

Strategic Report

Industry Overview and Competitive Analysis

FIG. 1. INDUSTRY TRENDS.



The global telecommunications market grew to USD 3.9 trillion in 2018 and is characterised by a number of emerging trends. These include THE DIGITALISATION OF TELECOMS, THE DEVELOPMENT OF THE INTERNET OF THINGS (IOT) INCLUDING SMART CITY PROJECTS AND SMART HOME SERVICES, INCREASING VIDEO CONTENT CONSUMPTION, AND THE DEVELOPMENT AND ACTIVE TRIALS OF 5G NETWORKS.

There are also ongoing developments in DIGITAL SECURITY, DATA PROTECTION, AND CLOUD-BASED VIDEO SURVEILLANCE¹.

¹ Source: GSMA Mobile Economy 2019 report

The global telecommunications market, Russia included, is experiencing a decline in traditional services and a rapid growth of interest in ecosystems and platform solutions. The fast-paced technological advances and rapid adoption of the internet of things, artificial intelligence, and big data solutions are major drivers of the industry's transformation. Consumer behaviours are also changing, driven by rapidly evolving visual

communication channels, increasing use of social media, and the growing importance of personalised solutions.

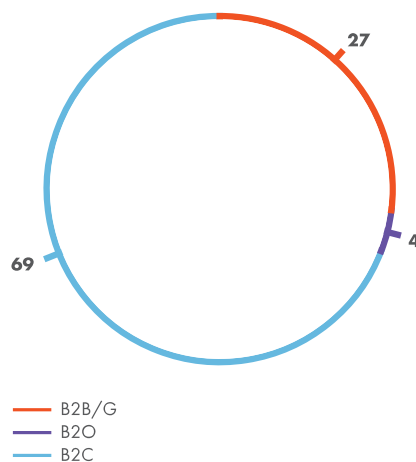
As the IT services market significantly outperforms the traditional services market, building customer loyalty and increasing sales requires companies to focus on new solutions beyond the "basic package". Investment requirements of major infrastructure projects enabling industry adoption of innovative technology are yet another important driver for the market.

Russian market

Russia's telecommunications market grew by 3.4% to RUB 1.7 trillion in 2018, the strongest performance over the past five years¹. The market has been consolidated to four main players, with Rostelecom maintaining leadership in many segments.

Mobile data revenue grew for the second consecutive year and remains the key growth driver for the market. The industry's strong performance in 2018 was supported by the sustained impact of the 2018 operators' initiative to abandon price competition and focus on offering more value-added services. Broadband and Pay TV also exhibited steady growth. Fixed-line telephony and some of the wholesale services continued to shrink, although at a lesser pace. Similarly to previous years, the B2C segment accounted for over two thirds of the market.

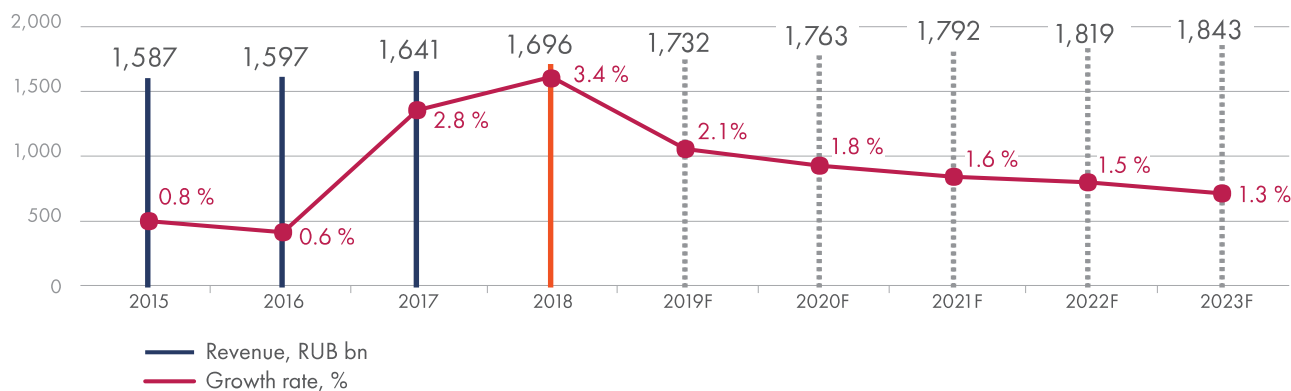
FIG. 3. BREAKDOWN OF THE RUSSIAN TELECOMS MARKET BY CUSTOMER SEGMENT, 2018, %



Source: TMT Consulting

The Russian telecommunications market is divided between the following key players with an aggregate share of around 80%: MTS, MegaFon, Rostelecom, Tele2 Russia, and VimpelCom.

FIG. 2. REVENUE IN THE RUSSIAN TELECOMS MARKET, 2015-2023, RUB BN



Source: TMT Consulting

1. Source: TMT Consulting, 2019.

Broadband services

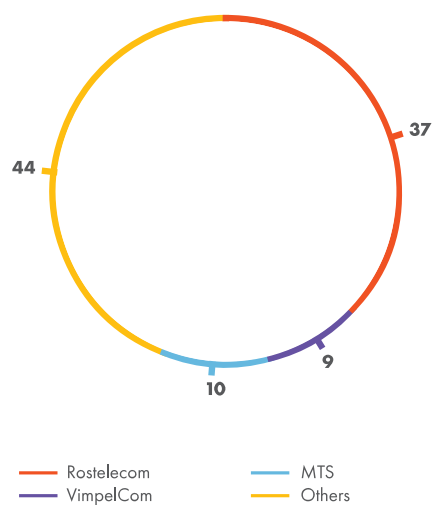
Broadband penetration in the B2C segment reached almost 60% in 2018. The total customer base grew to 34.9 million, driven by new-builds and small town connections. Broadband revenue increased 3.2% in 2018, with the operators' revenue reaching RUB 192.3 billion. An important growth driver for the market in 2018 was customer ARPU, illustrating the trend toward more rational competition and the increasing willingness of customers to pay more for stable, high-speed internet services.

FIG. 5. BREAKDOWN OF THE BROADBAND MARKET'S B2C SEGMENT BY OPERATOR REVENUE, 2018, %



Source: TMT Consulting

FIG. 6. BREAKDOWN OF THE BROADBAND MARKET'S B2B SEGMENT BY OPERATOR REVENUE, 2018, %



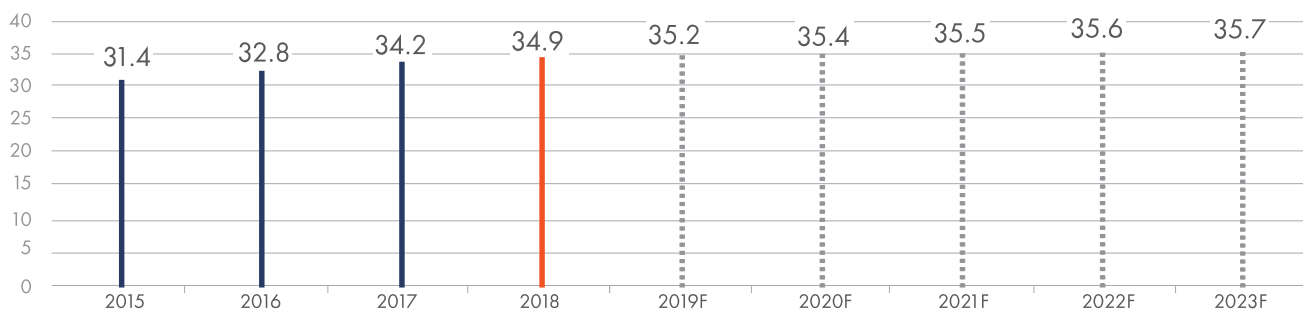
Source: TMT Consulting

TABLE 1. ROSTELECOM'S MARKET SHARE BY OPERATOR REVENUE, BROADBAND, 2016–2018, %

Segment	2016	2017	2018
B2C	38	40	41
B2B	35	35	37

Source: TMT Consulting data

FIG. 4. NUMBER OF BROADBAND USERS, 2015–2023, MILLION

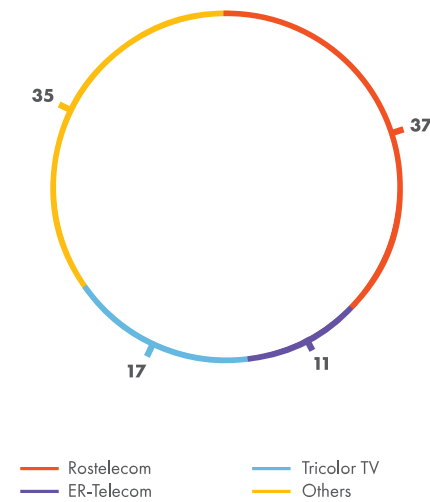


Source: TMT Consulting

Pay TV

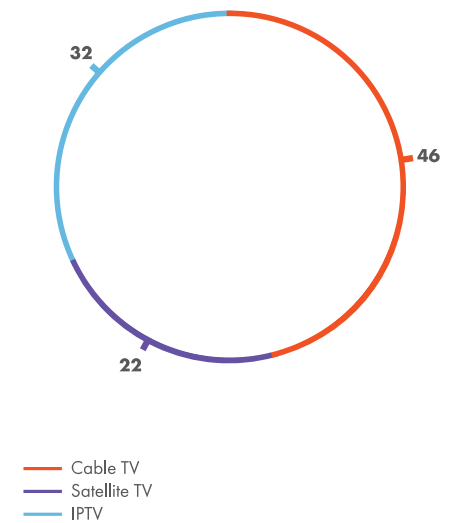
Pay TV subscriber growth slowed in 2018 but remained positive with a 2.6% increase to 43.9 million subscribers and the service penetration rate exceeding 77%. Revenue in the segment also grew by 10% to RUB 92.6 billion. Average revenue per user was RUB 177 net of VAT, up RUB 10 year-on-year. Cable TV retained its market leadership by revenue compared to IPTV and satellite TV however its share has been gradually declining.

FIG. 8. BREAKDOWN OF THE PAY TV MARKET BY OPERATOR REVENUE, 2018, %



Source: TMT Consulting

FIG. 9. BREAKDOWN OF REVENUE BY PAY TV TECHNOLOGY, 2018, %



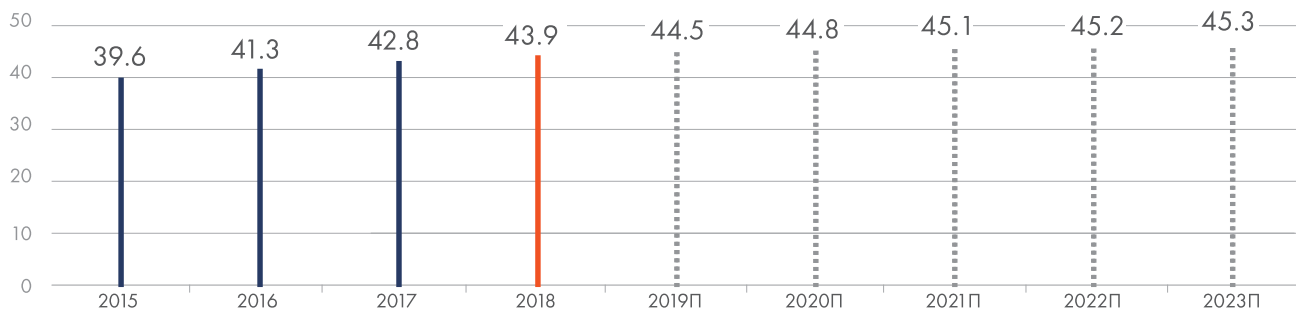
Source: TMT Consulting

TABLE 2. ROSTELECOM'S MARKET SHARE BY OPERATOR REVENUE, PAY TV, 2016-2018, %

	2016	2017	2018
Pay TV services	31	35	37

Source: TMT Consulting data

FIG. 7. NUMBER OF PAY TV SUBSCRIBERS, 2015-2023, MILLION



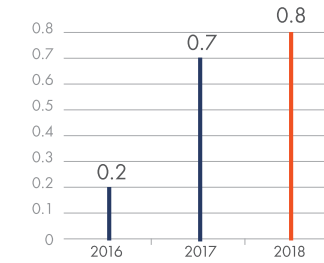
Source: TMT Consulting

MVNO services

The mobile virtual network operator (MVNO) market has shown steady growth over the past two years and remains a high-growth, high-potential area within the telecommunications market. According to TMT Consulting's research, the MVNO subscriber base reached 7 million in 2018, up 18% year-on-year. Rostelecom is the leader in the MVNO market's B2B segment with a 56% market share.¹

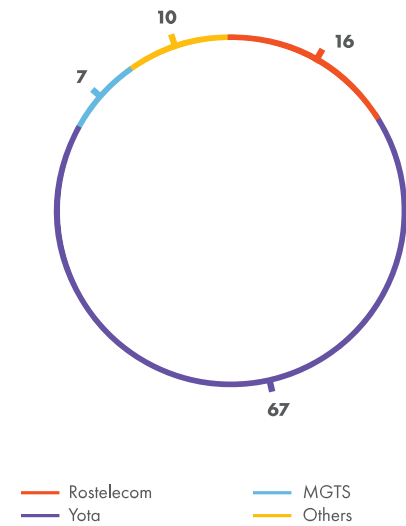
New players are coming into the MVNO market from adjacent industries. E.g. Sberbank launched its own Sbermobile mobile virtual network operator brand in 2018, becoming the second bank to offer its own virtual network operator after Tinkoff Bank made its foray into the market in 2017.

FIG. 10. NUMBER OF MVNO SUBSCRIBERS IN THE B2B SEGMENT, 2016–2018, MILLION



Source: TMT Consulting

FIG. 11. BREAKDOWN OF THE MVNO MARKET BY OPERATOR, 2018, %



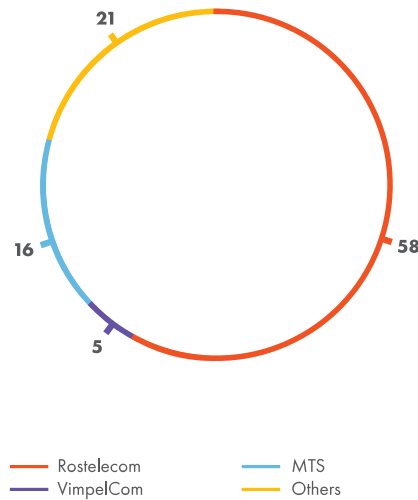
Source: TMT Consulting

1. Source: TMT Consulting data, 2019.

Fixed-line services

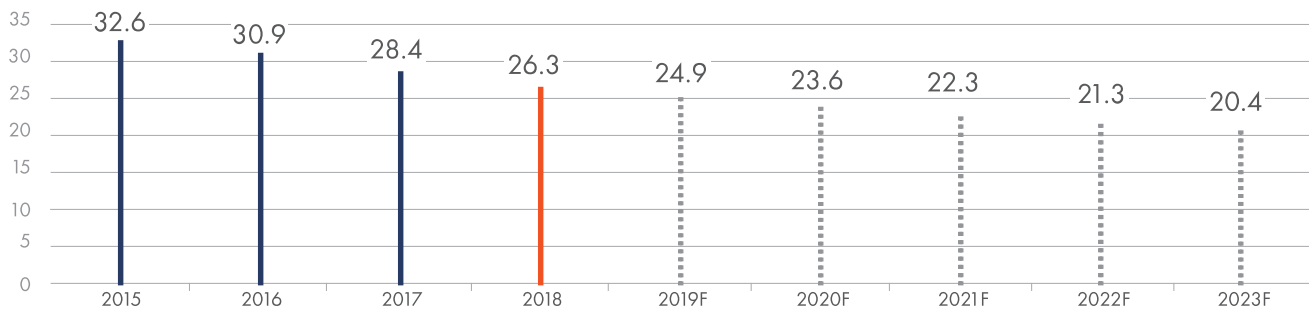
Fixed-line continued to decline in 2018, with service penetration falling by 3 pp to 34.5% and the subscriber base down by 1.9 million to 26.3 million.¹ PJSC Rostelecom retains its leadership in all segments of the fixed-line market.

FIG. 13. BREAKDOWN OF THE FIXED-LINE MARKET BY OPERATOR, 2018, %



Source: TMT Consulting

FIG. 12. NUMBER OF FIXED-LINE SUBSCRIBERS, 2015–2023, MILLION



Source: TMT Consulting

1. Source: TMT Consulting data, 2019.

OTT

The OTT market continues to demonstrate steady, rapid growth, driven largely by the growing supply of the exclusive content offered by video streaming services, increasing user loyalty to legal OTT VoD services, and internet giants such as Yandex and Rambler entering the market.

TMT Consulting’s estimates show that video streaming market grew by 48% to RUB 11.2 billion in 2018. Subscription-based services demonstrated the fastest growth, with the share of revenue from these services reaching 69%. The market grew by 75% to RUB 7.85 billion in 2018, with advertising revenue up 10% year-on-year to RUB 3.52 billion.

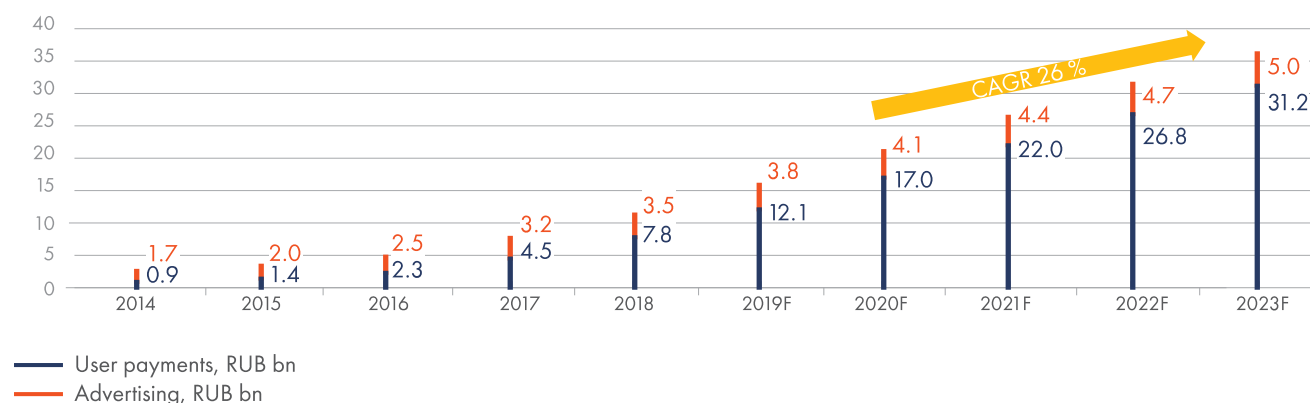
The OTT video streaming market is forecasted to grow to approximately RUB 36.0 billion by 2023, with sales of paid services accounting for 86% of total revenue and the market growing at a CAGR of 26% over the next five years.

Industrial Internet of Things (IIoT)

The Russian Internet of Things (IoT) market grew to RUB 251.6 billion in 2018.¹ With a forecast annual growth rate of about 18% through to 2022, this is one of the fastest-growing segments in the market. Industrial Internet of Things development in Russia is driven mostly by integration of IT into companies’ core businesses, business process optimisations, and government-sponsored digital economy initiatives.

Manufacturing and transport are the leading industries in terms of IIoT investment. Quality assurance and power consumption are currently seen as the key use cases for IIoT.

FIG. 14. OTT MARKET OUTLOOK WITH A REVENUE BREAKDOWN, 2014–2023, RUB BN²



Source: TMT Consulting

1. Source: IDC Russia data.
 2. Source: TMT Consulting, 2019.

Data centres

Key trends in the data centre market include capacity extensions at existing data centres and a growing number of new data centres. Ongoing developments in cloud services are also expected. With 5,900 racks across commercial data centres in 13 cities, Rostelecom is the leader of the Russian data centre market.

The Russian market is impacted by the growing demand for data storage and processing from individuals and companies, and by initiatives within the Digital Economy national programme. Another driver is IT infrastructure outsourcing, a service delivery model becoming increasingly popular in the market.

The Russian data centre rack market is expected to grow at an annual rate of at least 9% to 10% over the next three years,¹ reaching approximately 56 thousand racks by 2021.

FIG. 15. MARKET SHARES OF THE COMMERCIAL DATA CENTRE MARKET LEADERS BY NUMBER OF RACKS, 2018, %²

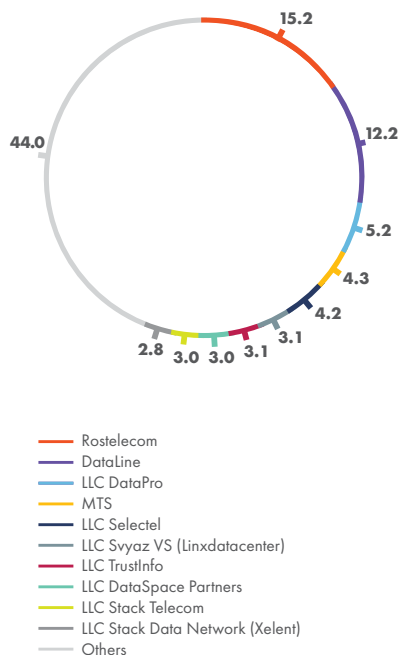
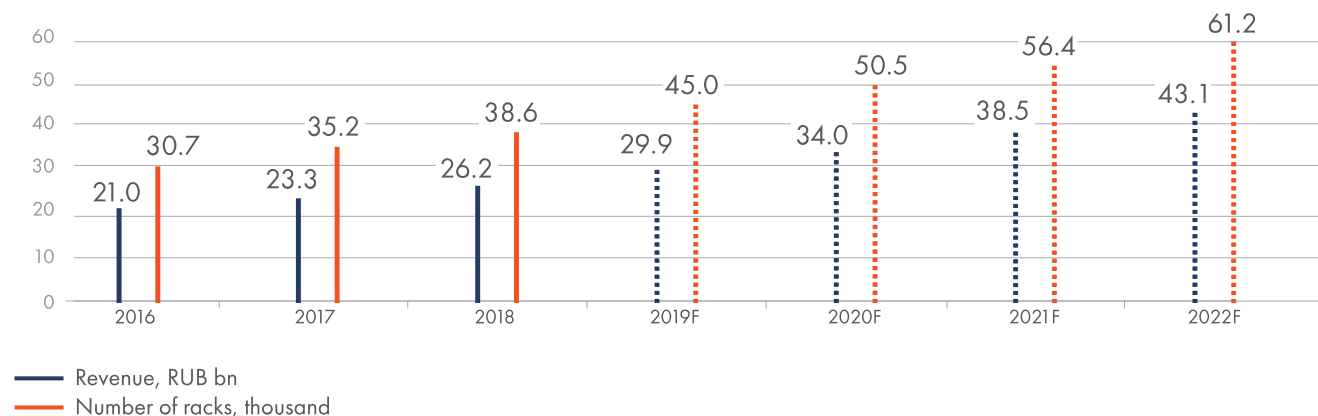


FIG. 16. OUTLOOK FOR DATA CENTRES IN RUSSIA, 2016–2022³



1. Source: iKS-Consulting data, 2019.
2. Source: TMT Consulting, 2018.
3. Source: TMT Consulting data, 2019.

Information security

The steady growth in the information security market will continue, driven by the increasing volumes of data stored within information systems and the growing data traffic in Smart Home projects, automated process control systems, and the Internet of Things segment. The market is expected to grow at a CAGR of around 9% during 2018–2022.¹ Currently, key market players are systems integrators, to be replaced by information security service providers within the next few years.

These organisations have all necessary technology, talent, and other resources to complement their core offerings with information security services.

Drivers of the information security market:

- › Legal framework development
- › Digitalisation and business security needs
- › Major incidents (WannaCry, NotPetya, BadRabbit ransomware attacks) affecting many companies
- › Development of information security services and solutions
- › Growing trust in outsourcing
- › Shortage of information security experts

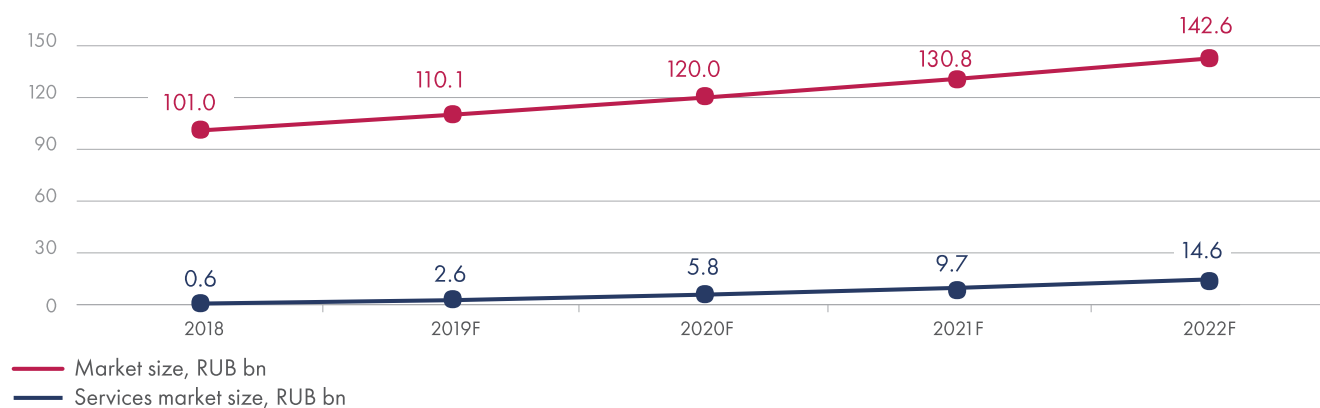
Information security services accounted for less than 1% of the information security market in 2018 (RUB 0.64 billion), with the potential to grow to 10.2% (RUB 14.6 billion) by 2022².

The biggest opportunities for the development of information security technology lie in building integrated data protection systems, designing cloud security servers, User and Entity Behaviour Analytics (UEBA) systems, attack mitigation systems, and developing biometric authentication and Internet of Things security solutions.

TABLE 3. KEY FUTURE PLAYERS IN THE INFORMATION SECURITY MARKET

B2B/G	B2C
Insourcers and carve-outs from state-owned corporations	Internet giants with segment-specific promotion experience capable of offering information security services to complement their core offering
Vendors offering their solutions as a service	
Telecoms already focused on information security services	Telecoms
Tech giants	Vendors offering their solutions as a service
Sberbank of Russia	Fintech companies

FIG. 17. REVENUES FROM INFORMATION SECURITY SERVICES IN THE RUSSIAN MARKET, RUB BN³



1. Source: IDC, Cnews, Orange Business services, Gartner, Russian Federal Procurement Portal.

2. Source: IDC, Cnews, Orange Business services, Gartner, Russian Federal Procurement Portal.

3. Source: IDC, Cnews, Orange Business services, Gartner, Russian Federal Procurement Portal.

Cloud services¹

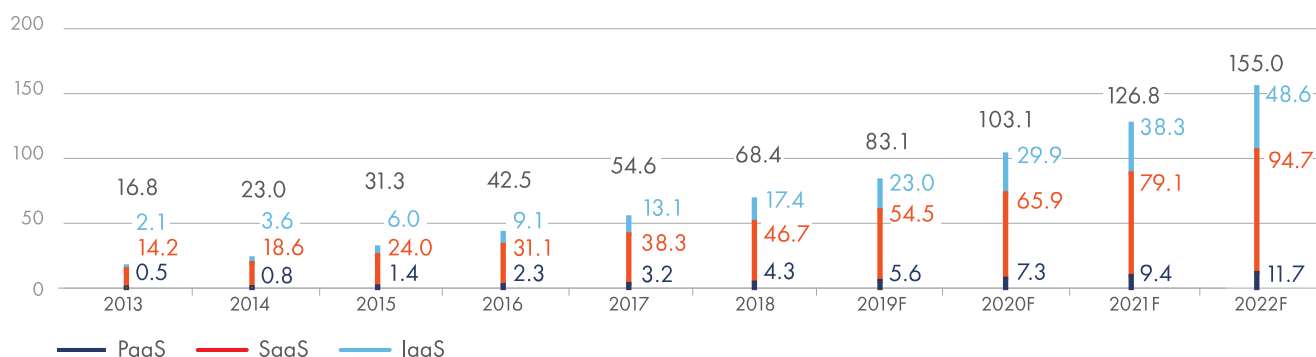
The cloud services market is booming, with the Russian market growing by 25% year-on-year to RUB 68.4 billion in 2018. It is expected to grow at an annual rate of 23% to 30% through to 2022.

The market is largely transitioning to a service-based model, with Russian IaaS (infrastructure as a service) market leaders – Selectel, DataLine, and Rostelecom – developing their service offerings based on owned data centres.

SaaS (software as a service) is currently the leading segment in cloud-based services with a 46% market share in 2018. Virtual PBX is one of the largest SaaS segments in Russia, with the Russian virtual PBX market growing by 35% year-on-year to RUB 7.9 billion in 2018. The number of virtual PBX corporate customers reached 267 thousand, up 45% year-on-year. Rostelecom led the market in 2018 by Virtual PBX subscriber base, with a 24% market share.²

PaaS (platform as a service) also increased its share of the market to over 6% in 2018.

FIG. 18. RUSSIAN CLOUD-BASED SERVICES MARKET BREAKDOWN BY REVENUE, 2013–2018, RUB BN³



Key digital legislative developments in Russia in 2018:⁴

- The Ministry of Digital Development, Communications, and Mass Media was established on 15 May 2018 by the Executive Decree of the President of the Russian Federation.
- Federal Law No. 374-FZ (“Yarovaya law”) took effect in two phases, on 1 July and 1 October 2018, requiring operators to store subscribers’ voice data and text messages for the period of six months, and internet traffic data for the period of 30 days.
- An official 5G development concept was presented, commissioned by the Ministry of Digital Development, Communications, and Mass Media of the Russian Federation. The concept includes a proposal to establish a single infrastructure operator to be allocated the entire relevant spectrum. GSMA forecasts that Russia may become a pioneering market in developing 5G standard.

1. Source: iKS-Consulting study.

2. Source: TMT Consulting, 2019.

3. Source: iKS-Consulting study.

4. Source: itech. Intelligent technologies.