SOUTHERN FEDERAL UNIVERSITY

KEY DEVELOPMENTS IN 2015

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Highlights of 2015

HISTORY

2015
100 year
Anniversary

2006
Southern Federal
University =
RSU + RSPU + TSUR + RSAA&A

1988
Rostov State Academy
of Architecture & Arts
(RSAA&A)

1952
Taganrog State University
of Radioengineering
(TSUR)

1930
Rostov State
Pedagogical University
(RSPU)

1915
University of Warsaw –
Rostov State University
(RSU)

COMPETITIVE ABILITY AND DEVELOPMENT PROGRAM

- SFedU carries out **123** research projects intended for high-tech economic sector and serving southern macroregion.
- The following projects and local innovative clusters are developed: 'Southern Constellation', an innovative technical cluster for the Rostov Oblast; biotechnology, biomedicine and rational natural resource consumption cluster; nuclear medicine center.
- SFedU implements a program on Advance Training of Engineering and Technological Personnel for 2015-2016 intended for the workers of industrial enterprises, as well as personnel training programs for defense industry.
- Projects on developing resource centers for interaction with organization of the Black Sea Economic Cooperation and Ibero-American region.
- The University is involved in **53** development programs serving public companies.
- SFedU implements a pilot project on modernizing pedagogical education.
- The University takes part in national technical initiatives including NeuroNet and robotics engineering.
- Centres of excellence operate in the following areas: artificial intelligence and quantum computing; radio technology, control, navigation and networking systems; neuroscience and optogenetics.

Performance Targets for SFedU's Development Program

	2015	2021
Post-graduate students' ratio of total number of students, %	18	28
Average USE score, points	71	79,5
The ratio of post-graduate students' with a Bachelor's/ Specialist's/Master's degree from other organizations, %	27	40
Research work volume for those financed by the real economy entities, million roubles	750	1050
Number of publications per 100 members of academic staff, WoS	13	22
Number of publications per 100 members of academic staff, Scopus	20	47
Number of citations per 100 members of academic staff, WoS	123	170
Number of citations per 100 members of academic staff, Scopus	131	183
Proportion of non-budget income sources, %	43	53
University's revenue per 1 member of academic staff, thousand roubles	1641	1800
Average academic staff member's wage to average wage in the region, %	178	200
IPR revenues, million roubles	235	250

SFedU in rankings

QS WORLD UNIVERSITY RANKINGS — 601+

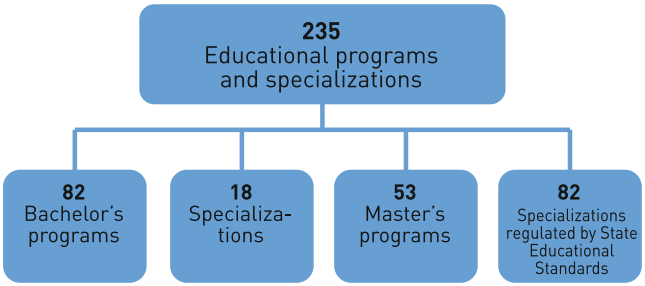
QS UNIVERSITY RANKINGS BRICS — 81

THE TIMES HIGHER EDUCATION WORLD UNIVERSITY RANKINGS — 601+

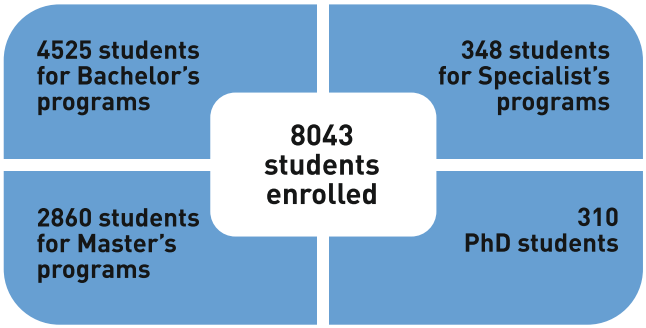
EDUCATION

Educational Activity Management

The university provides training in 6 areas out of the existing 9: Mathematical and Natural Sciences, Engineering, Technology and Technical Sciences, Social Sciences, Education and Pedagogical Sciences, Humanities, Art and Culture.



SFedU admits students for academic and staff tuition programs



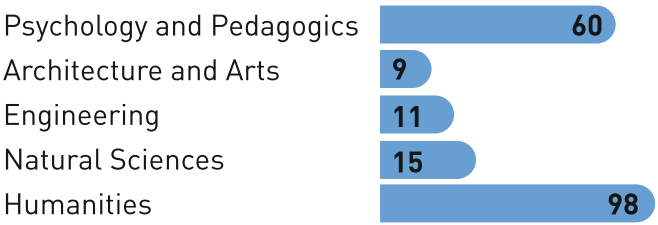
Students share out of the whole number

	Type of study			Total	out of whom	
	Full-time	Part-time	Distance		state-funded	for fee
Master's	3322	443	854	4619	3347	1272
Bachelor's	12625	787	8399	21811	14783	7028
Specialist's	1679	227	1795	3701	2353	1348
Doctorate (Candidate of Sciences)	947	0	59	1006	917	89
Doctorate (Doctor of Sciences)	51	-	-	51	21	30
Total	**18624**	**1457**	**11107**	**31188**	**21421**	**9767**

The students from abroad account for over 5% of the total student quantity. The majority of students come from the Southern Federal District; next comes the North Caucasus Federal District, while over 20% of students come from other regions of Russia.

In the covered period the number of people attending the University's academic programs was 9,320 people. Total number of students attending advanced training programs implies 5,789 people who studied under 126 programs, 1,031 people who underwent retraining.

Distribution of advanced training and retraining programs among focus areas



Project ‘Educational Cluster’

SFedU, SFD higher educational establishments

Schools, colleges

An independent quality control system for educational establishment activity; a register for the leading pedagogical staff members of the Rostov Oblast

A system of shortlisting, supporting and following talented youth

Status ‘Potential Student’

Career guiding and career planning

- Career consulting
- Career tests

Educational activity

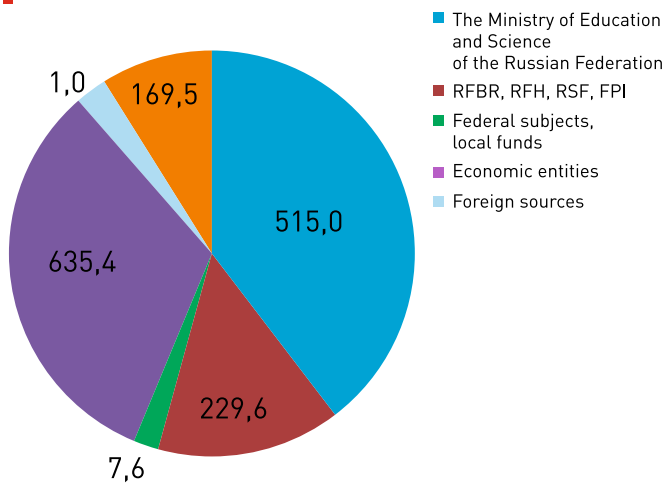
- Pre-University Training Programs

Project and experiment activity and socialization

- Access to information and analytical sources
- Participation in the work of student science communities
- Project activity based in the University

140 scientific programs; overall financing of 1,558.2 million rub.; increase in funding – 1.8%; the ratio of academic staff employed in scientific research, experimental engineering and technical activity (hereinafter, SREETA) – 73%; share of young researchers employed in SREETA – 55.2%. Projects held in the framework of the expanded group of scientific search: 'Information Technologies. Nanotechnologies, intellectual materials' – 664.35 million rubles; 'Medicine of the Future, Biotechnologies' – 632.4 million rubles; 'Robotics, control, navigation and communication systems' – 106 million rubles; 'Geopolitics, Geoeconomics and Projects of the South of Russia' – 90.4 million rubles; 'Development Problems and Prospects of the Azov-Black Sea Region' – 52.95 million rubles; projects under development – 21.1 million rubles.

SREETA Financing Scheme, million rubles



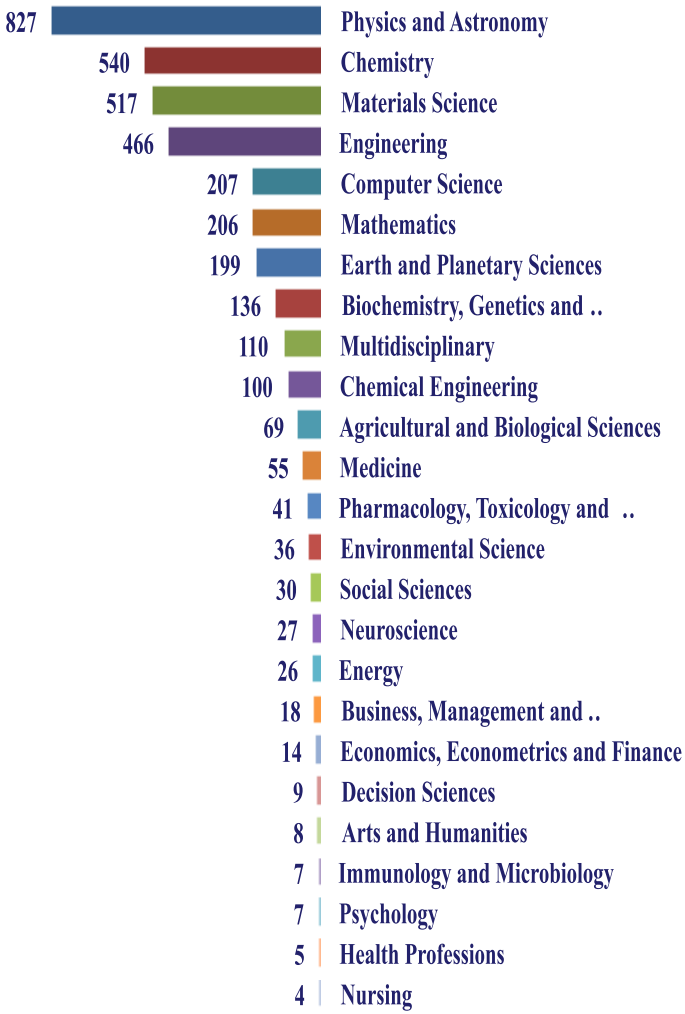
RSF's priority projects: New technologies for extracting and refining heavy crude oil. Promising industrial technologies. Promising industrial biotechnologies. Electrochemical and thermoelectrical technologies in energy industry. Intellectual technologies in robotic and mechatronic systems. Reducing risks of natural and technological disasters and mitigating consequences.

Recovery, regeneration and adaptation medicine. Perspective quantum communications and calculations. New agricultural technologies for controlling the main links of the trophic chain to optimize nutrition of Russian population. Neurotechnologies and cognitive researches. Relationships between nations, ethnic identity and social processes. Analyzing world's and Russia's experience. Reasons behind conflicts and mechanisms of their prediction, prevention and control.

Participating in SREETA in priority development areas of science and technology in Russia (67% of the total number of researches and developments)

Priority development areas for science and technology in Russia	Funding, million rubles
Total, including	1 028,89
Security and fighting terrorism	14,00
Nano-system industries	235,75
Informational and telecommunication systems	349,45
Life sciences	75,35
Perspective weapons	85,76
Rational usage of natural resources	48,27
Transportation and space systems	190,29
Energetic efficiency, nuclear industry	30,0

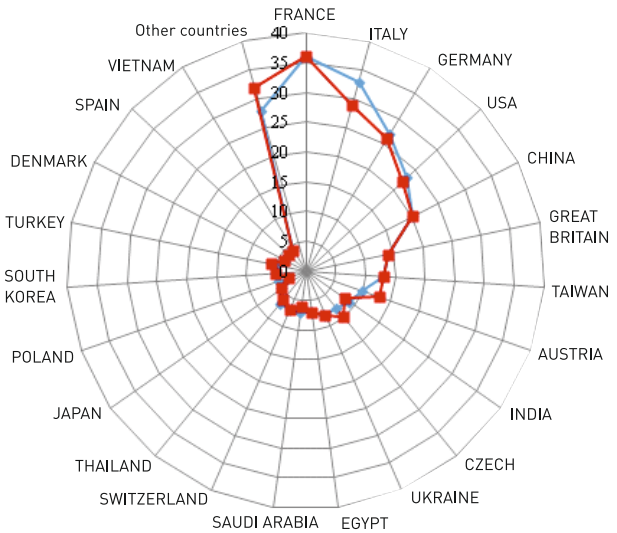
SFedU Publication Activity (according to Scopus database)



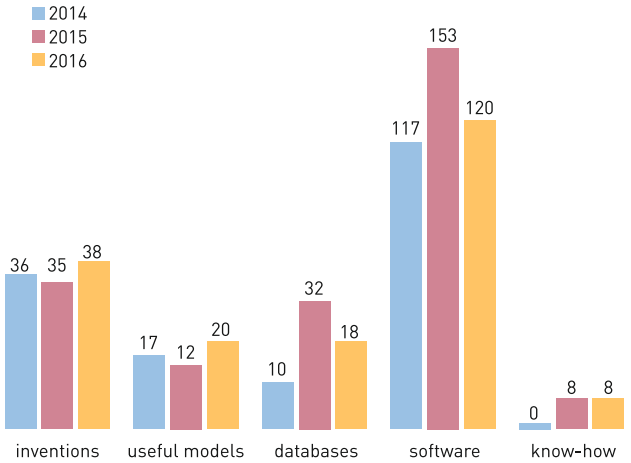
Scopus database contains 723 articles written by the University staff which, compared to 524 articles indexed during the same period in 2014, makes for 138%. 38% of the cited articles were co-authored with foreign scientist. Number of citations is 256, average citation rate per article – 0.35, h-index equals 7.

In 2015, 83 articles by SFedU staff were published in 52 journals belonging to top 10% of the world's best journals in their categories; 4 publications entered the rating of articles with the highest SCI (top 1%) in their fields.

Geography of the co-written articles



The results of scientific and technical activity



Number of license agreements for intellectual property use

2014	2015	2016
18	19	27

Revenues from scientific and technical activity

2014	234 732,6 thousand roubles
2015	235 803,11 thousand roubles

Revenue from participating in registered capital of economic communities

Legal entity's title	Revenue granted in 2015 thousand roubles
'Pyezoelektrik', LLC, Rostov-on-Don, Russia	371,167
Joint-stock company 'Scientific-Design Bureau of Computing Systems', Taganrog, Russia	2 092,350
'Road Utilixation Center', Ltd., Taganrog, Russia	205,536
Total	2 669,053

Engineering center for instrumentation, radio- and microelectronics

Activities:

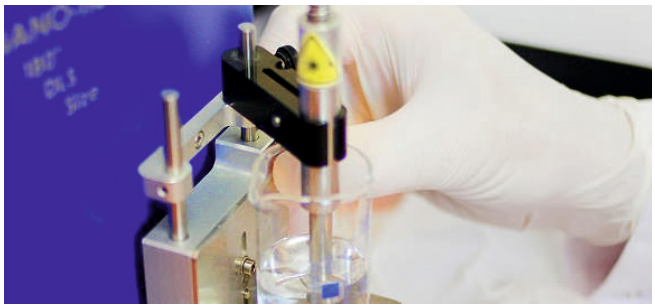
- Developing and producing instruments and systems for civil, military and double purposes.
- Developing and verifying specialized software.
- Project and design services under CAD and CAE.
- Reverse engineering of electronic devices and components.
- Technological services on the experimental basis.
- Technology transfer.

EC carried out works with the cost of over 30 million roubles, the most significant of them is working out design, operation and programming documents for the AFDX stand; building the instrumental panel and components for assembling it, and also developing service software.

Multiple-access centers (MAS) participating in science and innovation infrastructure of BRICS countries

- MAS 'Molecular Spectroscopy'
- MAS 'High Technologies'
- MAS 'Nanotechnologies'
- USI 'Nanotechnological Complex with Expanded Analytical Capacity'
- MAS 'Nano-sized Substance Structure'
- MAS 'Biotechnology, Biomedicine and Ecological Monitoring'
- MAS 'Electromagnetic, Electromechanical and Thermal Properties of Solid Matter'
- USI 'Nature-Imitating Hydro-acoustic Complex'

The total of the services provided by the MAS was **394,17 million roubles.** The ratio of hardware with the cost over **500 000 roubles – 59%**.



Development Program was designed to work out the ways of more efficient SFedU Supercomputer's capacities distribution

(co-operating with IBM, FASO, Siberian Federal University)

The aim is to increase the efficiency of SFedU Supercomputer's employment through improved distribution, to increase the quality of conducted research and to create highly competitive new technologies of worldwide significance.

The Program involves:

-building up a permanent team of coordinators to monitor and enhance the Program's implementation;

-upgrading the SFedU Computing Resource Center's facilities;

-discussing the range of tasks and the future cluster's required computing capacity with prospective users of the Supercomputer's distributed pool of capacity;

-inviting the leading computer producers to participate in the SFedU Computing Resource Center's work;

-purchasing up-to-date equipment;

-designing and developing the software which is to provide a wide range of users with distributed access to SFedU Supercomputer's capacities;

-implementing educational programs to prepare qualified specialists in supercomputing;

-offering similar clusters' placement and maintenance services to research and industrial organizations;

-developing new competitive products with the help of the Program.

SFedU participation in the local industrial development

"Yuzhnoye Sozvezdie", innovative technological cluster in Rostov region aims at

-designing and manufacturing an integrated high-tech innovative system to count, register and analyse the data of energy and water resources consumed to satisfy industrial and household needs;
-designing and producing an electronic unit for 65СНЛ equipment;
-developing applicable theory and methods of AI control for user-independent electric cars;
-manufacturing integrated configurable high-tech systems for high-precision prolonged positioning based on GPS, local positioning systems, SHF beacons and MEMS systems;
-working out a display system for coolant's temperature adjustment and indicators of pressure, consumption, and temperature in liquid cooling systems of antenna and RF units;
-upgrading the water landing indication system of the amphibious aircraft Be-200;
-designing a diagnosable electric heater.

Funding – 291,5 mln. roubles

Continuous staff-training pattern

Support and consulting system

Research, development and engineering

Research, innovation, and education coordinating center

Provision of research and innovation infrastructure

Bioengineering, biomedical and eco-management cluster aims at

-organizing the South Russian swine and poultry breeding genomic selection center;
-developing advanced synbiotic compounds manufacturing technologies for organic farming;
-studying neurophysiological mechanisms of sensory, motor, and intellectual processes in complex cognitive performance;
-designing a self-learning brain-computer interface for paralyzed patients to operate mobile objects;
-studying mtDNA variability through mtDNA research in cases of atherosclerosis and associated conditions and disorders;
-exploring soils' resistance to nanoparticles of heavy metals;
-studying antibiotics' impact on biological properties of soils;
-developing the basics of integrated microbiological technology for soil remediation after PAHs contamination and outlining the selection principles of the required bacterial destructive strain.

Funding – 143,5 mln. roubles

The project of Common Use Center "Vysokye Tekhnologii" (High Technologies) is implemented as a part of Federal Targeted Program to carry out more efficiently the multidisciplinary projects studying cell function regulation mechanisms to solve a range of theoretical and practical problems in biology and medicine, regenerative medicine included.

Focal area: Life Forms

Objectives:

-to provide the CUC with the latest exclusive equipment;

-to expand the range of the research and development services furnished and to make them more complex and sophisticated;

-to make the CUC equipment more available and demanded;

-to introduce new areas of research.

The 2015-2020 Botanic Garden Development Program is implemented.

Focal area:

Life Sciences; sustainable management of natural resources.

Key technologies:

nano- and biotechnologies; information and cognitive technologies; genomic, proteomic, and post-genomic technologies; cell technologies; biomedical and veterinary technologies.

Over 20 areas of research

Objectives:

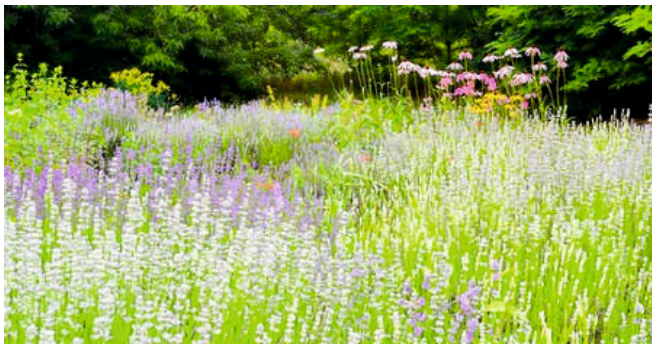
-to improve Botanic Garden's facilities and infrastructure;

-to provide co-operation with major research centers;

-to build up the research capacity;

-to provide conditions for communication and exchange with the leading research groups;

-to enhance the use of SFedU CUC in Botanic Garden's innovation and research.



Common Use Center “SFedU Nuclear Medicine Center”, in association with NRC “Kurchatov Institute”

Public and private partnership project

Key fields of activity:

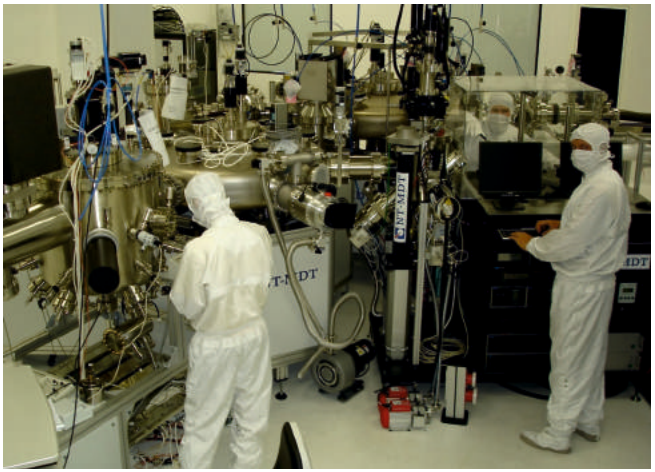
Educating and training highly qualified staff;
Fundamental and applied research;
Nuclear medicine methods and technologies;
Radiobiology;
Radioactive isotopes’ properties;
Making new RPh products;
Investigating new properties of materials;
Functional coatings;
Pre-clinical studies;
Providing the region with RPh products.

Transferring technologies:

Pre-clinical studies to register in Russian Federation;
Medical products;
RPh products.

Research principles:

Co-operation with leading Russian and foreign research groups and organizations;
Taking orders for applied research from Russian and foreign organizations;
State funding.



INTERNATIONAL CO-OPERATION

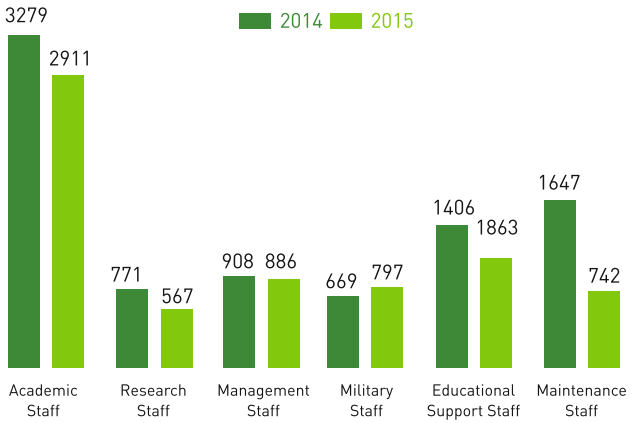
31 internationally accredited programs;
8 joint educational programs with foreign universities;
95 disciplines taught in the English language;
37 academic exchange programs (13 universities from the world top-500);
10 Erasmus+ projects (9 projects of students and staff academic mobility, 1 design project of internationalization strategies conforming;
Summer and Winter Schools organized together with foreign institutions;
diverse locations and a wide range of foreign partners
(**265** agreements with organizations from **51** countries,
foreign students coming from **80** countries)

482 foreign partners;
1276 publications in international collaboration (2010-2015);
21 international group projects

HUMAN RESOURCES

Human capital asset is of vital importance in getting and maintaining the top position in educational services as well as in acquiring competitive advantages in the global research and technology markets.

SFedU Permanent Staff Dynamics (number of people)



SFedU Permanent Academic Staff (number of people)

Unit	Full-time employees		External part-time employees		Internal part-time employees	
	2014	2015	2014	2015	2014	2015
People	2984	2624	295	287	248	124
%			10	11	8	5

SFedU Staff Quantity (number of staff units)

Group	Number of full-time staff units		Proportional Representation (%)	
	2014	2015	2014	2015
Core Staff	3312,96	2870,02	60	62
including:				
Educating Staff	33,25	48,05		
Academic Staff	2617,27	2311,85		
Research Staff	662,44	510,89		
Other Core Staff	1421,04	507,89		
Management Staff	918,89	804,51	12	15
Support and Maintenance Staff	2237,11	1265,82	28	23

FACILITIES DEVELOPMENT

SFedU real estate property
447 real property assets, including
438 – in operational management;
9 – rented and in uncompensated use.

SFedU real estate property area
586960,9 square meters including:
547198,6 square meters –
in operational management;
39762,3 square meters –
rented and in uncompensated use.

Key development areas
maintenance cost minimization (outsourcing);
new construction projects;
current maintenance projects;
refurbishment.

Funding
1000,0 thousand roubles – public funding.
10927,3 thousand roubles – non-public funding received by SFedU for academic buildings refurbishment, including those of cultural importance (federal and local level).
100000 thousand rubles – additional public funding for academic and social facilities (IV quarter).
10813,2 thousand roubles – spent on Botanic Garden's unique ecosystem development and restoration (carrying out Rostov Governor's commission).
30000 thousand roubles - additional public funding (federal level) for Botanic Garden's development.
42180,8 thousand rubles – spent on academic buildings refurbishment.

FACILITIES DEVELOPMENT

Actions taken were determined by strategically crucial long-term tasks of improving SFedU facilities. New dormitories constructed and put into service relieved the shortage of accommodation and made the latter more comfortable. Current facilities maintenance measures provided favorable conditions for teaching and research. In 2016 the work is to be continued to reach the quantitative level required of the academic buildings and their efficient maintenance (implementing energy and resource saving programs, providing technical support for telecommunication and IT).

One more phase of campus construction

9B hall of residence was finished and putting into service was permitted in December 2015.

Total costs were 709385,8 thousand roubles, including 45385,8 thousand roubles of co-investment.

Total area is 1482,5 square meters.

Sports facilities improved

SFedU swimming pool (50x25, total area 8627,1 square meters) was included into the federal project "500 swimming pools", and will be an integral element of SFedU campus sports facilities.

In 2014-2015 the funding was 455610,2 thousand roubles of federal public money and 30200,0 thousand rubles from non-public sources.

Local public funding of 117439,0 thousand roubles was spent on the swimming pool equipment (two all-metal basins and water conditioning system).

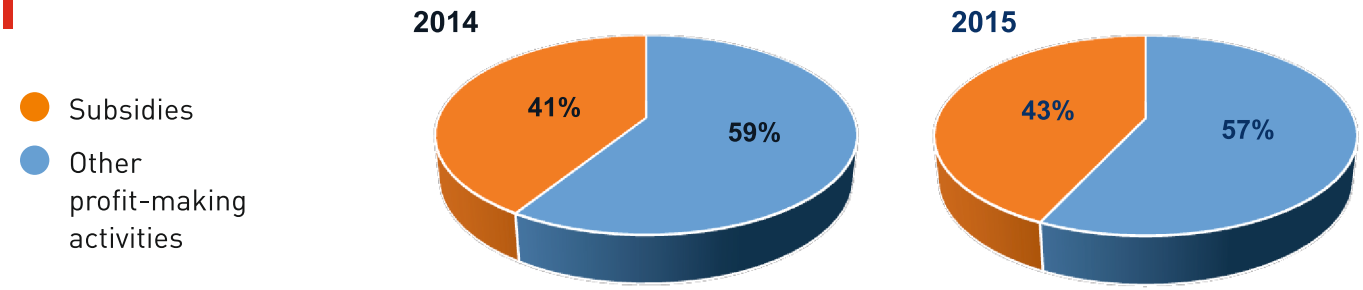
FINANCIAL AND ECONOMIC LANDSCAPE

Economic Sustainability Performance Targets for 2014-2015

In the course of the economic and financial activities at the university which were conducted in correspondence with the performance targets and consolidated in the University's Finance and Business Plan, a number of schemes was implemented: University development programme, road map, step-by-step improvement of the remuneration scheme. All of these enabled to reach the following performance targets:

Performance Goal	Unit	Target for 2015	Performance in 2015
Fraction of the income from non-budgetary sources in the total income	%	43	43
Income per a member of the Academic staff	thousand roubles	1600,0	1641,3
Average Salary Ratio for the Academic Staff in comparison with Average Salary Ratio in the region	%	178,0	179,3
Personnel Ratio for administrative and managerial and auxiliary staff	%	38,0	38,0

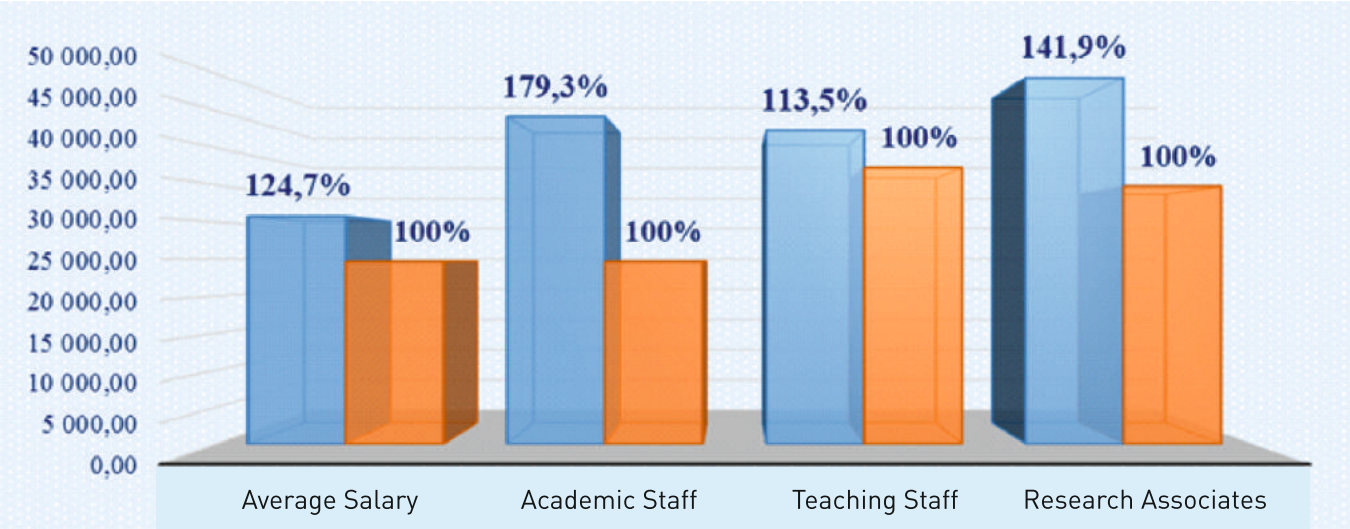
Comparative Budget Analysis based on the formation types and sources



FINANCIAL AND ECONOMIC LANDSCAPE

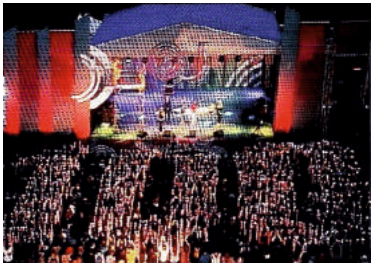
Average Salary in 2015:

Monthly average salary in Southern Federal University: – 30 754 roubles.
(average salary in the Rostov Region – 24 657,4 roubles.)
By the personnel categories:
Academic staff – 44 205 roubles., Teaching staff – 42 381 roubles, Research Associates – 49 464 roubles.
Average salary in 2015 in comparison with 2014 amounted to 4,2%.



	Average Salary	Academic Staff	Teaching Staff	Research Associates
Southern Federal University	30 754,00	44 205,60	42 381,00	49 464,00
Rostov Region	24 657,40	24 657,40	37 334,40	34 845,40

YOUTH POLICY



Homecoming Day to celebrate University's 100-year anniversary: over 35,000 participants

VI Science Festival: 50,000 visitors, 40 Russian higher education establishments, 17 museums, 20 further vocational education centres

Since 2012 the University has been implementing Students' Association Development Programme. There is Joint Student Board including 200 Students' associations

Student Sports Club: 18 competitions, 10,000 participants

Patriotic "We are united!" motor rally: all the subjects in the Southern Federal District and North Caucasian Federal District, 2,500 participants

ВСЕРОССИЙСКИЙ СТУДЕНЧЕСКИЙ ФОРУМ

All-Russian Student Forum
Participants: all RF subjects
2,000 students
500 experts
6 thematic areas
14 venues

Volunteers Union: over 100 events, 700 participants

Student Creativity Festivals: over 20 projects, 12,000 participants

ENDOWMENT FUND

More than 20 mln.roubles - in total
More than 5.5 mln roubles - in 2015
876 thousand roubles - endowment control profitability for 2014
The money is used to support 9 schemes.

The profits are channelled to support outstanding scientists, lecturers, students and postgraduates, to create the targeted grant-in-aid system and to maintain SfedU departments, to finance academic, research and practice activities involving students and the faculty.

ALUMNI ASSOCOAITON

More than 6,000 members. More than 2.5 mln roubles were raised for charity.

The SfedU Alumni Association's strategic objective is to promote further contacts among graduates, to create favourable environment for homecoming events and collaborative projects, to enrich the traditions and to ensure the all-round development of Southern Federal University as the leading educational and academic and research centre, to strengthen the brand image and to increase the prestige.

In 2015, **30,000** people from **12** countries attended the Homecoming Day held on May, 16th.

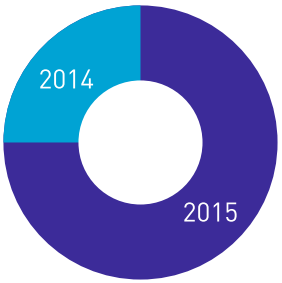
COMMUNICATION POLICY

Southern Federal University ranks among Top 5 in media coverage among federal universities

Within the joint program with Yandex, the Sfedu's logo was put up on the search engine's main page on the day of the 100-year Anniversary celebration that drew a massive response in the blogosphere.

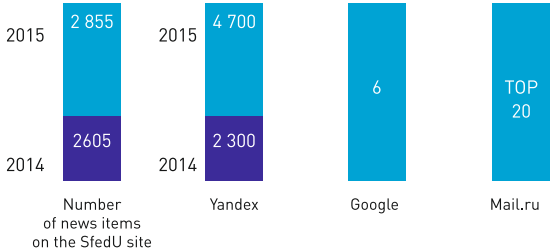
Providing external and internal communication

The "Counseling Office" Section on the official site helps to deal with students' and staff's inquiries.



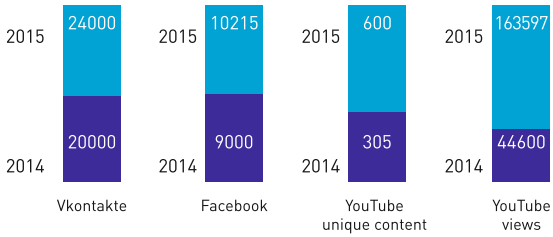
Number of inquiries:
2014 - 492 inquiries
2015 - 635 inquiries

Development and promotion of the SfedU official site



The number of the site users is gradually increasing. According to the figures from the end of December, 2014, 4 477 unique users were registered in one day while at the end of 2015 the number amounted to 5 385.

Development and Promotion of SfedU official pages in social networks



SfedU's consistent presence in social networks encourages users to click to the university official site link.

TV "University" Channel has been operating successfully and its audience has increased up to 150,000 viewers

SOCIAL POLICY

University's social policy places a high priority on the social security for the academic staff, young scientists, talented youth and physically challenged people

Social safety net for students

Financial aid/ stimulation - mln rub	113,9 mln.roubles
Organisation of health-improving recreation	11,9 mln.roubles
Cultural and sports (health-promoting) events	44,5 mln.roubles
Co-financing dormitory rent	80,3 mln.roubles
Social scholarship	57,1 mln.roubles
Increased scholarship for cash-strapped 1st and 2d - year students	89,2 mln.roubles
Consulting for further employment	3200 people

Social safety net for the personnel

Financial aid	6,5 mln.roubles
Financial bonuses on jubilees	4,5 mln.roubles
Healthcare	233 thousand roubles
Medicalcare	7,5 mln.roubles
Tuition reimbursement for the personnel's children	3,5 mln.roubles
New Year presents for the personnel's children	858 thousand roubles
Total	**22,8 mln.roubles**

Upgrading working conditions and facilities – 127 mln.roubles

HIGHLIGHTS OF 2015

January, 25th, a new tradition was established to hold Annual Students' Ball dedicated to Students' Day.

January, 29th, the agreement on the launching of the innovative and technological cluster "Southern Constellation" was signed.

March, 30th, the restoration of the educational and scientific complex and construction works on the conservatory in the Botanic Garden were completed.

May, 15th, the Museum of the History of Southern Federal University was opened.

May, 16th, Anniversary Homecoming for SfedU Alumni was attended by 30,000 graduates (annual homecoming is held on the third Saturday of May).

June, 5th, a new edition of the SfedU Development Programme was proposed on the joint meeting of Southern Federal University's and Siberian Federal University's Board of Trustees chaired by RF Prime Minister Dmitriy Medvedev.

July, 25th, the changes in the SfedU Development Programme were confirmed by the RF Government decree.

August, 25th, SfedU introduced a range of innovative projects at the International Aviation and Space Show (Zhukovskiy, Russia).

HIGHLIGHTS OF 2015

September, 3d, SfedU in collaboration with the Ministry of Education and Science of the Russian Federation and the Rostov Region government co-hosted the National Student forum in Rostov-on-Don.

October, 10th, the agreement on launching the Educational cluster in Rostov-on-Don was signed.

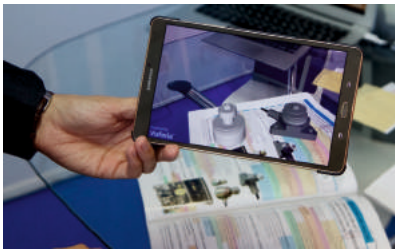
October, 16th, SFedU personnel gathered in a solemn meeting dedicated to the 100-year anniversary (annually "University Day").

November, 19th, within the joint project with Perspective Research Fund SfedU opened the laboratory for Neurotechnology of Perception and Recognition.

December, 2d, SfedU participated in III Annual National Exhibition "Vuzpromekspo" (Moscow, Russia).

December, 14th, Supervisory Council chaired by Rostov Region Governor Vasiliy Golubev approved of the SfedU Campus Development project up to 2020.

December, 23d, Rostov-on-Don's "Educational Cluster" won "Triumph of 2015" award in the "Project of the Year" nomination.



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