



Implementation experience of Regional Initiative 5 approved by WTDC-17

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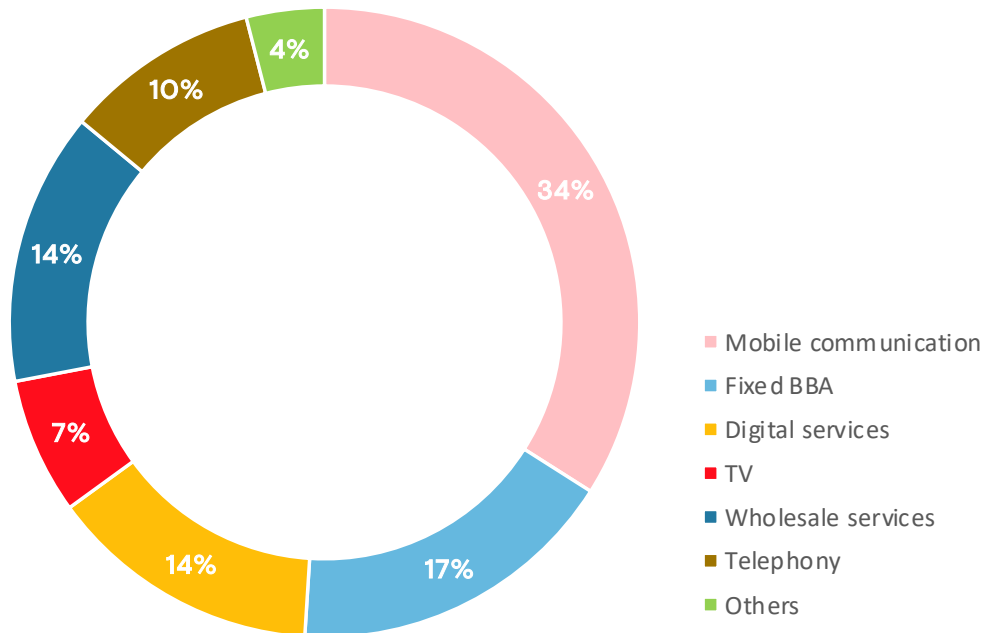
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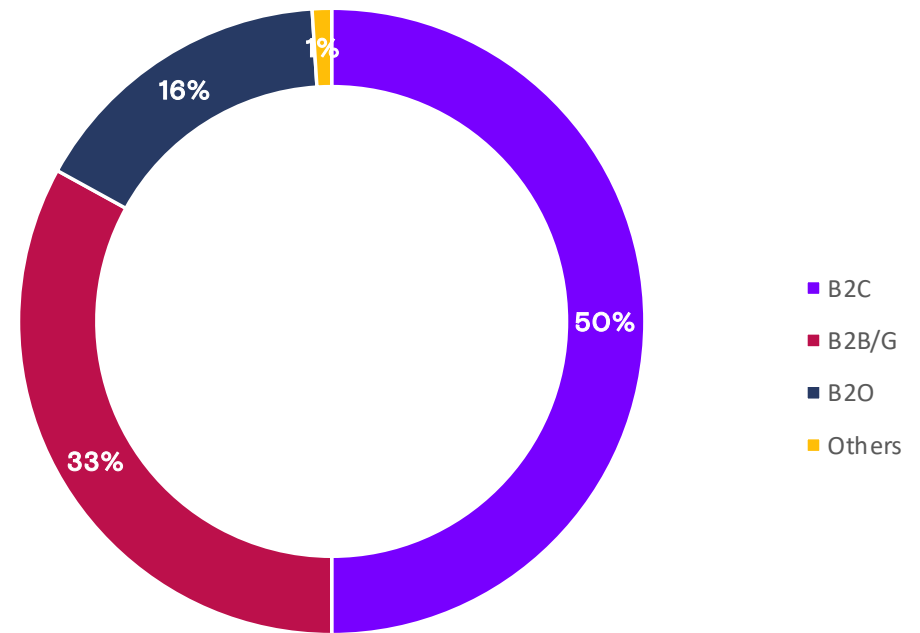


Rostelecom today

Revenue structure by services



Revenue structure by segments



Source - https://www.company.rt.ru/ir/results_and_presentations/presentations/2020-11_Investor_presentation_RU.pdf

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Rostelecom today

STRATEGIC INTERESTS

PERSONNEL

EFFICIENCY

No. 1. Strengthening leadership on the Russian telecommunication market and ongoing transformation into a provider of digital services



42% of women among company employees



19% reduction of power consumption for three years

FMC

Maximization of profit from convergence of fixed and mobile communication and extraction of synergy



55% employees undertook training in 2019



25% reduction of water consumption for three years

5G

Creating the best platform for efficient 5G deployment



7% growth of labor productivity



14% reduction of direct and indirect emissions of greenhouse gases for three years

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Primary stages of RI preparation and implementation

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Primary stages of RI preparation and implementation

Preparation stage before WTDC-17	RI protection stage during WTDC-17	RI implementation stage after WTDC-17
<ul style="list-style-type: none">➤ Evaluation of demands;➤ Defining priority activities;➤ Evaluation of prior experience➤ Searching for partners, evaluation of resources and distribution of responsibility;➤ Assembling priorities by unified large areas into future RIs and their defense at the regional level.	<ul style="list-style-type: none">➤ Presentation and defense of RIs at WTDC-17;➤ RI adoption for the region;➤ Defining working contacts with responsible persons for each activity within the approved RI both by ITU and each partner;➤ Immediately proceed to development of required documents and plans.	<ul style="list-style-type: none">➤ Kick-off meeting for each of planned activities within approved RIs;➤ Approve joint operation plans and ensure budget activities;➤ Ensure constant management of all activities via approved persons.

From multiple ideas to a single RI

RI5



- Project of the international R&D testing center;
- Organizing regional forums and practical seminars for key technologies;
- Assistance to educational process when training branch experts;
- Creating scientific potential;
- Assistance to national, regional and international standardization.

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From a Technical Lab to an International Center

R&D and testing Laboratory of innovative
telecommunications of Rostelecom
in the St. Petersburg State University of
Telecommunications

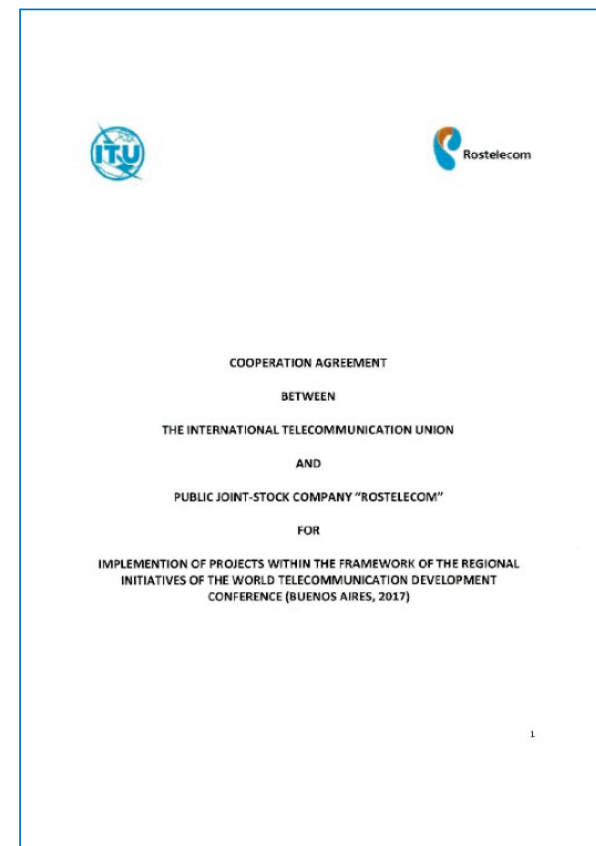
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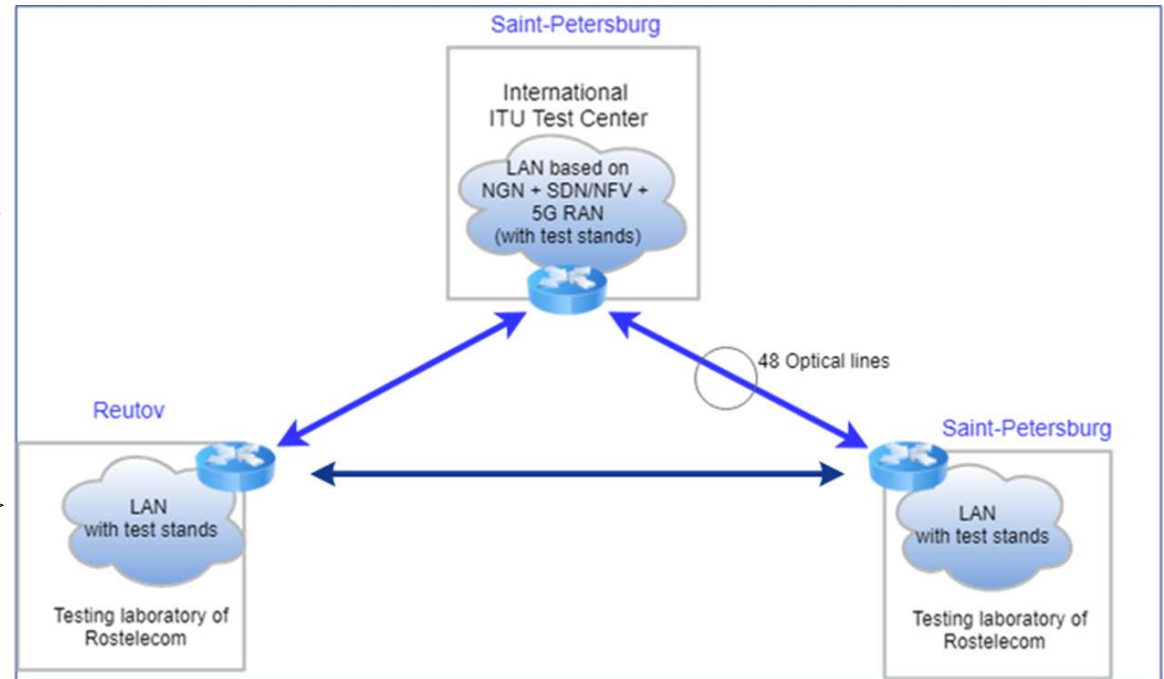
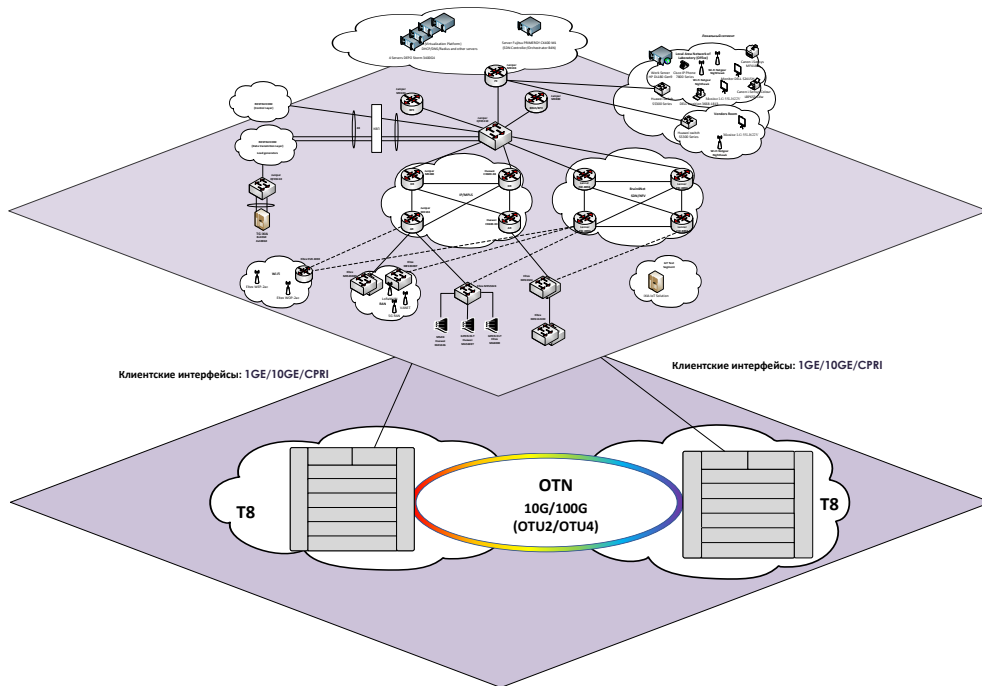


General: 2018-2020

As a part of the Agreement signed between ITU and Rostelecom PJSC and in order to fulfill a joint order of Rostelecom PJSC and St. Petersburg State University of Telecommunications, on **February 22, 2018** Rostelecom PJSC and St. Petersburg State University of Telecommunications signed an agreement to establish the Rostelecom laboratory in the St. Petersburg State University of Telecommunications as a geographically distributed and testing laboratory of 5G/IMT-2020 networks including further generations, technologies and devices, innovative services and applications based on such networks, namely such technologies as the Internet of Things, Industrial Internet of Things, Smart Cities and Communities.



General: 2018-2020



Laboratory as an International Center

Late in 2018, ITU and Rostelecom signed a project document to implement Phase 1 of the internal R&D testing center project including equipment, new technologies and services for December 1, 2018 - December 30, 2019.

The project was started on **March 25, 2019**.

Currently, Phase 1 activities are completed, and Phase 2 activities are to be completed by late 2021



Presentation of the Laboratory and the Center



Video - <https://www.youtube.com/watch?v=FlcNQ2KFZLA>

Forming workforce capacity



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Workforce and scientific capacity



1. **Professor Kucheryaviy A.E.**, head of the Communication Networks and Data Transmission department. Chairman of SG11, Signaling requirements, protocols, test specifications and combating counterfeit products
2. **Professor Kirichok R.V.**, head of the Software Engineering and Computers department, Head of research activities in ITU-T SG11 and SG20 Internet of things (IoT) and smart cities and communities (SC&C)



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Basic department
Innovative Telecommunication
Technologies
Rostelecom in the SPbSUT

<http://rt-itt.sut.ru/>

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General

The basic department of Innovative Telecommunication Technologies was established in the in the SPbSUT by Rostelecom for bachelors and masters

76 students were trained at the department in total. Lectures were given for the following modules:

Module 1: Migration of Rostelekom network, protocols and technologies to SDN/NFV. Virtualization of NFV network services. OTT-services;

Module 2: Business processes of service provision in the Rostelekom network. Modern approaches to OSS/BSS: CEM, SQM concepts. Issues of Revenue Assurance;

Module 3: Business process of connection, modification, operation in provision of services. Automation of business processes;

Module 4: Management of BigData accumulation experience, machine learning;

Module 5: Organization principles of Rostelekom networks.

Module 6: Subscriber terminal management protocol, TR-069 specifications;

Module 7: Fifth generation communication networks and digital economy;

Module 8: Internet of Things and its applications including Tactile Internet. Industrial Internet of Things.

Module 9: Software-configurable networks for new telecommunication technologies;

Module 10: Digital identification of objects in the Internet. Architecture of digital objects (DOA), DOI technology, etc.





Joint R&D activity

Rostelecom and St. Petersburg State University of
Telecommunications

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Joint R&D activities completed (1/2)

- 1. Analysis of modern radio-technologies for building Industrial Internet of Things;**
- 2. Research of applied platforms for management and organization of Industrial Internet of Things;**
- 3. Analysis of research of the ITU Telecommunication Standardization Sector (ITU-T) in the field of fifth generation communication networks (5G/IMT-2000);**
- 4. Analysis of draft standards in the field of the Internet of Things and Industrial Internet of Things of Committee 1 of the International Organization for Standardization and International Electrotechnical Commission (JTC1 ISO/IEC).**
- 5. Developing models and methods of organization of communication networks 2030 within the Digital Economy concept.**

Joint R&D activities completed (2/2)

6. **Developing models and methods of organization of communication networks 2030 (NET-2030/6G concept) for digital economy.**
7. **Communication networks with ultra-low ping as a a basis to build networks 2030 (NET-2030/6G concept)**
8. **Augmented reality and holographic presence;**
9. **Industrial Internet of Things;**
10. **Development of compatibility models of technologies, devices and electrical communication networks 5G/IMT-2020 and further generations;**
11. **Forming the unified tooling and specifications for testing devices, services, electrical communication networks and their segments within the concept of Internet of Things, Industrial Internet of Things, Smart Cities and Communities.**

A man and a woman are standing in a server room, looking at a laptop. The man is on the left, wearing a grey sweater and a blue lanyard. The woman is on the right, wearing a white shirt and a blue lanyard. They are both looking at the laptop screen. The background shows rows of server racks.

Participation in development of standards

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Participation in development of standards

Where?

- Inter-governmental organizations in the field of telecommunications standardization (ITU)
- International organizations in the field of informational technologies (ISO, IEC, JTC1, ETSI)
- Consortiums (IIC)
- Alliances (3GPP, OneM2M, 5GACIA)



Moreover....

For practical works in development of drafts of international and regional standards, regional groups for Eastern Europe, Central Asia and Transcaucasia were created in ITU-T:

- **SG3 ITU-T** Tariff and accounting principles and international telecommunication/ICT economic and policy issues;
- **SG11 ITU-T** Signaling requirements, protocols, test specifications and combating counterfeit products; Development of signaling protocols including SS7, organization of services in 5G/IMT-2020 and future generations of networks (VoLTE/VoIP, etc.)
- **SG13 ITU-T** Future networks, with focus on IMT-2020, cloud computing and trusted network infrastructures; Future networks, big data, cloud calculations
- **SG20 ITU-T** Internet of things and smart cities and communities; Standardization of technologies and services of the Internet of things and the concept of smart cities.

ITU-T SG RG page at the ITU-T website - <https://www.itu.int/en/ITU-T/regional-groups/Pages/eecat.aspx>



Joint events

2019

1. ITU forum Internet of Things: Applications and Services of the Future, 2030 Perspective and 4th ITU Seminar for Networks 2030, May 21-31, Saint Petersburg, Russia https://www.itu.int/ru/ITU-D/Regional-Presence/CIS/Pages/EVENTS/2019/05_St_Petersburg/05_St_Petersburg.aspx

Together with the forum and seminar, ITU held meetings of Regional groups [ITU-T 3rd SG \(SG3RG-EECAT\)](#), [ITU-T 11th SG \(SG11RG-EECAT\)](#), Regional group [ITU-T 13th SG](#) for Eastern Europe, Central Asia and Transcaucasia (SG13RG-EECAT) and [ITU-T Operative Group in technologies of networks 2030 \(FG NET-2030\)](#), on May 21-23 in the same place.

2018:

1. Regional ITU forum Internet of Things, Communication Networks, Big Data as Infrastructure Basis for Digital Economy, June 4-6, 2018, Saint Petersburg, Russian Federation - <https://www.itu.int/ru/ITU-T/Workshops-and-Seminars/20180604/Pages/default.aspx>

Regional ITU forum was held together with meetings of Regional groups [ITU-T 11th SG \(SG11RG-EECAT\)](#) and [ITU-T 20th SG](#) for Eastern Europe, Central Asia and Transcaucasia ([SG20RG-EECAT](#)) on June 4-6, 2018 in the same place.

Joint events

2017:

1. Regional ITU seminar Internet of Things and Future Communication Networks, June 19-20, 2017, Saint Petersburg, Russia - https://www.itu.int/ru/ITU-D/Regional-Presence/CIS/Pages/EVENTS/2017/06_Saint_Petersburg/06_Saint_Petersburg.aspx

Immediately after the ITU regional seminar, June 20 to 22, 2017, meetings of [Regional groups of 11th SG ITU-T](#) and [20th SG for Eastern Europe, Central Asia and Transcaucasia \(RG SG20-EECAT\)](#) were held.

Current results:

- **89** projects offers are submitted
- **13** ITU-T international guidelines are developed
- **10** draft ITU-T international guidelines are being developed
- **1** international ISO/IEC standard is developed

Forums of the International Telecommunication Union



Video - <https://www.youtube.com/watch?v=bKXFSSuB7S4>

Photo - <https://www.flickr.com/photos/147330406@N05/albums/72157708779819406>

Effect...

- Regional ITU subdivision for CIS countries represents all three ITU sectors in the region
- Advanced leadership is ensured in the field of educational programs and scientific studies
- Unique workforce capacity is formed
- Knowledge base and materials and technical resources are improved
- Wide international acknowledgment among universities and companies in the branch
- International scientific cooperation is strengthened

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A photograph of ice hockey players in action on an ice rink. The players are wearing red and white uniforms. One player in the foreground is wearing a white jersey and blue shorts, and is holding a hockey stick. A black puck is on the ice in the foreground. The background is slightly blurred, showing other players and the rink's edge.

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Strengthening of inter-regional cooperation

الكتاب "إنترنت الأشياء" (The Internet of Things) هو كتاب علمي في تطوير وتعاقد و طرق...
في جامعة سياتل بتكنولوجيا...
2013 درس في جامعة أوساكا هي...
الجامعة كاتدرجة لدراسة...
56 وشبكة و 105 وشبكة...
22 لتطوير...
الجامعة بتكنولوجيا...
2013 وهو...
20 و 21...
120 بحث علمي...



Published Book "Internet of Thing" in Arabic



Problems and solutions.

Problems occurred during implementation

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Problematic issues

- 1. Purpose of auxiliary expenses – AOS, by means of partner contribution.** Misalignment of requirements of Item 7 “*decides to assign to the General Secretary in close cooperation with the Director of the Radio Communication Development Bureau*” of Resolution 157 Strengthening of Project Execution Functions in ITU (revised in Dubai, 2018) and Item 14, Article 4, Annex 2 of the Financial Regulations and ITU Financial rules in terms of assigning at least 7% for auxiliary expenses (AOS) from the partner contribution. **This decreases the efficient share of the partner contribution by 7% from the contribution amount.**
- 2. Procurement procedure.** Procurement competence is referred to the General Secretariat rather than ITU-D as would be more logical. Moreover, procurement is global and does not take into account regional advantages: special prices for countries of regions, applicable restrictions, exchange rate differences, etc. **For this reason, procurement periods are prolonged, costs rise, which affect efficiency of procurement in the project.**
- 3. Accounting for in-kind contributions.** The project partner bears a significant financial contribution (repair, procurement of equipment, etc.) that it can confirm with financial documents (agreements, accounts, certificates. etc.). This contribution significantly increases the actual share of the partner in the project, but it is not reflected in the project document. **For this reasons, actual partner’s expenses on the project are higher but are not taken into account by the project documentation.**

Possible solutions

1. **Purpose of auxiliary expenses – AOS, by means of partner contribution.** Do not extend Resolution 157 PK-18 to projects implemented within WTDC Regional Initiatives, but rather apply respective provisions of the Financial Regulations and ITU Financial rules in the part concerning AOS if such need really exists.
2. **Procurement procedure.** Assign competence of procurement to the Telecommunication Development Bureau. Moreover, permit procurement at the regional platform (e-procurement platforms are used in CIS) to implement all regional advantages: special prices for countries of regions, applicable restrictions, exchange rate differences, etc.
3. **Accounting for in-kind contributions.** If the project partner bears a significant financial contribution (repair, procurement of equipment, etc.) that it can confirm with financial documents (agreements, accounts, certificates, etc.), it must be taken into account in the project document to increase the efficient share of the Partner's contribution to the project.

Thank you!

