



# Products

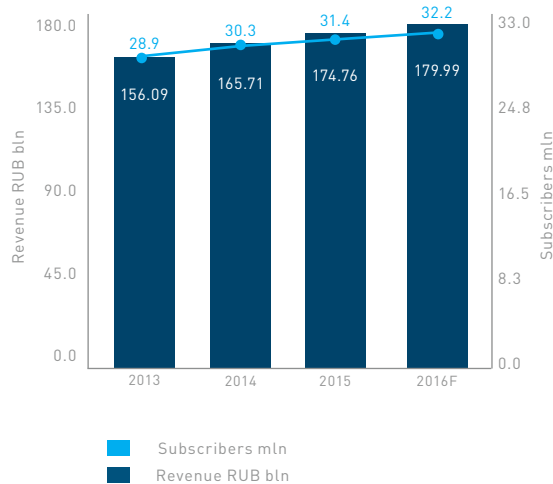
PRODUCT DEVELOPMENT OF ROSTELECOM IS DETERMINED BY THE CUSTOMER NEEDS, AS WELL AS AVAILABLE COMPETITIVE ADVANTAGES OF THE COMPANY. THE COMPANY MAKES THE MAIN EMPHASIS IN PRODUCT DEVELOPMENT IN THE INCREASE IN REVENUES FROM CONTENT AND DIGITAL SERVICES (BROADBAND, PAY TV, CLOUD-BASED SERVICES AND VALUE-ADDED PRODUCTS) AND PRESERVATION OF REVENUE FROM THE TRADITIONAL COMMUNICATION SERVICES (FIXED TELEPHONY, WHOLESALE SERVICES). BELOW IS A DESCRIPTION OF THE MOST SIGNIFICANT AND PROMISING PRODUCTS OF THE COMPANY.

## BROADBAND INTERNET ACCESS

Rostelecom is an undisputed leader of the Russian market of Internet services - one of the most competitive segments with the Company's presence. While the markets of Moscow and St. Petersburg have already reached saturation (more than 80 % of the market is controlled by five major players), the regional markets are the main growth drivers of in broadband services.

To further strengthen the position in the fast developing regional markets Rostelecom focuses all its efforts on the organic development in these regions, as well as the consolidation of regional assets. In this market, the Company's competitors are major mobile players having consolidated in the recent past the alternative fixed-line operators, and regional providers. However, Rostelecom has a significant advantage in terms of market positions: the immediate competitor has a share of almost four times less, Rostelecom is the only player of the federal scale, presence of other players is fragmented. The Company plans to further strengthen its leadership position.

**Broadband access market in 2013-2016, RUB bln**

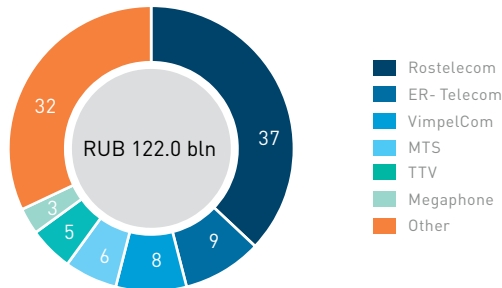


Source: TMT Consulting, Company data

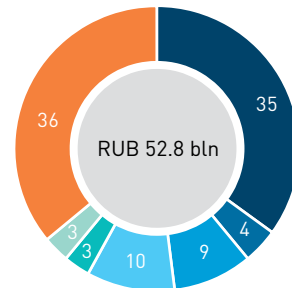


Source: TMT Consulting, Company data

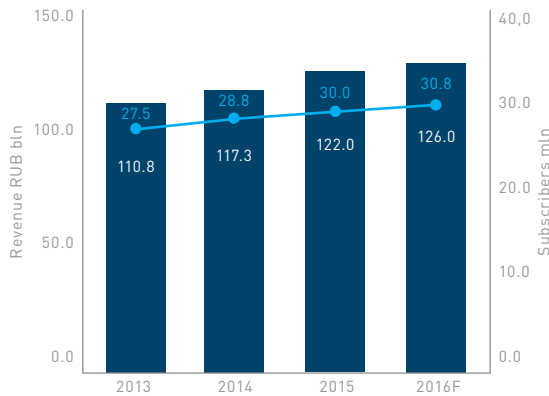
**Key market players (by revenue) private segment, %**



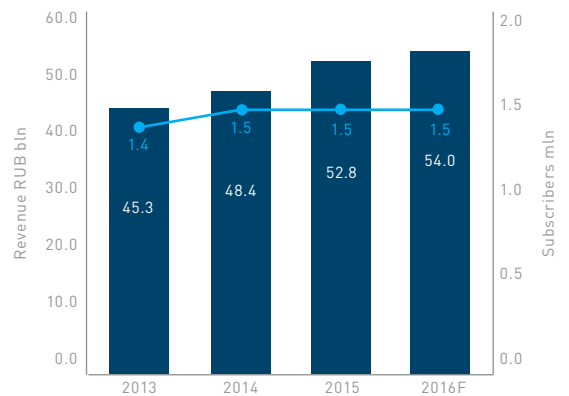
**Key market players (by revenue) corporate segment, %**



**B2C broadband access market in 2013-2016, RUB bln**



**B2B broadband access market in 2013-2016, RUB bln**





## PAY TV

One of the most significant drivers of the telecommunications market is the segment of Pay TV services. Rostelecom has a leading position in the market of Pay TV services with a market share of 27.6 % by revenue. The Company's main competitors in this market are Tricolor and ER-Telecom.

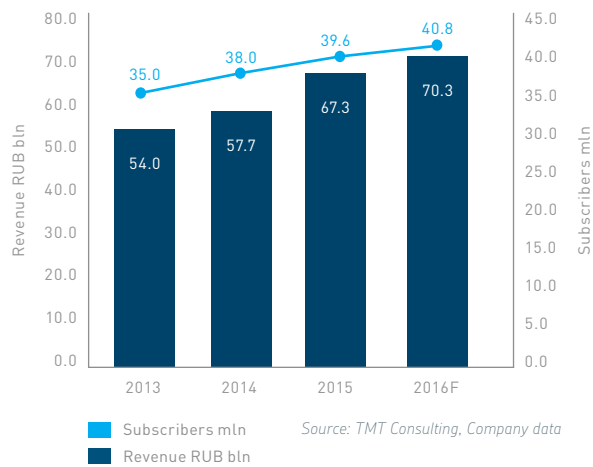
The company, being the largest video content unit on the Russian market, is actively developing this direction, allowing due scale effect to offer its customers one of the best content offerings at an attractive price. IPTV and OTT Video can be distinguished as the fastest growing segments of the Pay TV market. On IPTV market, Rostelecom is already the undisputed leader: the share of its immediate competitor by almost four times less.

The company is actively working to increase ARPU, promoting additional packages and Video on Demand service.

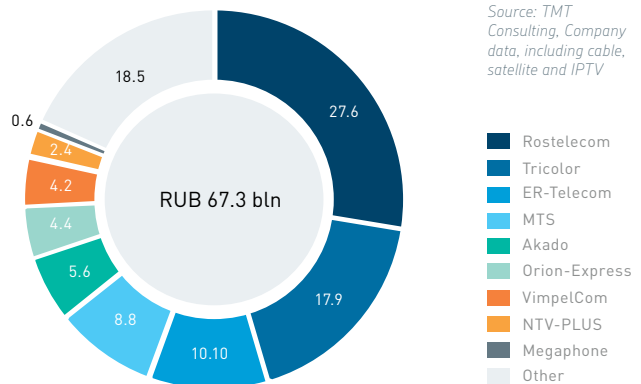
OTT products and services are the most promising and fastest growing segment of the market with a forecasted CAGR of 15 % until 2020. In this market segment, the Company is already implementing a project to introduce Interactive TV 2.0 product (OTT-Video).

In 2015, Rostelecom launched in the market its first OTT box product "Interactive TV 2.0", which enabled to go beyond its own network and provided the ability to access the Content proposition of the Company to all concerned, regardless of what Internet provider they use. Interactive TV 2.0 complements the Company's video products, maintaining its leading position in the Pay TV market.

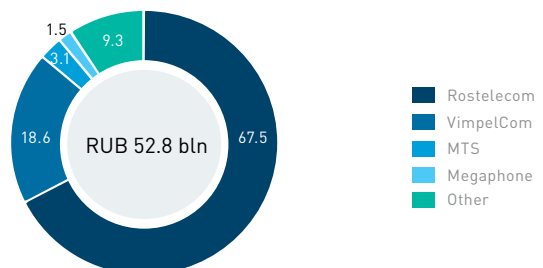
Russian Pay TV market in 2013-2016, RUB bln



Pay TV market (by revenue) in 2015, %



Main IPTV market players (by revenue), %

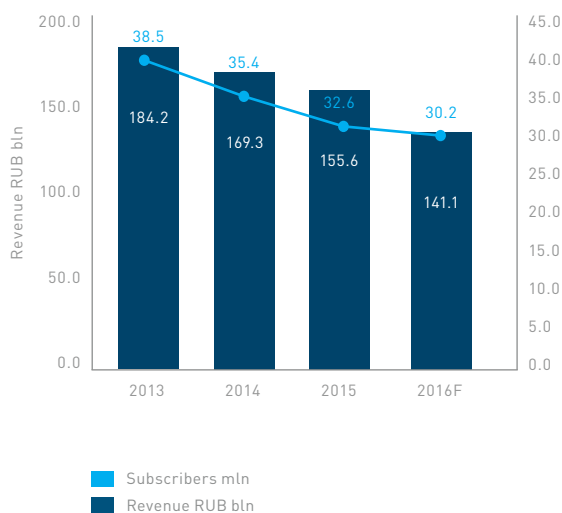


## FIXED TELEPHONY

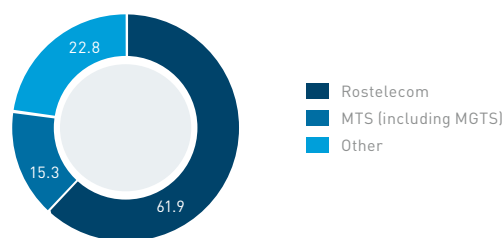
Rostelecom has traditionally been a leader in the provision of fixed telephony services in the whole territory of the Russian Federation, including the services of local, long-distance and international communication.

To save this position in this market Rostelecom focuses its efforts on the development and implementation of business solutions, most satisfying customer needs in today's voice products, increase in the customer value of the fixed telephony, optimization of tariff range, as well as further enhancement of the service quality and service standards.

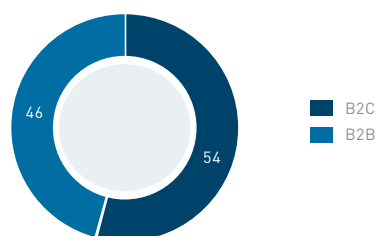
### Russian fixed telephony market in 2013–2016, RUB bln



### Market share by revenue, %



### Market structure by customer types, %

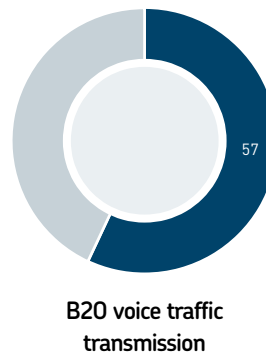
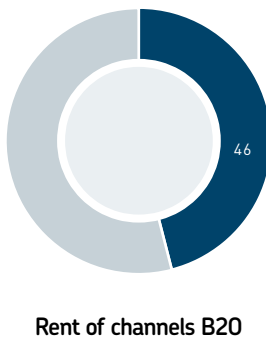
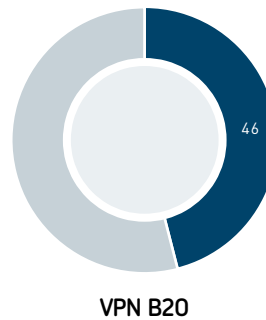
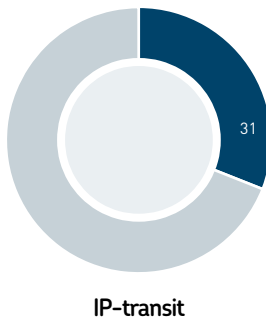


### SERVICES FOR OPERATORS (WHOLESALE SERVICES)

Rostelecom is Russia's largest player in the market of services to communication operators. The Company connects to its own backbone network infrastructure operators in all regions of the Russian Federation at the local, zonal, long-distance and international levels, thereby

forming a unified national telecommunications network and providing an opportunity to its own customers and customers of the connected operators starting from general public to large corporations to use communication services. The Company's position in the main segments of the operator market is shown in the following charts:

Rostelecom in the Russian B2O-market in 2015, %



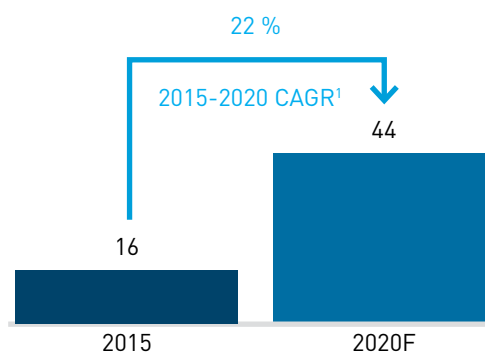
## CLOUD-BASED SERVICES AND ADDITIONAL SERVICES

Rostelecom is actively developing cloud-based services on the basis of a national cloud platform. National cloud platform is a set of integrated information systems for providing services to customers on the cloud computing model.

On the basis of the national cloud platform, application services for public authorities and private enterprises operate in health, education, security, housing and communal services, property and land relations. Services of the National Cloud Platform are deployed and operate in Rostelecom data processing centres and are based on virtualization system developed on the basis of the software with open source code.

The company provides full service maintenance cycle, from implementation to technical support.

### Russian market of cloud-based services, RUB bln

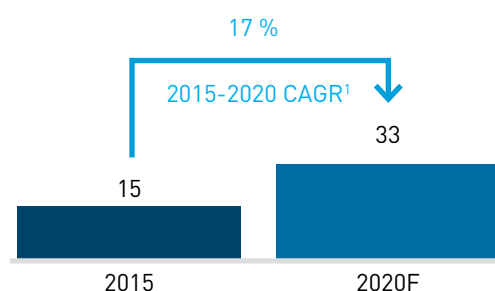


## DATA CENTRES

Data centre service market in Russia is at the stage of active growth. Acquisition SafeDataGoup in 2015 allowed Rostelecom come out on top of this fast-growing market.

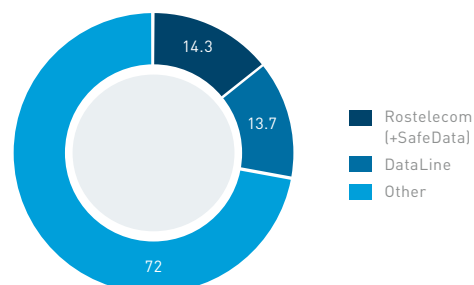
The Company's infrastructure, including 3,900 frames and points of presence across Russia, as well as in London, Frankfurt, Amsterdam and Stockholm, in addition to direct data storage service facilitates the development of other promising Company's data-oriented products.

### Russian market of data centre services, RUB bln



Source: Company data, iKS-Consulting

### Market share by frame number, %



<sup>1</sup> Compound Annual Growth Rate

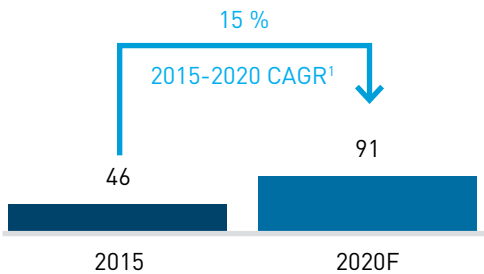
## GEODATA SERVICES

Complex services are targeted at corporate customers, municipal customers, as well as at implementation of government orders.

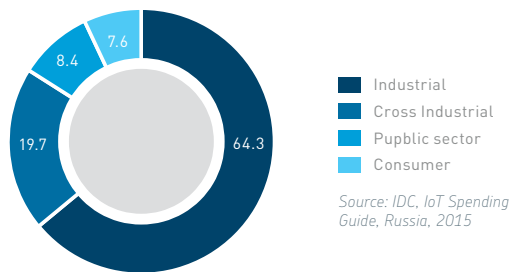
Services include GIS, navigation services on the basis of GLONASS-based solutions, as well as marketing geodata-based services based. The main purpose of the services is information support for management decisions of any thematic focus through the full customization to the customer's needs.

and data collection and analysis is carried out using traditional storage systems and analytical solutions. However, the demand for big data solutions and cloud services is growing that will – with the growth of the generated data volume – enable to easily scale up solutions and go beyond the implementations in individual companies. Rostelecom advantages in the form of the largest network infrastructure, data centre market leadership and expertise in the field of data mining (big data) provide excellent preconditions for the development of the Company's share in this fast growing market.

Russian market of geodata services, RUB bln



Russian segment market Industrial Internet of Things in 2015, %



## INDUSTRIAL INTERNET OF THINGS (IIOT)

The Russian market is at stage of early development of the Internet of things technology, but industrial implementations are leading and occupy a large market share. In most cases these implementations occur in the automated data collection from devices located on industrial sites. M2M connectivity area develops as well. Major Russian mobile providers record growth of M2M traffic in the corporate sector, especially among transport companies actively using the navigation systems.

Today, the implementation of the industrial of the internet of things takes place inside the companies,

Rostelecom plans to act not only as a provider of communication channels and processing capacities on the basis of its data centres, but also play the role of facilitator and guarantor of Internet of things deployments in key sectors of the Russian economy.

Due to the fact that the industrial Internet includes products and services from a large number of suppliers, it requires coordination of their actions in the process of creating solutions.

Software developers, system integrators, distributors of communications equipment have the expertise to deploy their products and services mainly within a single enterprise. When the pilot

<sup>1</sup> Compound Annual Growth Rate

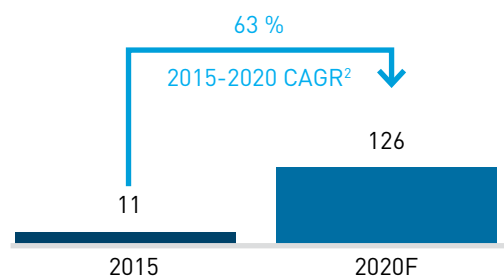
projects on the Internet of Things are carried out within one enterprise or an enterprise and its partners, it is important that there was an organization that helps to go beyond the "pilot" and will take on the possible risks.

In more mature markets (e.g. the USA), these coordinators are suppliers of industrial platforms of the Internet of things (GE) or large operators (AT&T, Vodafone).

In Russia, Rostelecom may become such organization. Thus, in the market of industrial internet the Company sees itself in the role of :

- Operator data collection and processing network infrastructure for IIoT,
- IIoT platform operator,
- Business integrator of IIoT projects in the domestic industry.

#### Russian market of Industrial Internet of things, RUB bln

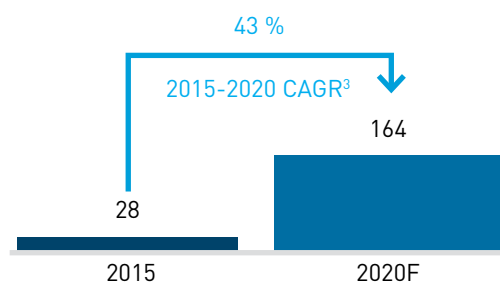


#### BIG-DATA

Russian big-data market is at an early stage of development – according to expert estimates, this segment will grow at an average annual rate at the level of over 40 % until 2020. The Company is strengthening its competence in the big-data market, having bought in 2015 IQMen IBS developer.

This acquisition will enable to realize a number of synergies with our core business, including through the use of big-data technologies to improve operational efficiency, monitor the quality of services, segment the customer base, customize offers etc.

#### BIG-DATA market forecast, RUB bln



#### GAME SERVICES

In 2015, Rostelecom entered game services market by launching its own game portal. Game portal was developed as part of Rostelecom overall strategy for the creation and development of differentiated products. Launching the portal is the starting point in the development by Rostelecom of the gaming area, which also includes a proposal of a specialized game content for Interactive TV subscriber, and the development of the Company's network for this content. The portal is aimed at the widest range of game enthusiasts and offers each target audience their content. Games are the best web traffic monetizer. The Company has a large base of subscribers, who can be offered additional services such as a bonus to the basic products.