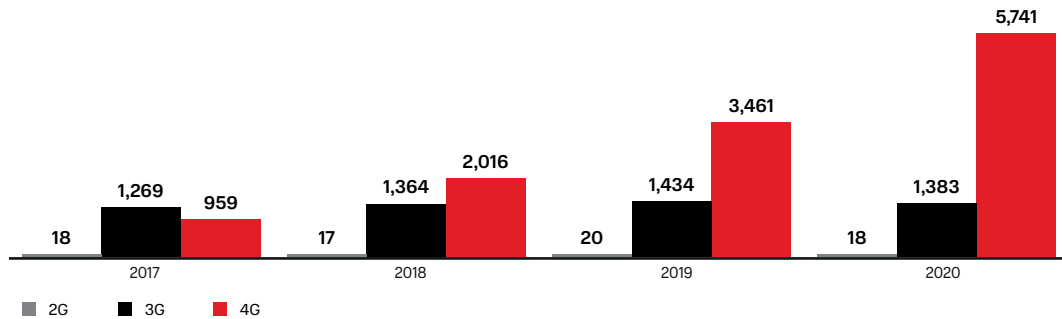
Mobile business

The main driver of changes and economic shocks in 2020 was the COVID-19 pandemic and the restrictions imposed due to its spread. A significant increase in the volume of mobile traffic consumption and the consumption of voice services by MTS subscribers at the previous level allowed us to stabilize the ARPU level. The share of subscribers served under package tariffs exceeded 66 % of the subscriber base, while the share of data users increased by 2 p.p. to 65 %. The total number of users at the end of 2020 was 78.5 million people.

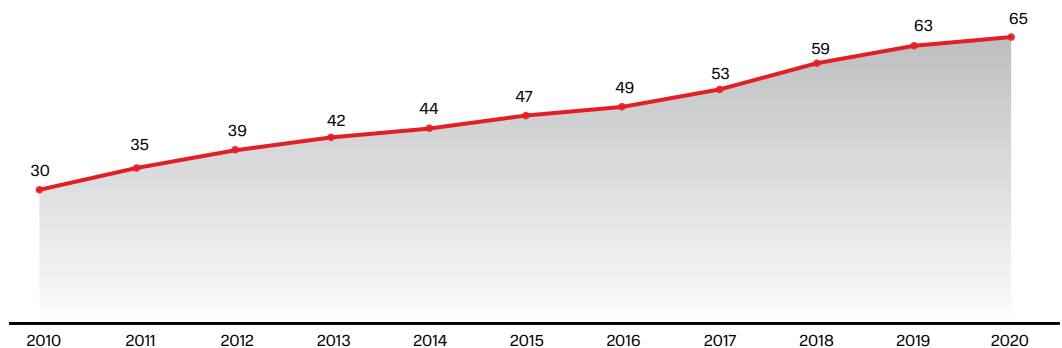
\\ Voice traffic, million minutes



\\ Mobile traffic, Pb.



\\ Penetration of mobile internet users in % of monthly active users, 2010–2020



In April 2020, as a result of the restrictions imposed on the population and actions of companies, the demand for data services increased and mobile traffic grew by 45.3 %, which required targeted adjustments to the range of rates in all regions of MTS presence.

In the summer of 2020, due to the closure of borders, the traffic of subscribers on trips across Russia increased. MTS rate plans include using Internet while traveling across Russia (in the MTS network) without additional payments for use outside the home region.

In December 2020, MTS released the “NeTarif” offer for the first time on the market, which combines mobile communication services and subscriptions to popular services. The uniqueness of the offer is that the price for services is formed according to the principle “the more you use, the less you pay”. Within the framework of this offer, we have also implemented the ability to customize the rate for the personal needs of the subscriber for the first time; the choice of the required number of minutes and gigabytes is implemented down to 1 GB or one minute.

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 business

In 2020, MTS continued to implement a large-scale program for modernization and construction of fixed networks; the project affected more than 45 cities where rate plans with Internet access speeds of up to 1 Gbps became available. The development of a new TV platform continued as well, expanding the capabilities of traditional TV with interactive components. Interactive TV products (IP TV and Hybrid TV) were relaunched in all cities of fixed business presence.

As part of the investment program for the development of fixed networks, it is planned to modernize more than 80 % of the capacity by 2023.

In 2020, MTS also expanded the geography of its fixed business presence both through the construction of its own networks and implementation of FVNO projects.

Expansion of geography.

- > Own construction 2019–2020:
- > Amursk – Khabarovsk Territory
- > Ishim – Tyumen Region
- > Lesozavodsk – Primorie Territory
- > Elban – Khabarovsk Territory
- > Furmanov – Ivanovo Region
- > Votkinsk – Udmurt Republic
- > Sarapul – Udmurt Republic
- > Dmitrov, Ivanteevka, Nakhabino, Sergiev Posad, Serpukhov, Shchelkovo, Orekhovo-Zuevo, Solnechnogorsk – Moscow Region

FVNO:

- > Ufa – Republic of Bashkiria

Buying asset:

- > Mezhdurechensk – Kemerovo Region

Penetration of broadband Internet access

in the market reached 61 % in 2020. The growth of the entire subscriber base amounted to 2.1 % (1.6 % in 2019) – in addition to the expansion of coverage by operators, growth was boosted by the connection during the period of self-isolation of new subscribers who previously used mobile Internet. Thanks to this, the base grew higher than last year's values.

Revenue of the Russian telecom market in 2020 grew only by 1.1 % as compared to 3.9 % a year before.

One of the negative factors was the government's requirement not to disconnect subscribers with zero and negative balances, as well as a close attention by the FAS to rate increases during the pandemic.

In the Paid TV market, the dynamics of connections continued to decline: the growth of the subscriber base in 2020 amounted to 1.6 % versus 2.5 % a year earlier. The saturation of the market took its toll: the penetration of the service is 81 %. The growth driver is IPTV connections packaged with broadband Internet access. At the same time, the outflow from cable networks continues, along with an outflow from the largest satellite operators. The revenue of the entire Paid TV market in Russia grew by 1.5 % over the year, significantly less than last year's 8.6 %. Unlike previous years, only a few large operators raised prices for their services in 2020.

At the end of 2020, MTS demonstrated an increase in the broadband access and television subscriber base by 10 and 9 %, respectively.

In the context of market saturation, the main strategy in the fixed telephony market is attraction and retention of subscribers through promotion of bundled and convergent offers, as well as expansion of the product portfolio.

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. In 2020, the share of users of the All MTS billing plan was 26 % of the total MTS subscriber base.

Developing the line of converged products, in 2020 the Company introduced rates for family segment to the market: "We are MTS" and "We are MTS+" rates including mobile communications, Home Internet and TV with access to XX channels, as well as the ability to share traffic with family members (up to five SIM cards).

As of the end of 2020, the geography of convergent services covers 53 regions of Russia. The number of converged subscribers more than doubled in 2020 and amounted to over 2.5 million people.

Network

MTS keeps developing its network to provide for high quality voice communications and mobile Internet. The LTE network development plays a crucial role here. In 2020, MTS continued to increase the LTE network capacity throughout the Russian Federation. The scope of construction in 2020 exceeded the 2019's value by more than 20 %, which made it possible to increase the coverage and capacity of the network and provide customers with a high level of service by each of the more than 40 quality metrics adopted in the Company, including data transmission rates and the quality of video views as the most demanded service.

The company is actively expanding its coverage to provide high-quality services on the main highways of the country. In 2020, measures were taken to improve the coverage in many directions, for example, on highways from Moscow to St. Petersburg, Ryazan, Voronezh, Smolensk, Yaroslavl in the central part of the Russian Federation

or on the Rostov-on-Don – Krasnodar highway in the south of the country.

In addition to developing the existing network, MTS is strengthening its leadership position in terms of new technologies. The company was the first in Russia to receive licenses to provide 5G / IMT-2020 mobile services in 83 regions of the country. Pilot 5G zones have been launched in a number of regions of the country. MTS deployed a pilot 5G network in the territory of the Skolkovo innovation center to test developments in the area of 5G technologies and to create promising domestic industrial ICT solutions and services on their basis.

MTS is also developing advanced digital solutions based on the current LTE network. MTS and Gazprom Neft were the first in Russia to deploy a dedicated (private) 5G-ready LTE network for the needs of the oil industry at geographically distributed sites with a single digital services control center based on the edge computing concept.

A large-scale project was launched to modernize the MTS mobile network in Moscow and the Moscow Region. Implementation of the project will increase the throughput and capacity of the MTS LTE network at least thrice, which will meet the customer demand for the growth of data transmission traffic, as well as for new digital services. In the future, it will be possible to quickly deploy the 5G coverage in the upgraded network by reconfiguring the software and using the technology of dynamic reallocation of the frequency spectrum between 4G and 5G standards.

Features of MTS operation in the context of the COVID-19 pandemic

During the pandemic, the company provided users with the opportunity to use incoming mobile communications with a negative balance. About 50% of subscribers had a negative balance at least once a month, of which about 42 % remain connected despite the negative balance.

In April, the MTS Subscriber application was launched, which allowed about 100 thousand subscribers to independently conclude an agreement without going to the office. This allowed us to increase the number of outlets selling SIM cards through distribution in non-core outlets operating during the pandemic. MTS SIM cards were also distributed at Internet sites. For example, it became possible to purchase a SIM card in OZON together with a phone purchase. 65 thousand orders were submitted as part of the promotion. Sales

of SIM cards have been launched on the MTS website with the ability to choose the number. At the end of the year, the possibility of purchasing eSim was added; about 5 thousand eSim cards were sold in December.

From March to May 2020, about 25 thousand fixed telephony users (BBA and TV services) were given the opportunity to use communication services if payment was not possible. Billing was reset and free access to information and hotlines for combating COVID-19 was provided. Newsletters with the necessary information were sent. Some companies transitioned to a remote mode of operation, which contributed to a growth in mobile Internet consumption. For such clients, MTS provided a solution to increase the volume of traffic on rates due to additional "+ Internet" packages. The number of monthly "+ Internet" connections has grown by more than 40 % compared to the beginning of the year. The expansion of the mobile network capacity at the areas of greatest load was also accelerated to the maximum. About 400 thousand people were able to increase the speed to the maximum possible during the quarantine period, and MTS ended up providing this opportunity on an ongoing basis.

Users on a trip abroad were given the opportunity to send free SMS and make free calls to hotlines of major airlines, airports, the Russian Foreign Ministry and COVID-19 combating lines. From February to December 2020, among other means of help for our subscribers, we provided them about 10 million minutes and more than 1.7 million SMS for free.

MTS increased online sales, expanded the semantic core and optimized selling pages, increased the presence in paid search engines and social networks, launched a callback from site, reformatted and transferred to remote work active sales channels while preserving all procedures and KPIs. The company preserved its tNPS growth and single installer performance indicators; in April, we returned to network maintenance.

RETAIL DISTRIBUTION

The MTS retail chain remains the primary channel for attracting MTS subscribers, 39.4 % of all SIM cards are sold at MTS showrooms. 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 2020, the number of MTS showrooms, including franchise, amounted to more than 5,200.

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.

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.

140
thousand
points of sale of MTS SIM cards

30%
growth in the number of sales points of MTS SIM cards

Despite the negative impact of COVID-19 on international roaming, the B2B segment of MTS in 2020 showed a steady growth of 2%. The main drivers of the segment's growth were Digital advertising, ISS services, M2M / IoT services, Cloud and VPN.

B2G

Revenue in the B2G segment increased by 38.9%. In 2020, revenue growth was ensured by implementation of federal infrastructure projects, as well as services based on Big Data for federal and regional government customers. For the coming years, MTS sets a goal to significantly increase the rate of revenue growth in the B2G segment by strengthening participation in national programs and federal government projects, coming in top place in the Big Data market, as well as developing a line of digital products.

Successful B2G projects are as follows.

Implementation of the second stage of government contracts for connecting socially significant facilities of the Russian Federation to the Internet within the framework of the national program "Digital Economy of the Russian Federation" amounting to over than 1 billion rubles.

Geoanalytics projects based on Big Data for the Moscow government, federal executive authorities and state customers in the regions. Also, a number of pilot projects have been implemented in Kuzbas, Bashkiria, Chechnya, Khabarovsk Territory, Kurgan, the Republic of Tatarstan and the Samara Region implying development of commercial relations. In total, MTS implemented more than 50 geoanalytical projects in 36 regions of Russia in 2020..

In nine squares of Vladivostok, MTS cameras are installed. They estimate the number of people in the park at different times of the day and days of the week and make up a "portrait" of visitors. These data allow the city administration to assess sufficiency of parking spaces, catering points, to form a strategy for the development of additional infrastructure. Simultaneously camera "Recognizes"

the person on the wanted list, will find by indirect signs, such as a description of clothes, a child lost in the park and detects the appearance of smoke or fire in time.

Features of MTS operation in the context of the COVID-19 pandemic

Based on MTS solutions, services were organized to inform citizens via SMS about restrictive measures and measures to combat the spread of the novel coronavirus infection (COVID-19), as well as services to generate digital and SMS passes for travel in the context of restrictive and quarantine measures.

In terms of video surveillance, MTS was promptly able to offer its customers relevant solutions for identifying people with higher temperature.

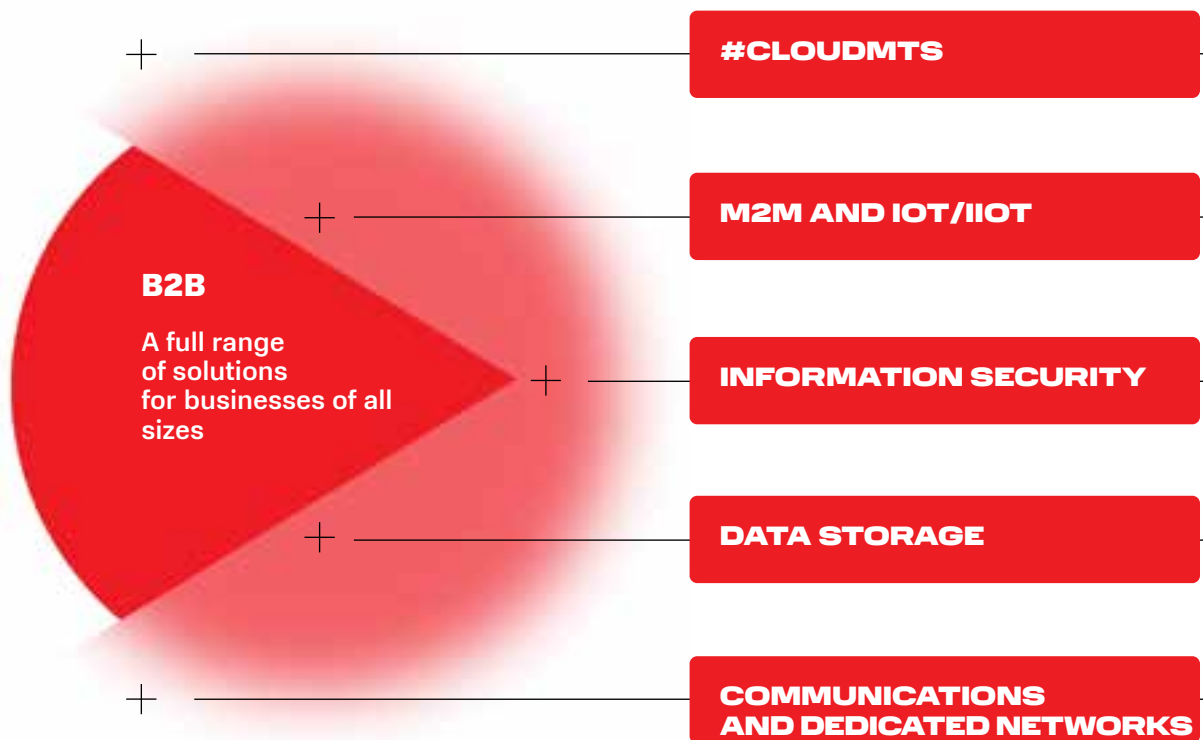
Some companies transitioned to a remote mode of operation, which contributed to a growth in mobile Internet consumption. For such clients, MTS provided a solution to increase the volume of traffic on rates due to additional "+ Internet for Business" packages. Some companies were forced to temporarily suspend their activities, and MTS also provided support to customers and gave them the opportunity to block services free of charge for the required period.

B2B Products

Mobile business

In the corporate market, the most highly demanded and sold offer of MTS since the time of launch to the present is the line of "Smart Business" rate plans. Against payment of a monthly fee, the rate includes packages of minutes, SMS, Internet traffic and unlimited communication in instant messengers. For any type of business and any category of employees, you can choose your rate from the line, taking into account the needs and the allocated budget for communication services.

Focusing on market trends and customer convenience, MTS always develops relevant offers for different segments. Therefore, the "MTS Business Smart" rate plan confidently took its niche in the segment of small and medium-sized businesses in 2020. The client can independently and easily adjust the contents of the rate according to the rapidly changing needs of the business in his/her personal account or mobile application.



B2B SOLUTIONS FOR INDUSTRY AND BUSINESS



The corporate customers of MTS were the first to obtain access to cutting edge technologies and products

Nº1
5G-Ready
private LTE network in Russia

+30%
of users IoT-based solutions

+25%
revenue in Digital and Cloud

CloudMTS
Nº2
in Russia
by revenue¹

¹ Data are for the fourth quarter of 2020, year-on-year

Fixed business

In 2020, MTS expanded its presence in fixed telephony services: in Q4, a BBA center was commissioned in Grozny, Chechen Republic. Construction of the center, as well as modernization of the network will increase revenues from data transmission services in the regions of the North Caucasus.

MTS has launched SD-WAN technologies on its own infrastructure within the framework of the Managed VPN service. The service makes it possible to combine several communication channels in a logical way, redistribute the load between the channels in real time and in automated fashion to ensure uninterrupted operation and configure client equipment in all branches from a single control point. Due to application of SD-WAN technology, network users will be able to monitor the quality of the service on their own in their personal account or set up alerts for a specific event. In addition, they will be able to quickly connect and disconnect new points in one click, which is not provided by a traditional VPN.

MTS is able to offer a turnkey solution as early as within three working days. Equipment is part of the service, including, among other things, a system for its operation monitoring, to enable the client to identify the root cause in case of a failure. The service allows you to make basic network settings in your personal account and then apply them on the client's terminal equipment.

Converged rate (mobile services + fixed internet)

In October, a b2b convergent was launched for small and medium-sized business clients. The proposed bundled solutions motivate customers to develop their business with MTS due to:

- > receiving a full range of services to solve business problems from one operator;
- > saving when buying a bundle.

“Business is where you are” promotion. When buying a wired Internet, free mobile communication and discounts of up to 40 % for additional services are provided.

“Save once, save twice” promotion. When buying multichannel telephony (auto attendant, VPBX or 8-800), a 35 % discount is provided on mobile communications.

Protection of the Russian companies against cyberthreats

MTS provides outsourcing services to IS-services in the Russian companies. We help the business and the government authorities to build a reliable protection against cyberthreats, technical faults and leaks. An internal SOC (Security Operations Centers) with 24/7 monitoring of risks and cyberthreats is in operation. MTS SOC enables monitoring of the company's state from the perspective of a cyberthreat, analysis of security events, timely detection and resolution of incidents, and control of efficiency of used protection facilities.

DDoS

During the pandemic, the DDoS protection service helped repel attacks against a number of large Russian companies. This service was also connected by customers from the government, including regional administrations.

The service allows you to protect customers' web resources (website, store, personal account, etc.) and infrastructure from malicious attacks. When the service is connected, the Internet traffic entering the protected resources undergoes constant behavioral analysis for the occurrence of volumes that are not characteristic of the given resource (both bigger and smaller) or requests.

Auto attendant

Virtual multichannel telephony services based on “Auto attendant” (federal and city numbers) and “Free 8800 call” (8-800 format numbers) proved to be essential for remote work during the pandemic. The services allow deploy telephony at the company without wires and special equipment, since PBX functionality is organized on the side of MTS virtual platform.

Successful projects of 2020 under the “Auto attendant / Free 8-800 call” service:

1. to organize a call center, one of the largest developers in Russia held a commercial tender for the number 8800 in May 2020, which was won by MTS. Monthly revenue for February 2021 averages at 1.2 million rubles;
2. when developing joint projects, two companies from the IT and advertisement placement sector purchased from MTS 430 thousand new numbers with the Auto Attendant service;
3. at the end of 2020, preliminary agreements were reached with one of the online ad services to purchase traffic from the Auto Attendant service of 70 million minutes per month.

QUALITY AND CUSTOMER EXPERIENCE IMPROVEMENT**SMART ROLL-OUT — SMART NETWORK****Network quality monitoring**

We use Big Data to analyze the level of network quality from the user’s point of view

Proactive expansion

We see potential problem areas and expand coverage to reduce outflow and increase loyalty

Targeted coverage

We estimate the potential payback and allocate resources

In 2020, we continued to work on introducing the best customer experience in the MTS ecosystem. At the heart of successful ecosystem building is the best customer experience in every area/ product/service. The center of the ecosystem is our Client, to whom we guarantee the quality of the product/service and round-the-clock support.

We strive to make customer communication with the company seamless, simple and unobtrusive, to earn the trust. We have expanded the coverage of tNPS satisfaction surveys to digital products and processes of ecosystem business verticals to better understand the needs and wishes of our customers.

MTS makes sure that the customer feels support and gets the best customer experience at every point of contact. To this end, a large project has been launched to modernize MTS showroom stores. Showrooms of the new format will meet the latest trends in customer service, being equipped with the latest technologies. Customers will be able to test devices before purchasing, perform maintenance operations, get acquainted with all the products of the MTS ecosystem, and even have a cup of coffee. Customers will have a choice to get advice from an employee or use self-service touch panels.

We strive to have clients quickly solve their problems in the new format, so that their visit is comfortable and leaves only positive impressions. A store of the new format can already be visited in Moscow on Malaya Dmitrovka Street.

High competition in the mobile and web application market requires constant development and improvement of product quality. In addition to the existing testing, the company has developed and launched a portal for alpha and beta testing of MTS products. Thanks to the portal, we involve loyal customers and company employees in product testing before the official launch, thereby ensuring a higher level of product quality.

As part of the MTS ecosystem development strategy for digital products, CJM (Customer Journey Map) templates were developed to create a single customer journey and simplify product development. Customer journeys are audited on a regular basis, which helps to identify problems and make the product more convenient and clear for the customer.

2020 saw a large-scale improvement of MTS TV: more content became available to users, viewing became more comfortable thanks to the new ability to broadcast content from mobile devices on large screens using Chromecast and Airplay. In addition, Android devices now have the ability to locally save content for playback without Internet access. The main result was a significant NPS product growth.

The MTS company tries to provide its clients with the most demanded and relevant services,

both of our own development and with involvement of partners. Requirements for the quality of partner services have been developed to ensure a uniform high level of quality in products. Requirements include a transparent reporting to customers about the connected service, availability of value for the customer, and the ability to control charges on the MTS side. Only high-quality and popular products are introduced to the market due to constant quality control of partner services.

Our clients use not only mobile and fixed communications, but other services as well. In 2020, we have combined e-wallet and online banking into a single showcase for all digital financial services in the ecosystem. Clients of the MTS ecosystem can now manage their finances in one application thanks to the updated RB of MTS Bank.

2020 saw implementation of the end-to-end customer identification that increased access to all products of the MTS ecosystem.

BUSINESS IN OUR MARKETS OF OPERATION

Armenia

MTS Armenia CJSC is a 100% subsidiary of MTS PJSC and the largest of the three mobile operators working in the Armenian market.

Under the Viva-MTS trademark, the company provides mobile and fixed telephony services, as well as offers cloud and financial services (payments and transfers are carried out by the Mobidram CJSC subsidiary) for its subscribers.

MTS Armenia is the leader in the mobile communications market of Armenia by the number of subscribers and revenue.

MTS Armenia's own retail network is the main channel for attracting subscribers with 78 sales and service offices, covering all regions and key cities of Armenia.

MTS 2G communication covers 69.4 % of the territory of Armenia, where 99.3 % of the country's population lives. MTS 3G communication covers 71.3 % of the territory of Armenia, where 99.8 % of the country's population lives. The MTS 4G-LTE network is available on 43.3 % of the territory of Armenia to 78.4 % of the country's residents.

MTS Armenia ended 2020 with 58.9 % market share in terms of subscribers in Q4 2020 (+0.43 % year-on-year) and 54.6 % in terms of revenues (-4 %

year-on-year) (due to a decrease in international traffic, the inter-operator agreement for roaming and interconnection was revised). The share of subscribers of bundled rate plans reached 76 % (+3.5 % year-on-year) and the share of subscribers using data transmission reached 69 % (+2 % year-on-year). The average volume of calls per one Viva-MTS subscriber in Q4 2020 increased to 704 minutes per month (+16 % year-on-year) and the use of data transmission amounted to 4.7 gigabytes per month (+42 % year-on-year).

MTS Armenia is a confident leader in the Net Promoter Score (NPS) on the market, significantly ahead of competitors.

In 2020, MTS Armenia expanded its LTE network, having built more than 230 stations in the 800 MHz LTE range, and also launched VoLTE technology allowing subscribers to make voice calls with a high sound quality and use the Internet in the LTE network simultaneously.

Corporate Social Responsibility

Being aware of its responsibility to the environment and society, Viva-MTS is paying special attention to this area and progressively developing its charitable initiatives. In 2020, the company implemented 19 charitable projects to support vulnerable population groups, develop education, culture and healthcare, as well as to protect the environment.

Specific features of MTS operation in Armenia in the context of the COVID-19 pandemic

The coronavirus pandemic has had a negative impact on the Armenian economy. This was the result of introduction of restrictive quarantine measures and the state of emergency in the country from mid-March 2020.

The most significant consequences of the pandemic for MTS Armenia were a decrease in roaming income, temporary closure of retail outlets, and a decrease in the subscriber base. MTS Armenia organized service for subscribers in Yerevan and seven large regions of Armenia through mobile service centers to provide for their uninterrupted servicing, taking into account the strategic importance of mobile communications.

In March 2020, MTS Armenia supported an initiative launched by the Ministry for Education, Science, Culture and Sports of Armenia and a number of universities, providing, in cooperation with a partner, a free access to educational resources for distance learning for students and their parents, as well as teachers.

Besides, martial law status was introduced in Armenia in the second half of 2020 as a result of the aggravated armed conflict on the border with Azerbaijan. Viva-MTS was one of the first companies in Armenia to offer assistance to the victims.

Belarus

Mobile TeleSystems JLLC (MTS Belarus) was established in 2002 by the Russian MTS PJSC (49 %) and the Belarusian Beltelecom RUE. The company operates under the MTS brand and is the largest mobile communications operator in Belarus. Its main competitors are BeST CJSC ('life' trademark) and A1 UE (Unitary Enterprise).

In Belarus, MTS provides mobile communication services of GSM 900/1800, UMTS 900/2100 and 4G standards (including 2600/800), home Internet and TV services, offers cloud services and programs for business and financial services in partnership (MTS Money), and also introduces innovative products (eSim, Big Data analytics for corporate clients, etc.).

MTS Belarus is the leader in the mobile communications market of Belarus with the largest market share in terms of the number of subscribers and revenue.

MTS Belarus' own retail network together with single-brand stores of the partners is the main channel to attract subscribers. The network of sales and service offices consists of 91 own offices and 278 single-brand partner showrooms, allowing to connect subscribers and provide service operations in all regions and key cities of Belarus.

MTS 2G communication covers 98.08 % of the territory of Belarus, where 99.9 % of the country's population lives. MTS 3G communication covers 96.2 % of the territory of Belarus, where 99.85 % of the country's population lives. MTS 4G-LTE communication covers 21.36 % of the territory of Belarus, where 76.48 % of the country's population lives. In 2020, MTS Belarus tested a standalone (SA) 5G. During the tests, the specialists managed to accelerate to the record speed in their test zone, 1.472 Gbps. The demonstration zone was deployed

in the Minsk-Arena complex and an advanced network was built on previous infrastructure using Huawei equipment. In the future, the introduction of 5G technology will accelerate a transition to the mass use of IoT devices in the field of energy, healthcare, industry, housing and public utilities, and control of robotic devices.

MTS Belarus ended 2020 with 48.6 % market share in terms of subscribers in Q4 2020 (+0.06 percent year-on-year) and 52.1 % in terms of revenues (+0.5 percent year-on-year). The share of subscribers of bundled rate plans reached 66 % (+1 percent year-on-year) and the share of subscribers using data transmission reached 68 % (+3 percent year-on-year). The average volume of calls per one MTS Belarus subscriber in Q4 2020 increased to 606 minutes per month (+9 percent year-on-year) and the use of data transmission amounted to 15 gigabytes per month (+27 percent year-on-year).

The company is confidently leading in terms of the net promoter score (NPS) in the telecommunications market of Belarus. According to internal marketing research of MTS, Belarus is the leader in satisfaction with the quality of mobile Internet and perception of reputation/image.

In 2020, MTS Belarus expanded its LTE network by using the assistance of an infrastructure operator to build 272 LTE base stations in the 800 MHz band in order to cover rural areas and more than 480 base stations in the 1800 and 2600 MHz bands in order to increase capacity and maintain consistent coverage of the LTE network.

In 2020, MTS Belarus launched its own data center in Minsk with a level of fault tolerance meeting the requirements of Tier III and an average annual Power Usage Effectiveness (PUE) of 1.28. Several areas will be developed in the data center: placing server and network equipment of MTS, as well as offering of Infrastructure as a Service (IaaS) to the company's clients.

Corporate Social Responsibility

Implementation of charitable and social projects is a strategic direction for the development of MTS Belarus.

In 2020, the company focused on dealing with preventing a cyberbullying among children and adolescents as part of a joint initiative with the UN Children's Fund UNICEF, as well as educational projects for high school students, graduates (applicants) and older people.

In addition to its own initiatives, the mobile operator also supported other social projects in the field of education, culture and sports.

Specific features of MTS operation in Belarus in the context of the COVID-19 pandemic

During the pandemic, MTS Belarus launched the #StayOnline initiative <https://www.mts.by/other/stayonline/>, provided users with the opportunity to use unlimited Internet for free and organized free calls for MTS subscribers to the Red Cross hotline in order to provide information assistance to victims of emergencies and free calls for social and psychological assistance to victims of domestic abuse.



<https://www.mts.by/other/stayonline/>

As part of the COVID-19 situation, MTS Belarus provided medical professionals with free additional voice and Internet traffic, and also handed over a batch of tablets for a rapid exchange of information with colleagues. The company has also opened a charity USSD number to help medical professionals combat COVID-19. In addition, more than 12 thousand elderly people received aid with essential products as part of a joint initiative of MTS and the Belarusian Red Cross Society.

MTS Belarus subscribers on a trip abroad were given the opportunity to make free calls to the numbers of the embassies of Belarus, the Ministry of Foreign Affairs of Belarus and the lines to combat COVID-19. A rate offer was also provided for business, with unlimited calls to all networks and unlimited traffic.

MOBILE APPLICATIONS AND DIGITAL SERVICES FOR MTS CLIENTS**My MTS**

The My MTS mobile application is the main showcase of MTS ecosystem, intended to involve both MTS clients and non-clients into the products of the ecosystem and partners.

The most important changes made to the My MTS application in 2020 are as follows.

1. Implemented management of "NeTarif", a package of subscriptions to communication services and other services of the ecosystem.
2. All products of the ecosystem implement a single profile display (a single "header") with the client's user images and a personal reference to the client.
3. Recommendations for adding supplementary numbers to a Multi-account have been connected: newly registered SIM cards for mobile communication or smart devices will now be automatically offered for adding when entering the application.
4. Added ability to manage widgets on the main screen: you can show or hide widgets "Cost Control", "Support", "Second Memory", "MTS Live", an online store widget, MTS Cashback.
5. A new "Finance" section has been launched with vast opportunities to manage connected banking products.
6. A new "Benefit" section has been launched with personal offers from the ecosystem and a separate section with a cashback marketplace.
7. Connected ability to exchange unused Internet traffic from the package for cashback points at the end of the month: the client only needs to press one button "Exchange Gigabytes", and the cashback points will be credited within a few minutes.
8. The ability to connect partner services to My MTS.

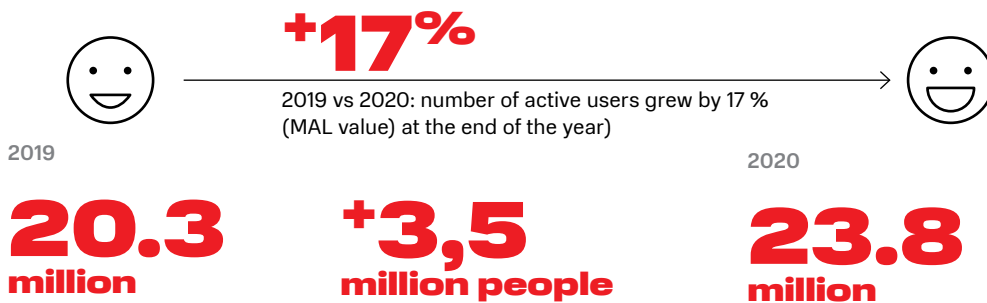
By the end of 2020, the My MTS mobile application totaled 23.8 million active users. Several product teams are constantly working on the program. Compared to 2019, the product team has more than doubled in size, while the number of new features implemented in the app in 2020 has almost quadrupled.

THE MAIN GOAL OF THE APP IN 2021 IS TO ENGAGE THE AUDIENCE OF MY MTS IN THE ECOSYSTEM'S PRODUCTS AND SERVICES.

- CHAT BOT**
- FINANCE**
- CATALOGUE**
Eco-systems
- NETARIF**
- MARKETPLACE**
of cashback offers



PLANS FOR 2021:



- Further growth in active and loyal audience of the app
- Introduction of new mechanisms for involvement of users into ecosystem products
- Development of the app as a marketplace and control center for MTS ecosystem products
- Development of a personalization and customization ability level of the app



MTS Cashback

MTS Cashback app is an application to buy products of MTS and partners with a subsequent accrual of points for the purchase. You can also spend points to buy products of the ecosystem and partners.



The mission of the program is to make consumption within the ecosystem more profitable and attractive for customers (including offers not only from MTS but also from the partners).

What's new in the app in 2020:

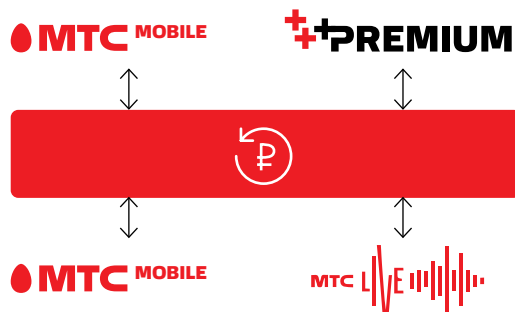
- > launch of a marketplace based on MTS Cashback — “Cashback Products” section in the My MTS app;
- > implementation of the functionality of cashback withdrawal for discounts from external partners;
- > new integrations with verticals and ecosystem services:
- > Mobile — exchange of gigabytes for cashback, cashback accrual for following MNP; Home — cashback withdrawal for MGTS services;
- > integration into the Premium program — cashback accrual to connect new MTS services, for Home, Mobile services, services of converged rate plans and increased cashback with external partners;
- > integration with MTS Live and Ticketland — cashback accrual and withdrawal when buying tickets. The loyalty program of the Ticketland service has been completely replaced by the MTS Cashback program.



Now the MTS Cashback loyalty program “permeates” all the existing verticals of the ecosystem.

2020 saw integration of new possibilities for accruals and withdrawals of cashback in different products

- > Mobile
- > Home
- > Premium
- > MTC Live



+64%

volume growth кэшбека в 2020 году vs 2019 год
In 3 times the number of program participants with accrued cashback has increased in 2020 vs 2019

**in 3
times**

the number of program participants with accrued cashback has increased in 2020 vs 2019

MTS Music and music segment

MTS offers its clients advantageous offers from top music services. Together with MTS, the client can choose the most suitable service for himself or herself and use it on the most favorable terms.

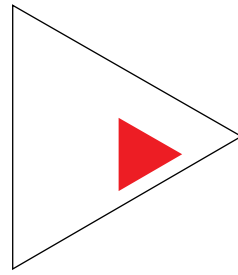
- > In 2020, a partnership with the world's most popular music service Spotify was launched in Russia, and now MTS customers can use the Spotify Premium subscription for free for half a year.
- > The partnership with Apple Music continues with a free trial period of 6 months.
- > For users of our own MTS Music service, there are favorable conditions in the “Netarif” subscription; within the Premium program, the ability to pay for the service with the Cashback program points.

In 2020, the total number of active users of the music segment in MTS reached 1 million people.

In 2021, it is planned to further integrate our own MTS Music service into the ecosystem — into My MTS, MTS Live, MTS Launcher, MTS Auto, deepening integration of partner offers within the ecosystem.



MTC Music



PLANS FOR 2021:



+21%

Increase in listening to tracks per year



2019

1.9 million

tracks were listened users apps

2020

2.3 million

tracks were listened users apps

FM-RADIO

+21%

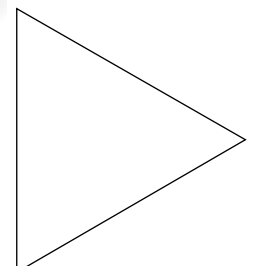
FM radio section launched within the application



Скачать приложение на Google Play



Скачать приложение на Apple Store





MTC Cloud Gaming

In 2020, MTS opened a marketplace for cloud gaming services: MTS customers can take advantage of the offers of MTS partners on favorable terms.

Cloud Gaming is a technology that allows users to play the most advanced games on any computer: all the computing power needed to play is available remotely. The client only needs to download the partner's application and launch the game in a few clicks! For MTS clients, 10 % of the service cost will be returned with cashback points that can be spent on other products and services of the ecosystem.

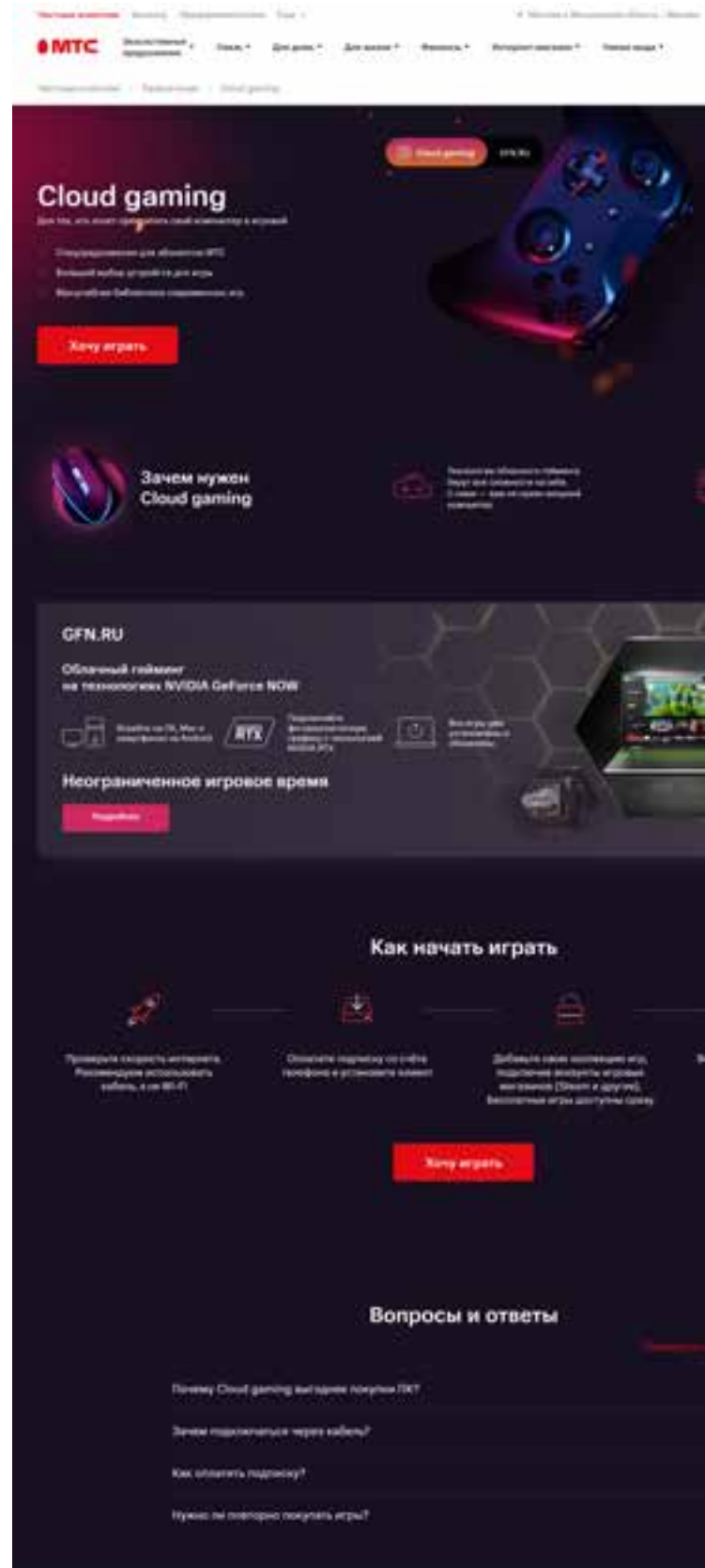
For 2021, MTS plans to popularize the technology and increase the number of gaming service customers in the ecosystem.

Why you need Cloud gaming

- > Cloud gaming technologies take on all the complexities. You don't need a powerful computer with them
- > Run games on any PC. And modern technologies will fully immerse you in realistic worlds and complex plots
- > GFN.RU
- > Cloud Gaming using NVIDIA GeForce NOW technologies
- > Play on PC, MAC and Android smartphones
- > Connect photorealistic graphics with the NVIDIA RTX technology
- > all games are already installed and updated
- > Unlimited game time
- > More Information
- > Playkey
- > Run games in high quality without installation
- > Loudplay
- > Open up the world of top novelties and cool modifications from the Internet

Other mobile applications and digital services of MTS

- > MTS applications:> 1 million active users
- > MTS Smart Home
- > Control panel for IoT devices
- > MTS search
- > Geolocation tracking service
- > Cloud service for data storage
- > MTS Library
- > 270 thousand e-books (as well as audiobooks, magazines and newspapers)
- > Network security and comfort services: antivirus, spam blocking



MTS Connect

MTS Connect is a multiservice app. Key functions of the product:

- > making and receiving calls via Internet from places with poor mobile network coverage or complete absence thereof. The product scope makes it possible to make calls to any numbers, including landline and short numbers, as well as to numbers of other telecom operators. The cost of calls to MTS is 0 rubles/minute, calls to other destinations are paid according to the terms of the rate plan;
- > saving in roaming due to billing of calls as per the home rate. The user only pays for Internet traffic;
- > recording, playback and sending of telephone conversations;
- > a virtual number that allows the user to get an additional phone number without visiting a showroom and use it without a SIM card in the MTS Connect application for calls and SMS. The service is in demand to separate personal communication from work, to register at sites, to participating in promotions and to have a spam number.

Main achievements in 2020

- > The application has been redesigned.
- > The “Virtual number”, “Multi-account” and “SMS for virtual numbers” functions were launched in five regions of the Russian Federation.
- > The “Conversation recording” function was launched.
- > Implemented Voice API for calls outside of MTS Connect. Designed for use with a smart speaker, can be reused for set-top boxes, smart home devices, and more.
- > Improved quality and user satisfaction indices; an increase in store ratings (App Store +50 %, Play Market +41 %).
- > The active monthly user base has grown by a third compared to last year.

Key objectives for 2021

- > Further growth of the active user base.
- > Growth in indicators of the product use frequency.
- > Replication of the “Virtual number”, “Multi-account” and “SMS for virtual numbers” functions in the regions of the Russian Federation.

FINANCIAL SERVICES

For MTS Bank, 2020 has become a serious challenge and, at the same time, a year of new opportunities for business development in difficult macroeconomic conditions. The Bank passed the strength test, while being able to quickly adapt to new realities and market requirements. Moreover, it strengthened its position in key business areas and continued the development of financial services in the MTS ecosystem.

MTS Bank today is a digital commercial bank responsible for creation, development and sale of financial services of the entire MTS Group of Companies. The largest auditing company AO Deloitte & Touche CIS presented the results of a study on the preferences of retail clients of 30 leading Russian banks. MTS Bank was recognized as the most popular bank among respondents in the cross-product segment; its clients use several ecosystem products at once.

Despite the significant negative consequences of the pandemic for the entire banking sector, MTS Bank ended 2020 with an increase in its loan portfolio and a positive financial result.

The retail loan portfolio grew by 28.1 % year-on-year to 118.8 billion rubles. This allowed MTS Bank to enter the top 5 in terms of growth in the retail loan portfolio at the end of the year among 30 leading Russian banks and in the top 10 banks by the size of the credit card portfolio. Year-on-year growth of the portfolio exceeding the average market rates amounted to 38.3 %.

The Bank for International Settlements (BIS) included three Russian companies: MTS Bank, Ozon and Yandex in the leaders of big tech lending in the digital services market, along with such players as Amazon, Alibaba, Apple, Facebook and Google. Big tech lending is what experts called lending by technology giants. The selection included large IT companies lending in more than 30 countries around the world.

At the end of 2020, the number of digital cards issued has increased fivefold compared to the same period of 2019. The share of digital cards in the MTS Bank portfolio is 17 %.

Over the reporting period, the Bank managed not only to maintain, but also to strengthen its positions in the POS loan market and became the leader in portfolio growth in the market. The bank quickly adapted to the changes and promptly launched new partnerships in online channels. This allowed us to become one of the top 3 players on the market by lending volumes. The volume of sales of targeted POS loans by the Bank was almost 39 billion rubles in 2020; more than 980 thousand loans were provided.

The bank held the leadership in credit card portfolio growth with a result of 21.41 % (December 2020 to December 2019). In annual terms, the increase was 38.3 %. The MTS CASHBACK card became the leader in the "Best Credit Cards 2020" rankings according to the "Vyberu.ru" service. The bank increased sales in digital channels. The share of credit card sales there amounted to 30 % (an increase from 18 %), debit cards – to 60 %.

Despite the crisis situation around the world, banking sector included, the number of cards sold by MTS Bank in 2020 was 1.3 million, which is 10 % more than a year earlier.

The focus of MTS Bank's strategy is still the customer, the development of customer service and the improvement of the customer journey in the digital ecosystem of MTS. In the reporting period, MTS Bank was recognized as the best bank in the Customer Care category at the 13th Bank of the Year financial award ceremony of the Banki.ru financial market. The Bank received an award for high level of customer care 24/7, in particular, through "People's Rating" services and "Hot Line" on the Banki.ru website.

The Bank also entered the top 5 most omnichannel banks according to the results of the VIII annual survey for availability and quality of digital channel service NAUMEN. More than 100 retail banks took part in the study in total. The study included inspection of the hotline operation, as well as the presence and availability of banks in chats on website, in instant messengers and social media. The quality and speed of service in these channels were assessed.

Payment of municipal and federal services through the payment infrastructure of the Bank

In 2020, as part of the development of a joint project with the Moscow Information Technology Department, the number of payments made through the MTS Bank payment gateway on the Mos.ru city

portal and Moscow mobile applications increased by 20 % versus 2019.

During the pandemic, the share of payments for services of housing and public utilities grew to 73 from 68 % in 2019. About 20 % of all payments for services of housing and public utilities in Moscow and more than 80 % of all payments to the Moscow Department of Education (nurseries, schools, hobby groups) passed through the MTS Bank payment gateway on the city portal of Moscow. And the number of users of the payment functions on the city portal increased by 20 % as compared to the previous year.

Based on the experience gained in Moscow, MTS Bank scaled up the service in other regions of Russia in 2020. This is a joint project of regions and businesses for remote provision of services, integrated into the digital infrastructure of the city. The bank has developed a payment solution that can be integrated into regional portals of electronic government services. During 2020, MTS Bank successfully launched a payment service in 15 regions of the Russian Federation that supported the initiative to create a convenient digital infrastructure for citizens.

Single financial storefront

In October 2020, the two mobile applications MTS Money and MTS Bank merged. The new MTS Bank mobile application has become a single showcase for all digital financial services of the MTS ecosystem. The number of users of the MTS Bank mobile application grew in the fourth quarter by 30 % to 1.2 million.

This allowed MTS Bank to enter the top 10 best mobile banks for daily accomplishments in the annual Markswשב rankings published in December 2020. The bank moved up to 9th from 29th place.

In December 2020, MTS Bank announced the beginning of transformation of the mobile application into a smart bank – a solution to manage personal finances for clients of any banks. At the initial stage, the smart bank displays data on the products of other banks of the client and prepares a personal selection of organizations for making a payment, and in 2021 it will already adapt products individually for each client, will help to save money for certain purposes, invest money as profitably as possible, predict the financial standing of the client, and will advise on managing personal finance.

3 GOOD HEALTH AND WELL-BEING



8 DECENT WORK AND ECONOMIC GROWTH



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



10 REDUCED INEQUALITIES



11 SUSTAINABLE CITIES AND COMMUNITIES



12 RESPONSIBLE CONSUMPTION AND PRODUCTION



15 LIFE ON LAND



16 PEACE, JUSTICE AND STRONG INSTITUTIONS



CLOUD AND DIGITAL SOLUTIONS FOR BUSINESS

MTS cloud ecosystem

The cloud ecosystem of MTS includes solutions in the format of private, public and hybrid clouds, a range of consulting and professional services, data center services, and telecoms services. The ecosystem is trusted by over 2 thousand representatives of big business. Customers include: Dymov Group, Segezha Group timber holding, Salympetroleum oil company, Kortros Group of Companies, Utair airlines, ABBYY, Gazprombank and other international and domestic companies.

Representatives of government agencies choose clouds for IT infrastructure arrangement increasingly often. The examples of agencies that moved to MTS cloud include the Far East Development Corporation, the MFC network of Rostov-on-Don, the power grid company of the Krasnodar Territory.

Cloud provider #CloudMTS is one of the largest cloud providers in the country. According to a number of research agencies: iKS-Consulting, TMT Consulting, Cnews etc. #CloudMTS traditionally takes the first lines of ratings of IaaS providers.

Quantity of new products

The ecosystem includes more than 25 services for various business objectives. An in-house development division is actively growing, where developers are recruited in the areas of service automation, DevOps, container computing, databases as a service (DBaaS), QA & Security, back-office services and other areas of development.

What services have become more popular at the end of the year

The demand for MTS cloud solutions has doubled over the year. Classic infrastructure, private and hybrid cloud environments, as well as deeply customized solutions are in demand.

The following solutions were popular for remote work: VDI, document exchange services. The connection of backup services grew by 20–25 % monthly. IT companies were interested in high-speed data processing services in a supercomputer-based cloud: the demand for MTS GPU services more than tripled in a year.

2020 results

Thanks to the new high-performance hardware, #CloudMTS provider has increased computing speed by about 2.5 times. This makes it easier for the customers to solve problems in the field

of artificial intelligence and machine learning, increases the speed and reliability of client applications.

At the end of the first half of 2020, the volume of stored and processed data in the cloud of the #CloudMTS provider has grown by more than 1.5 times compared to the same period last year. Services for placing personal data in the cloud have become twice as popular.

In 2020, small and medium-sized enterprises of Moscow exceeded large enterprises for the first time by growth rates of cloud service connections. At the end of last year, the share of users of cloud provider #CloudMTS solutions from among SMEs of the Moscow Region increased to 35 from 47% vs 2019.

By industry criterion, the most active consumers of cloud services were retail representatives, which account for about 28% of the #CloudMTS client portfolio. Finance accounts for about 22%, industrial enterprises - for 17%. About 13% is the share of transport and logistics companies. More than 60% of clients of the #CloudMTS provider use the operator's range of services: mobile communications and data services.¹

Rankings and awards

MTS cloud business became the leader (14 %) in the IaaS segment according to a research by TMT Consulting.

In January 2021, the IT marketplace Market.CNews ranked the MTS cloud business (#CloudMTS and IT-GRAD providers, 1cloud.ru online service) among the best IaaS providers for large companies. The "IaaS Enterprise 2021" rankings assessed such criteria as the virtualization platforms used, the level of availability, the cost of services, the team, the developed range of services, the availability of certificates, the number and characteristics of data centers.

The Avantage data center entered the top five largest data centers in the country according to iKS-Consulting, CNews Analytics.

The external communications division of the #CloudMTS provider won the Digital Communications Awards-2020 in the Digital Projects and Strategies category.

New services

- > **MTS launched the line of cloud design solutions for business.** The line will be engaged in strategic IT consulting and implementation

¹ <https://moskva.mts.ru/about/media-centr/soobshheniya-kompanii/novosti-mts-v-rossii-i-mire/2021-01-12/moskovskie-predpriyatiya-malogo-i-srednego-biznesa-v-dva-raza-uvlechili-obem-hraneniya-dannyh-v-oblakah>.

of complex infrastructure projects. The line team includes certified engineers, architects and #CloudMTS project managers. Experts will formulate a cloud data estate for customers and develop a cloud business strategy.

- > **MTS launched cloud IT outsourcing services for business.** As part of the Professional & Managed Services service, a professional team of #CloudMTS experts configures, manages and supports IT infrastructure and creates complex designs for cloud implementation. This ensures that large businesses will be able to substantially reduce the cost of routine work associated with supporting IT infrastructure in the cloud. Medium and small-sized businesses get high-level IT specialists at their disposal without the need to increase their staff number.
- > MTS opened access for business to the cloud service for unified communications. The provider launched the "Office #CloudMTS" service to organize a remote interaction of employees based on the #CloudMTS cloud. The service is provided using SaaS model and allows saving up to 35 % monthly.
- > **MTS announced the start of #CloudMTS cooperation with 1C,** one of the leading Russian developers of software for business. The #CloudMTS provider has launched a new line to engage in hosting of 1C client systems in the cloud, their comprehensive support and customization. A significant advantage of the service for representatives of medium-sized businesses is the ability to reduce the cost of maintaining the operability of 1C systems.
- > **MTS has expanded the capabilities of cloud backup for business.** The #CloudMTS provider launched a solution based on technologies of CommVault, the market leader in business continuity solutions. Large corporate clients obtain a continuity of their business and optimize the cost of data storage up to 30% per month. With the ability to compress data, the service reduces the volume of the cloud occupied by backups by 70 %.

Safety

MTS has provided the highest possible level of cloud protection for businesses and government agencies. Enterprise customers can handle in the cloud, the personal data of all four levels (including medical and passport). In the #CloudMTS cloud, the placement of state information systems of all levels and scales (not containing state secrets) is available, including number of those requiring the highest, first class security K1



MTS provided maximum possible level of cloud protection for business and government agencies.

Help in a pandemic

The cloud business of MTS provides its customers, society and the government with services in a short time and ensures uninterrupted 24/7 operation. Thanks to the MTS cloud solutions, during the pandemic:

- > **NEFU (North-Eastern Federal University), the largest university in the north-east of Russia, has launched a digital learning platform in the MTS cloud.** #CloudMTS cloud helped to organize the admission campaign of NEFU in 2020, as well as the International School Olympiad "Tuymaada-2020" and the All-Russian Student Olympiad in Mathematics 2020 (VSOM-2020)).
- > **In mid-May 2020, MTS helped BelSU (Belgorod State University) to organize remote learning for students** by providing cloud technologies for remote education. Within just two days, the university's e-learning system was moved to the cloud.
- > **In March 2020, #CloudMTS provider for two months opened a free access** to the #CloudMTS Disk cloud service for remote storage and exchange of corporate data..
- > **The #CloudMTS provider supported business** by reducing the monthly fee for the most popular cloud services based on Veeam and Acronis technologies, which became especially important for online retail and logistics companies that were experiencing a huge load on IT infrastructure during the pandemics period..

Cloud migration cases

1. **One of the largest Russian airlines, Utair, has moved to the MTS cloud.** The project uses a certified cloud segment that provides high security and complies with the Federal Law of Russia dated July 27, 2006 No. 152-FZ "On personal data". About 90% of the airline's IT infrastructure was transferred to the MTS cloud, including both internal IT systems, and resources for airline customers..

2. MTS continued to implement large-scale cloud project to deploy and launch digital control platform based on SAP solutions for Segezha Group, one from the largest Russian vertically integrated timber industry holdings.
3. **Provider #CloudMTS has implemented complex project of organization of cloud infrastructure and IT outsourcing for Salym Petroleum — a joint enterprises of Shell Salym companies Development B.V. “ and PJSC GazpromNeft.** MTS provided employees of the oil company with a secure remote access to enterprise resource management systems using VDI technology. #CloudMTS provided network connectivity applications hosted in the Russian cloud with the global cloud system SAP 4 / HANA. The project involved a certified segment clouds with a high level of security, in accordance with the Federal Law of the Russian Federation of July 27, 2006 No. 152-FZ “On personal data”.
4. **Cloud technologies of MTS provided operation of the critical IT infrastructure of the Russian division of Europ Assistance.** Moving to the cloud brought continuity business processes of the Russian branch international insurance group, increased security and accelerated the work of specialized IT systems by at least 25%. On the basis of MTS cloud technologies, the work of the entire accounting department is organized, which serves Russia and the countries CIS, including employees provided virtual workplaces.
5. **The retail network “Your House” has moved online trading services to the cloud “IT-GRAD” (part of the MTS Group).** The company’s website was moved to the cloud platform, which daily visit about 25 thousand buyers, and a CRM system. The transition to the cloud allowed the retailer to quickly increase the resources required to maintain the site’s performance in the face of increased load.
6. **GC “KORTROS”, developer of the federal level, moved IT systems to the cloud MTS.** Transferred to the cloud platform business critical systems associated with the management of operating activities, interaction with clients, accounting and finance, such as 1C program, ERP and CRM systems, modeling programs buildings based on BIM technologies. Also with the help of cloud technologies 95% of employees the developer transferred to remote workers places.
7. **MTS moved the power grids of Krasnodar region to the cloud.** The provider has implemented a complex innovative project for “NESK-electric networks” JSC. MTS has developed and implemented on the cloud platform #CloudMTS automated system for remote monitoring and collection of readings electric meters. This allowed the power grid company to save on operating processes up to 30% of costs.
8. **“Corporation for the Development of Far East “JSC moved IT infrastructure to the cloud of the #CloudMTS provider.** Thanks to cloud technologies provide secure data exchange between employees and reliable operation of the organization’s website containing a service for receiving and processing applications to obtain the status of a resident of the territories of advanced development and free port Vladivostok.
9. **Leading manufacturer of aluminum packaging Tula company “Present Upakovka” moved IT systems to the cloud of MTS.** Thanks to the #CloudMTS cloud migration databases, accounting, analytical, and financial systems have reduced IT costs of the enterprise by more than a quarter.
10. **The MFC Rostov-on-Don network has moved IT systems in the MTS cloud.** MFC posted information systems in the dedicated cloud segment #CloudMTS, which is certified according to the requirements of the Federal Service for technical and export control. The solution provides government and commercial customers with reliable protection of data in accordance with the requirements of Russian legislation on working with state information systems.



MTS has increased the reliability of the data center “Avantage” using the Internet of things: all distribution data center power systems are equipped IoT sensor monitoring and control.

Data center “Avantage”

A comprehensive IoT solution allows flexible management of the infrastructure and parameters of the data center halls, regardless of the type of equipment operated and its functionality, guaranteeing customers security and safety of data.

Internet of Things (IoT)**Number of regions covered by the NB-IoT network at year-end 2020**

- › In 2020, the NB-IoT network covered 78 regions of Russia; the network covers more than 90% of potential consumers.
- › The number of connected devices increased by 3.5 times as compared to 2019.

2020 Results

- › In 2020, more than a half of IoT projects accounted for the machine-building, transport, real estate, housing and public utilities and information and communications sectors.
- › In 2020, the largest growth in the number of connected IoT devices was observed in real estate and housing and public utilities (+84%), industry (+52%) and transport (+42%).
- › The growth in the number of IoT SIM cards in the MTS network was about 20% year-on-year.
- › The share of connected IoT/M2M SIM cards remains at approximately 43%.

Development plans

- › Expansion of the NB-IoT network coverage to 83 regions and bringing the number of BSs to over 40 thousand stations
- › Expansion of support for special functions of the NB-IoT standard
- › Expansion of the portfolio of NB-IoT devices and partnerships with manufacturers in the Russian Federation
- › Creation of certification authority for IoT / partner equipment
- › Expansion of capabilities of our own IoT platform
- › IoT ecosystem development
- › Launch of new products in the areas of housing and public utilities, real estate, as well as digital services for retail

Development of NB-IoT standard

- › GOST R 59026-2020 “Information technology (IT). Internet of Things. Wireless data transfer protocol based on LTE standard in NB-IoT mode” was approved and put into effect on January 1, 2021.
- › MTS tested the NB-IoT network at the Lukoil Perm field to monitor the condition of equipment and parameters of well operation in oil fields.
- › In the spring of 2020, Russia’s first certified water meter operating on the NB-IoT Internet of Things network was integrated with the VDome app enabling the check of meter readings and payment of utility bills. Use of “smart” meters allows for reducing the payment for general household needs by 10% on average and decreasing an average bill for water

and electricity by almost half. The NB-IoT network specially designed for the housing and public utilities segment provides for stable operation of meters even in places that are hard to reach for other mobile communication standards and high energy efficiency: it enables a device to operate for up to 10 years without changing a battery.

- › **MTS connected more than two thousand electric scooters and bicycles of sharing services to the NB-IoT network in St. Petersburg, Krasnodar, Rostov-on-Don, Gelendzhik and Yessentuki.** Scooters connected to NB-IoT send information about the location and the status of the trip in real time. An NB-IoT SIM card is integrated into the scooters at the factory. This enables their protection from theft and receipt of accurate data on the status of each specific device.
- › In early 2021, MTS deployed NB-IoT network in Antarctica

**In early 2021, MTS deployed NB-IoT network in Antarctica**

The company deployed the NB-IoT network at Russia’s Antarctic Station “Progress” to transmit data from the devices of the Arctic and Antarctic Research Institute (St. Petersburg). Trackers, multi-sensors and sensors powered by the network will make it possible to study glacier and snow movement, as well as to monitor the integrity of snow runways and the microclimate in living accommodations and working premises.

NB-IoT devices

- › In 2020, MTS marketed the NB-IoT Development Kit, a kit of equipment to develop IoT devices. The Development Kit enables the development of devices based on the NB-IoT network that transfer small amounts of data and require high energy efficiency. The product is most in demand among the companies developing devices for segments of real estate, housing and public utilities, security, smart cities and agriculture. The product is useful for universities, startups and internal laboratories of large corporations engaged in developing digital solutions.
- › In July 2020, an open conference NB-IoT Development Kit was held for developers in the field of the Internet of Things, dedicated to use of the NB-IoT Development Kit in practical cases and tasks.
- › MTS launched an educational program on the development of devices for the NB-IoT Internet of Things network in cooperation with Russia’s leading technical universities. The project includes six universities from the regions where the Russia’s largest

network NB-IoT by MTS is deployed: MIEM HSE (Moscow), SUAI (St. Petersburg), TUSUR (Tomsk), MIREA (Moscow), UrFU (Yekaterinburg) and NEFU (Yakutsk).

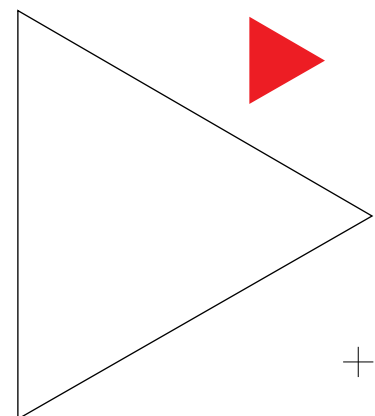
- › The company provided 77 starter kits to universities for the development of energy-efficient IoT devices. They allow for quickly learning how to work with the NB-IoT network thanks to open source code, access to the Internet of Things platform and compatibility with the Arduino platform.
- › In October 2020, MTS began to offer NB-IoT-Tester for corporate clients. The handheld device shows signal strength and checks data transfer over the NB-IoT.
- › In 2020, MTS started offering six types of NB-IoT equipment from external manufacturers for B2B clients in vertical markets: gas, electricity, water meters; sensors for door and manhole opening; data collection and transfer devices (DCTD).

Projects that were able to help businesses and population to improve efficiency during the pandemic

- › In 2020, client companies introduced solutions to organize work of traveling employees 2.5 times more often than in 2019: determining the location of couriers and vehicles, automatically assigning tasks and monitoring their implementation. During the pandemic, digital solutions were actively used to distribute calls between doctors, work hours and geographic location automatically, as well as organize managing doctor groups working with COVID patients.
- › The MTS Coordinator digital product designed for maintenance and repair of equipment was introduced in the Medsi network of clinics. Digital twins were created for 32 buildings of the Medsi network of clinics. MTS developed a package of solutions to monitor health of employees and compliance with measures to prevent a spread of infections. The clients could choose one of the three solutions: a non-contact body temperature meter, an automated pre-trip or pre-shift tele-medicine control system, or a thermal imager.
- › Thermal imagers were installed at the Vyatka State University to measure students' and teachers' temperature.
- › 840 doctor workplaces were automated in Chuvashia within the framework of the national Healthcare project.
- › MTS fitted SIM cards into IoT cardiographs of emergency doctors in the Altai Territory.
- › MTS launched a smart video surveillance system in the territory of a COVID clinic in Kaluga by installing more than 100 cameras with backup storage in the cloud.

Transport and logistics

- › **MTS launched cargo transportation monitoring based on the Mobile Employees service**, which enables businesses to control the delivery of goods by logistics companies. The first client was Cartley LLC, one of the leading traders of polymer products in Russia and the CIS. The client app displays information about the route and location of the driver and the planned date and time of arrival.
- › MTS provided Yug-Agro LLC, the largest greenhouse center in Russia, with a range of digital services. MTS connected Yug-Agro to the Mobile Employees service helping the company receive information about the moving of representatives, vehicles and cargo, as well as efficiently coordinate the actions of personnel.
- › IoT Connected car at Geely and Toyota Motor. Cars are fitted with MTS SIM chips at the assembly line of Geely, and a model range of Toyota and Lexus cars for Russia is equipped with standard trackers with MTS SIM chips to collect telemetry and share user Wi-Fi.



Digital real estate

The “Data Telemetering” solution was introduced by Mezhdurechensk Vodokanal (Water Authority) within the framework of an agreement signed by MTS and the administration of the Mezhdurechensk urban district in August 2019. At that time, the parties began to cooperate in implementing projects for the development of smart city technologies designed to improve safety of urban environment and efficiency of using the city infrastructure resources through the introduction of innovative MTS services.

MTS is creating a digital residential complex in Moscow based on the Data Telemetering platform, video analytics and the Vdome+ service.

Data transfer from meters is carried out via the NB-IoT Internet of Things network.

MTS started offering the first digital service for legal entities to reduce real estate tax. MTS Estate is a digital service that fully automates the process of reducing property tax by revising the cadastral value.

The solution will be in demand by the companies owning large real estate: offices, factories, agricultural land, warehouses and other facilities. The service can help reduce the amount of tax by an average of 30%.

The MTS Estate digital service received gratitude from the RF CCI for its contribution to the development of digital economy of the Russian Federation.

Also, the RF CCI placed MTS Estate on its marketplace (digital solution store) as one of the most prominent digital know hows of 2020.

Geo-analytics

In total, MTS implemented more than 50 geo-analytical projects in 36 regions of Russia in 2020.

In the current conditions, these projects are a critically important tool for the formation of a decision-making system based on data: anonymized data allow for planning the development of infrastructure and developing the tourism potential of regions and territories.

During the pandemic, MTS data were actively used to calculate and measure fluctuations in the self-isolation index, as well as to forecast the rate and geography of the spread of the virus and take measures to prevent crowding.

In 2020, a pilot project was launched together with the Tourism Department of the Samara Region to assess **tourist flow in the region**.

Environment

MTS and the Russian Environmental Society launched a federal program for digitalization of waste collection and recycling.

The MTS digital solution allows for managing a garbage collection schedule based on data on the fullness of containers, controlling timeliness and quality of territory cleaning, as well as automating the generation of invoices, conclusion of contracts and settlements with contractors.

In September 2020, MTS agreed with the government of the Nizhny Novgorod Region to implement a pilot project for solid waste (SW) digital management in Nizhny Novgorod.

Agreements

MTS will invest more than 2 billion rubles in the digital infrastructure of Kuzbass by 2022

creating joint test zones of the Smart City project to improve the quality of life in an urban environment.

In August 2020, MTS signed a cooperation agreement with the Kostroma Region, under which MTS will invest more than 1 billion rubles in implementation of digital initiatives in the region by the end of 2021. **In order to develop social and touristic infrastructure of the Kostroma Region**, MTS developed a project to provide geo-analytical big data based reports on a natural migration of citizens and tourists in the region.

Social Projects

MTS launched Russia's first Safe Digital Nursery.

MTS and the administration of the Solikamsk Urban District launched Russia's first Safe Digital Nursery comprehensive pilot project within the Smart City federal project.



Private Network

A private technological wireless network (Private Network) designed for digitalization and automation of critical production and technological processes integrates various elements of production (wireless sensors and devices, IoT solutions) with IT infrastructure of an enterprise into a single closed ecosystem. Isolation from public commercial communication networks provides an increased security, reliability and safety of industrial and IT processes.

Private Network solutions (Private LTE and Private 5G-ready) are a part of the comprehensive digital platform and the basis for implementation of the entire range of digital and cloud services by MTS and its partners within the customer's enterprise.

In 2020, MTS implemented a number of Private LTE/5G-ready pilot projects jointly with the leaders of the energy, oil and gas, petrochemical, mining and other industries and signed several commercial contracts to deploy private networks, including with SIBUR-Khimprom, Polymetal and EVRAZ. Introduction of the Private Network solutions accelerates enterprises' digital transformation and increases production efficiency through automation and robotization of technological processes, the use of remote and autonomous working solutions, analytics and security.

In August, MTS and SIBUR, one of the largest petrochemical companies in Russia, agreed to deploy a commercial private network in the territory of the SIBUR-Khimprom plant by May 2021. The industrial Private Network will allow for developing

projects in the field of the industrial Internet of Things, augmented reality and advanced analytics to control product quality and increase productivity.

In September, MTS and Nokia deployed the first private 5G-ready network in Prikamie as part of a pilot project with UEC-Perm Engines JSC, the largest manufacturer of aircraft engines for civil aviation and industrial gas turbine units in Russia. Introduction of the Private Network solution inside a workshop allowed for increasing information security and reliability of the enterprise infrastructure.

In October, MTS and Gazprom Neft, high-tech leader of the Russian oil industry, announced deploying Russia's first pilot private 5G-ready technological network for the needs of the oil industry based on the edge computing concept.

In November, MTS announced signing an agreement with Polymetal Group, one of the largest gold and silver producers in the world, to build a 5G-ready commercial private network that will be deployed at the Nezhdaninskoye gold ore field in the Republic of Sakha (Yakutia). Taking into account harsh climatic conditions and changing mountainous terrain, the deployment of a private network as a single high-speed platform for various technological needs will significantly increase the rate of transmitting large data amounts and the fault tolerance of the technological network, as well as reduce the cost of its maintenance.

In December 2020, MTS and Zyfra entered into a partnership agreement for MTS to develop industrial services for business clients based



on the digital analytical Zyfra Industrial Internet of Things (IIoT) platform. The companies plan to deploy the IIoT platform in the MTS cloud infrastructure and integrate it into MTS digital industrial solutions based on Private LTE/5G-ready technological networks. The use of the IIoT platform in the industry can significantly increase production, reduce prime cost of the products by up to 8%, reduce energy consumption by up to 25%, as well as save up to 50% of the time spent to plan and organize production.

In December 2020, MTS and Greenatom JSC, IT integrator of the State Atomic Energy Corporation Rosatom, deployed integrated digital services based on a private LTE/5G-ready network in the territory of the Kochubeevskaya wind farm of NovaWind JSC. A private network in the nuclear industry makes it possible to accelerate introduction of complex digital services and automate a number of processes using IoT telemetry collection devices.

In February 2021, as part of a pilot project, MTS deployed a private LTE network at the BKPRU-2 mine of Uralkali, one of the world's leading producers of potassium chloride. In the future, the technology can be rapidly scaled up to the 5G standard, which will enable remote and robotized control of equipment.

In February 2021, MTS announced that it would build a private LTE/5G-ready technology network at the Sheregeshskaya mine in the Kemerovo Region for EVRAZ, one of the world's largest steel companies, to digitalize production processes at the enterprise. The network will be deployed on Ericsson equipment

Industrial Automation Center

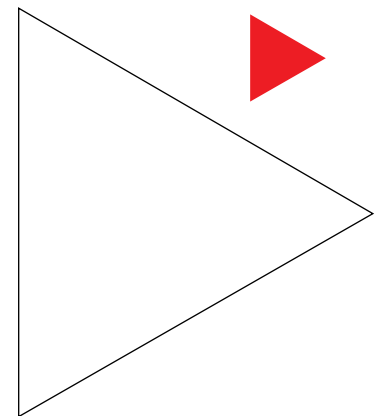
MTS develops its own digital solutions for the industry and connects partner products that allow converting capabilities of digital solutions into an ultimate business value.

In 2020, the Industrial Automation Center and the Department for Open Innovations and Investments of MTS implemented four joint partner products that expand the capabilities of the MTS Internet of Things digital platform with the following functions:

- > indoor positioning for employees and mobile units
- > indoor navigation controls
- > support for field personnel in hazardous work based on augmented reality
- > control of drones for inspection and stock-taking at warehouse facilities

The MTS Industrial Automation Center optimized the production process at the plant of Mikron, the largest microelectronics manufacturer in Russia. Big data analytics technologies were used to set up new scenarios of the production process with a 30% reduction in the time of technological setup of equipment.

MTS is introducing artificial intelligence and Internet of Things technologies at the Kirovo-Chepetsk Chemical Plant. MTS has developed predictive models that improve product quality and production process control..



“NIS”JSC

In 2020, NIS JSC (part of the MTS Group) completed the development of a platform for vertical M2M / IOT applications.

In 2020, NIS JSC was recognized as the winner in the tender of Transneft JSC for the provision of services for the technical operation, maintenance and support of the vehicle monitoring system based on GLONASS, previously developed by NIS JSC.

NIS JSC continued the complex of research, development and technological work on the preparation and deployment of the system as part of the creation of high-tech production for the Ministry of Education of the Russian Federation. In 2021, it is planned to complete the development of a solution for a new generation of integrated systems for ensuring the safety of the population's life..

Big Data

Big Data is one of the technological foundations for the most of MTS products and solutions. The key objective of this area is to provide for more efficient development of the main product verticals of the company through the use of big data technologies in the development and elaboration of company's services. With the help of big data analytics, MTS makes more personalized offers to its customers, which increases the competitiveness of products. Big data also underlie such services as MTS Marketer's solution for individual organization of advertising campaigns by business clients, geoanalytics for business and Smart City projects, and others.

MTS utilizes big data analytics to efficiently plan the development of telecommunications

infrastructure. Analysis of the dynamics of subscribers' motion and identification of mass congestion points allow preventing overloads and assessing the need to install additional equipment. With the help of Big Data, MTS also analyzes pedestrian traffic in retail stores and forms a strategy for retail network development. Based on geoanalytics data, the company reduced the number of low-traffic showrooms by 10% in 2020.

While continuing to develop the practical use of Big Data in various industries, MTS implemented a number of projects for the advertising market, having developed analytical tools that allow to increase the efficiency of outdoor advertising and measure its impact on indicators significant for business: calls, clicks and visits of advertiser's clients.

The Big Data team keeps cooperating with MTS Bank; every fourth loan in 2020 was issued thanks to the joint work of the bank team and the Big Data center within the MTS ecosystem.

MTS Center for Artificial Intelligence

The MTS Center for Artificial Intelligence 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. In 2020, the position of Vice President for Artificial Intelligence was added to the composition of the MTS Management Board. The main task of the unit's transformation was the creation of a unified designer of product teams in order to bring new AI services to the market as soon as possible.

MTS is a member of the Alliance for Artificial Intelligence Development along with Sberbank,



Yandex, Mail.ru Group, the Russian Direct Investment Fund (RDIF) and Gazpromneft. As part of the Alliance's activities, MTS oversees the Data track, including a research of the market needs for datasets (sets of structured anonymized data) and an analysis of the current markup level of publicly available datasets.

In 2020, MTS acquired a 7.5 % stake in Just AI Limited, a company engaged in research and development of spoken artificial intelligence technologies. As part of cooperation with Just AI, MTS conducts joint research in the field of conversational interfaces and plans to integrate Just AI developments into MTS services.

While continuing to develop the practical use of AI in various industries, MTS and the Land of the Leopard Federal State Budgetary Institution created software for automatic recognition of Far Eastern leopards, tigers and other

animals in photographs from cameras installed in the territory of the reserve and the national park. The solution developed by experts from the MTS Center for Artificial Intelligence based on computer vision technology will help in preservation and study of Amur leopard, the world's rarest large cat.

The MTS AI Center is actively working in the field of education and scientific projects, collaborating with leading technical universities of the country and technological clusters. MTS launched the Conversational Intelligence Technologies specialization within the Master's program System and Applied Software at the Faculty of Computer Technologies and Management of ITMO. Disciplines studied by future masters in the course of education include automated text analysis, graph knowledge bases, and architecture of dialogue systems.

