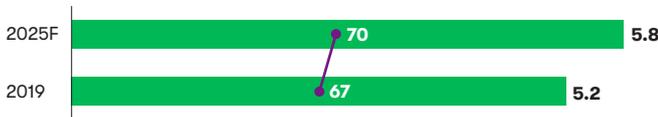


Market Overview

In 2019, the global mobile subscriber base reached 5.2 billion users, or 67% of the global population, while the number of mobile data users grew to 3.8 billion. Mobile penetration reached 67%, with mobile internet penetration at 49%. By 2025, the number of mobile users is expected to grow by 600 million to 5.8 billion (or 70% of the global population).

Global mobile communications and mobile data¹

Mobile communications

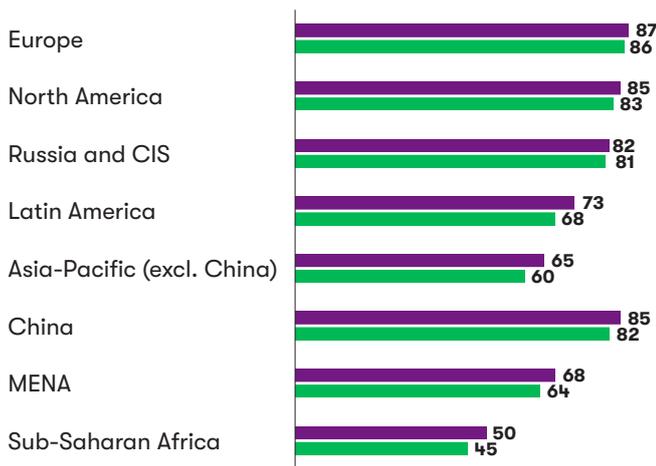


Mobile data



■ Unique subscribers, bn
◆ % of the population

Global mobile penetration², %



■ 2025F
■ 2019

Source: Global System for Mobile Communications (GSMA), The Mobile Economy 2020.

¹ GSMA report, The Mobile Economy 2020.

² Excluding mobile IoT.

Russia and the CIS countries are among the regions with the highest mobile penetration rates (81.1% in 2019), slightly behind Europe, North America and China.

GSMA estimates that in 2019, total global mobile revenue remained flat y-o-y at US\$ 1.03tn. The revenue growth was constrained by price stabilisation in Europe and India, but supported by an increase in data services in the emerging markets. Global revenue is expected to increase to US\$ 1.1tn by 2025, at an average annual growth rate of 1%.

In 2019, the mobile segment posted US\$ 4.1tn in revenue, or 4.7% of global GDP. This figure is forecast to reach US\$ 5tn, or 4.9% of global GDP, by 2024. The industry remains important to society as a whole, with 30 million people employed in the telecommunications and related sectors in 2019.

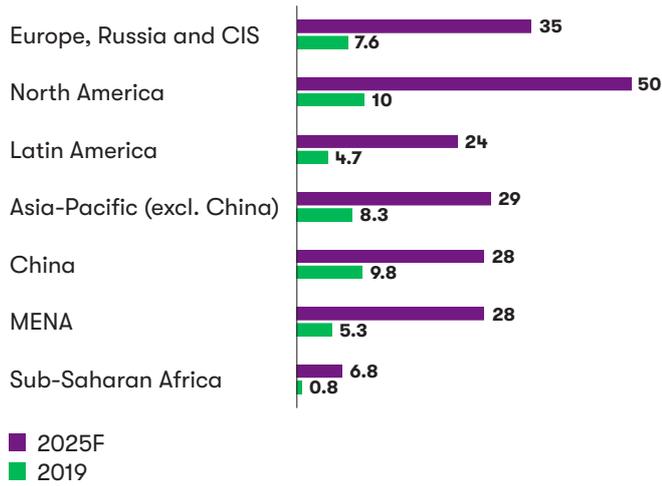
The share of mobile services in global GDP and their impact on social and economic growth are expected to rise as 5G networks, M2M, IoT and other solutions play an increasingly important role in the global economy. The expansion of 5G alone is forecast to contribute US\$ 2.2tn to global GDP by 2034.

4G became the most popular mobile format in 2019 (over 4 billion connections or 52% of all connections, excluding IoT). 4G penetration is expected to grow for another few years to reach its peak (at about 60% of all connections) in 2023.

In 2019
over half
of all mobile devices
were connected to 4G.

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Global mobile data traffic per subscriber, GB per month



Source: GSMA, The Mobile Economy 2020.

GSMA estimates that the monthly mobile data traffic per subscriber will increase more than threefold by 2025 from 7.5 GB per month to 24 GB per month. This growth will be primarily driven by the expanding digital subscriber base and the increased accessibility of high bandwidth mobile networks, and in developed and technologically advanced economies, by new services (augmented and virtual reality, as well as technology for smart homes, buildings and cities).

5G is expected to boom by 2025, especially in the developed and technologically advanced economies such as Europe, North America and certain Asian countries. GSMA forecasts that 5G will reach 20% of the total number of connections.

In 2019, 5G was in commercial operation

in **24** countries

Key mobile data growth drivers by 2025¹

Digital subscriber base growth

5.8
billion people
+ 1.9%
CAGR

IoT growth

24.6
billion connections
+ 205%

Smartphone user base growth

80%
+ 15 p.p.

CAPEX

USD 1.1tn
in 2020–2025

4G and 5G growth

56% 4G
+ 4 p.p.

20% 5G
+ 4 p.p.

¹ GSMA report, The Mobile Economy 2019.

Russian telecommunications market

TMT Consulting estimates that the telecoms market in Russia grew to RUB 1.73tn¹ in 2019. Income growth was 2.1%, lower than during the two prior years.

The slowdown was primarily caused by weaker growth rates in the mobile market, aggravated by lower demand in the Pay-TV market, subscriber churn in relation to fixed-line and B2O services, and businesses reducing their telephony expenses.

Traditional mobile services still account for the bulk of the telecoms market (57% in 2019), but digital services, such as IoT, mobile TV, M2M, e-commerce and Big Data, are increasingly gaining traction. The Russian mobile market has four major operators: MegaFon, MTS, VEON and Tele2.

As at the end of 2019, the mobile subscriber base (number of active SIM cards) grew by 1.7% to 260 million subscribers, with Russia's mobile penetration at 177%. Drivers that affected the subscriber base growth include an increase in the number of mobile M2M connections. In a saturated market, operators primarily focus on improving the customer experience for their existing customer bases rather than boosting subscriber growth.

Fixed-line services, as well as their share in the industry's total revenue, continued to decline due to subscribers abandoning fixed-line services in favour of mobile services.

In 2020, telecoms operators are expected to focus mainly on boosting their revenues from other services as well as on expanding into IT, media and other related markets. In many respects, the market trends will be driven by pricing policies.

RUB 1.73^{tn}
Russian telecoms market

¹ Preliminary estimate by TMT Consulting.

² International Data Corporation, the global provider of market intelligence, advisory services, and events for the information technology, telecommunications, and consumer technology markets.

Mobile services

Mobile services remain the principal source of revenue for the Russian telecommunications industry: TMT Consulting estimates this segment's share at 57% of the total revenue for 2019.

In 2019, the growth rates in the Russian mobile market slowed to 3.3% compared to 5.0% in 2018. At the end of 2019, the market size was RUB 994bn. The slowdown was due to a surge in competition, including price competition between major operators, the re-emergence of unlimited plans and active promotion by new MVNOs.

Mobile data remains one of the largest segments in the Russian telecoms market and the industry's key driver. In 2019, the segment grew by RUB 31bn while the telecoms market in total grew by only RUB 36bn. TMT Consulting estimates that mobile data revenue rose by 10% to RUB 326bn, with this segment accounting for 33% of the mobile market and 19% of the total Russian telecoms market.

The number of active mobile data users in Russia reached 138 million people in 2019, increasing by 11% in just one year. This growth was primarily driven by an increase in the number of widescreen smartphone owners.

M2M and IoT

Both the Russian and international M2M and IoT markets continue to grow. However, according to preliminary estimates of the Russian Internet of Things Association, in 2019 the market only grew by approximately 9% instead of the expected 14%–15%. This weaker growth was mainly due to market volatility. According to preliminary analyst data, IoT-enabled devices in Russia used 19.5 million SIM cards at the end of 2019.

IDC² estimates that by 2023 the Russian market will grow at an average annual rate of 19.7%, or 1.7% faster than forecast a year before and much faster than the global market. As at the end of 2019, over half of Russian companies had deployed, or were planning to deploy, IoT-enabled solutions over the following 12 months.

IDC estimates global investment in IoT in 2019 at US\$ 726bn. Investment in IoT is expected to reach US\$ 1tn in 2022 and top US\$ 1.1tn in 2023.

PricewaterhouseCoopers estimates that the overall beneficial effect for the Russian economy from deploying IoT in the power, healthcare, agriculture, and logistics sectors and under the Smart City programme could reach close to RUB 2.8tn by 2025.

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Fixed-line services

In 2019, the fixed-line market declined by 8.9% y-o-y to RUB 130.6bn, according to TMT Consulting's estimates. Over the year, 2.2 million subscribers abandoned fixed-line services, causing penetration for these services to decline by 3 p.p. to 30%. Operators' fixed-line revenue was down 9.7% to RUB 82bn.

The decline was caused by an increase in data and mobile services and the growth of independent online messengers such as Telegram and WhatsApp, as well as social media (VK, Instagram, and Facebook), Skype and IP telephony.

The decline in fixed-line revenue is expected to slow gradually between 2020 and 2024, to an average of 4.8% for that period¹.

Broadband internet access

In 2019, the Russian broadband market continued to grow, albeit at lower rates. According to TMT Consulting, the subscriber base grew by 1.4% (compared to a 1.8% growth in 2018), primarily driven by new builds, with broadband penetration reaching 60%. In 2019, broadband revenue grew by 3.1% to RUB 197.2bn. The growth came mainly from the private segment due to a price increase early in the year, as well as from subscribers migrating to more expensive high-speed data plans. Growth in the B2B segment slowed during the year.

The trend of higher broadband data consumption is continuing. The Russian Ministry of Digital Development, Communications and Mass Media estimates that fixed data usage in Russia grew by more than 14% y-o-y in 2019. The increase in data usage was primarily driven by higher consumption of heavy content and subscribers actively using data via multiple devices at home.

At present, data providers are focusing on improving service quality and value added services. Operators are also expanding their converged offerings combining mobile and fixed-line services.

In 2019, the list of the top players in the Russian broadband market remained virtually unchanged compared to 2018, with 59% of the subscriber base in the market being shared between the top four players: Rostelecom, MTS, VimpelCom and ER-Telecom.

Pay-TV

According to TMT Consulting, the Russian Pay-TV market grew by 10.1% to RUB 103.9bn in 2019, exceeding the RUB 100bn threshold for the first time. The revenue growth was driven largely by the customary annual price increase which was successfully implemented during the year, and also by an increase in the number of high value customers in the subscriber base (monthly ARPU increased by RUB 13 to RUB 193, net of VAT).

At the same time, the Pay-TV subscriber base growth rate in Russia dropped from 3.3% to 2.3%. There was a total of 45.3 million subscribers at the end of the year, the 2.3% subscriber growth was driven by IPTV subscriptions being included in bundled offerings and subscribers migrating from analogue cable TV to digital cable TV and IPTV.

As a result, the segment's revenue growth outpaced the rate of growth in the subscriber base, similarly to prior years.

Out of all the Pay-TV technologies, only IPTV showed noticeable growth. The satellite TV market slowed down, while the cable TV subscriber base decreased by 210,000 subscribers with user churn affecting both nationwide and local operators.

The gap between the respective revenue shares of satellite and IPTV widened to 9 p.p. compared to 7 p.p. in 2018. The share of cable TV in total revenues declined from 43% to 41%, although it will continue to be the largest segment over the medium term.

TMT Consulting forecasts that in 2020 the subscriber base will continue to grow, albeit marginally (at about 0.4%–0.6%). The increase will be largely driven by the inclusion of IPTV subscriptions in bundled offers. The subscriber base growth is expected to stagnate thereafter, while revenue growth rates could decline to 5%–7% per year.

¹ Forecast by TMT Consulting.