



Al-Farabi Kazakh National University

(Almaty, Kazakhstan)

Tlekkabul Ramazanov
Vice-Rector for Science & Innovations

Islamabad, Pakistan, COMSATS, 17-18 May 2016





Present statistics of the Centre

Main Campus Area 75 hectare





Al-Farabi Kazakh National University

VISION: to enter the Top 200 leading research universities in the world

MISSION: Generating the human capacity - highly qualified specialists competitive in the international labor market



«To 2020 ... at least 2 higher educational institutions will be awarded in the ranking of the world's best universities»

From the Message of President of Kazakhstan N. Nazarbayev

ABOUT THE UNIVERSITY:

- Faculties: **15**
- Chairs: **63**
- Research institutes: **25**
- Laboratories of the National Level: **2**
- Science and Technology Park

ACADEMIC PROFILE:

- More than **20 000** students
- Bachelor specialities: **81**
- Master specialities: **84**
- PhD programs: **64**





Al-Farabi Kazakh National University Structure

Al-Farabi Kazakh National University - the only university in the Republic of Kazakhstan, which has a unique scientific and innovative structure

15 Faculties

10 Scientific Institutes

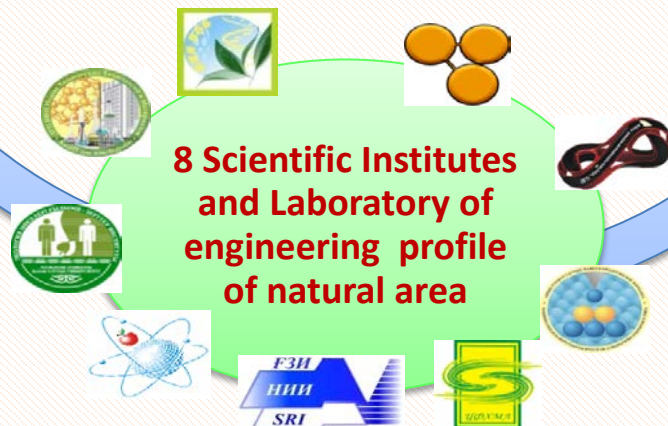


«Gylm Ordasy»

**5 Scientific Institutes
and 30 Scientific
Centers of socio-
humanity area**

**8 Scientific Institutes
and Laboratory of
engineering profile
of natural area**

Research is carried out in accordance with the priorities of the Republic of Kazakhstan and world trends in science and technology





Faculties

Faculty of Mechanics and Mathematics

Faculty of Physics and Technology

Faculty of Chemistry and Chemical Technology

Faculty of Biology and Biotechnology

Faculty of Geography and Nature Management

Faculty of History, Archeology and Ethnology

Faculty of Philology, Literary Studies and World Languages

Faculty of Journalism

Faculty of Philosophy and Political Science

High School of Economics and Business

Faculty of Law

Faculty of International Relations

Faculty of Oriental Studies

Faculty for Pre-College Education

High School of Public Health





Research Institutes and Centers



**Institute of Mathematics
and Mechanics**



**Institute of
Experimental and
Theoretical Physics**



**Institute of New
Chemical Technologies
and Materials**



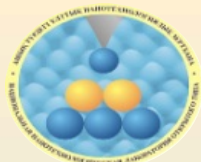
**Center of Physico-
Chemical Methods of
Research and Analysis**



**Institute of Biology and
Biotechnology Problems**



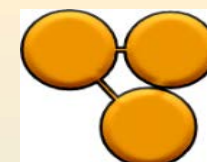
**Institute of Ecological
Problems**



**National Nanotechnology
Open Laboratory**



**Scientific and
Technology Park**



**Laboratory of
Engineering Profile**



Socio-humanity institutes and centers

Abay Research Institute

Institute of State and Law

Confucius Institute

Institute of Security and Cooperation Problems

International Institute of Kipchak Studies

Orazbayev Center for Archaeology and Ethnology

NATO Information and Resource Centre

Center for Sociological Research and Social Engineering

Versatile scientific and innovative center of the educational services "GLOSS"

Research and Innovation Center for Educational Studies

Research and Educational Center for German Studies

Training and Research Center Ancient Turkic scripts

Center for Environmental Safety and Natural Resources

Turan-Iran

Research Centre for Korean Studies

Center for Arabic Studies

Research Institute of Archaeology and Ethnology

Center for Psychological Technology and Innovation

Center for Economic Research

Center for Legal support of innovation development of RK

The European Information Centre

Center of problems of fight against crime

Resource Center for American and Democratic Studies

Republican Center «Al-Farabi and spiritual culture »

Center for Religious Research and Expertise

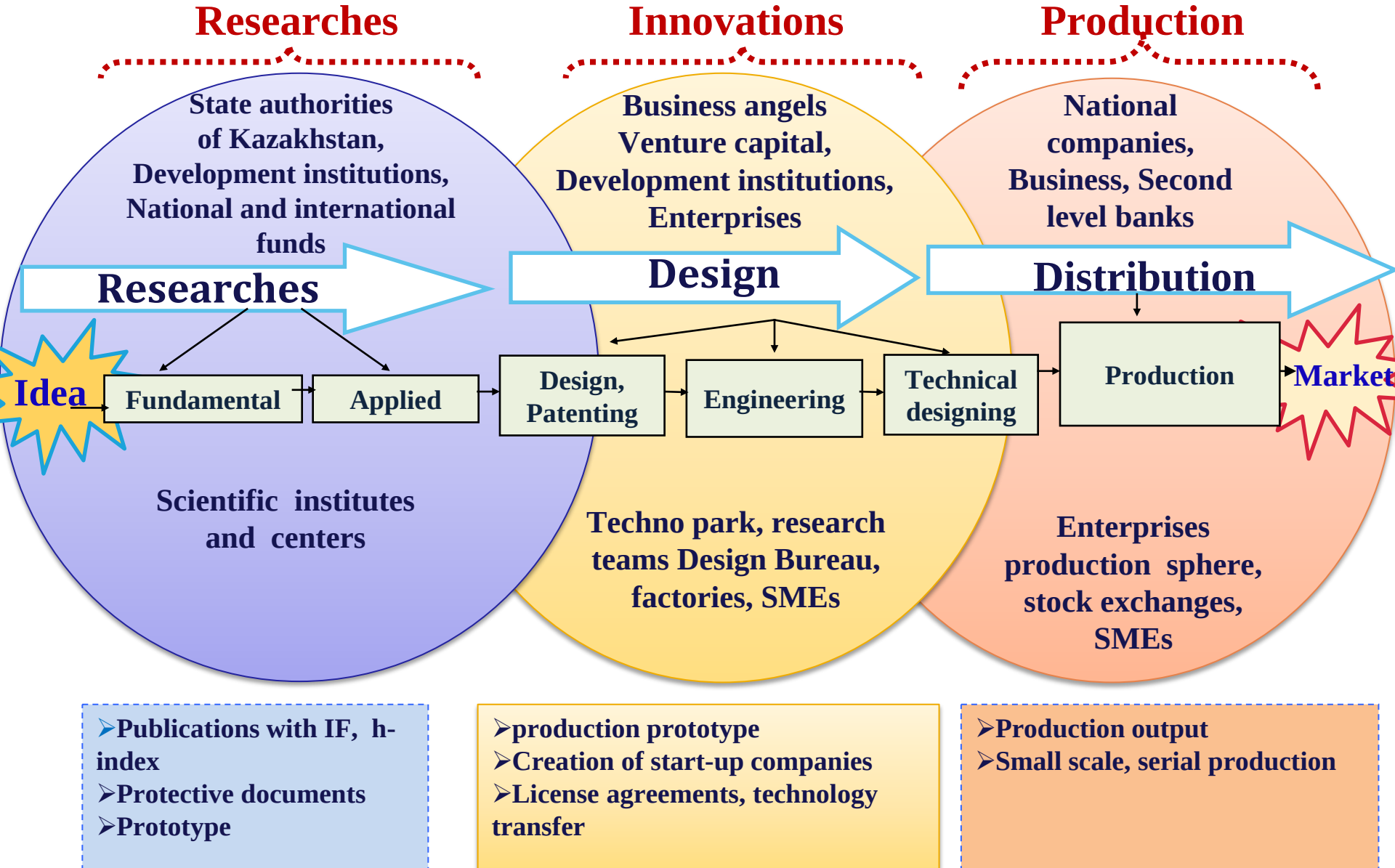
Center of Ethnopedagogics and Ethnic Psychology

Scientific and Research linguistic center named after Olzhas Suleimenov

Scientific-educational and cultural center of TURKSOY



Scientific-Innovation “Corridor”

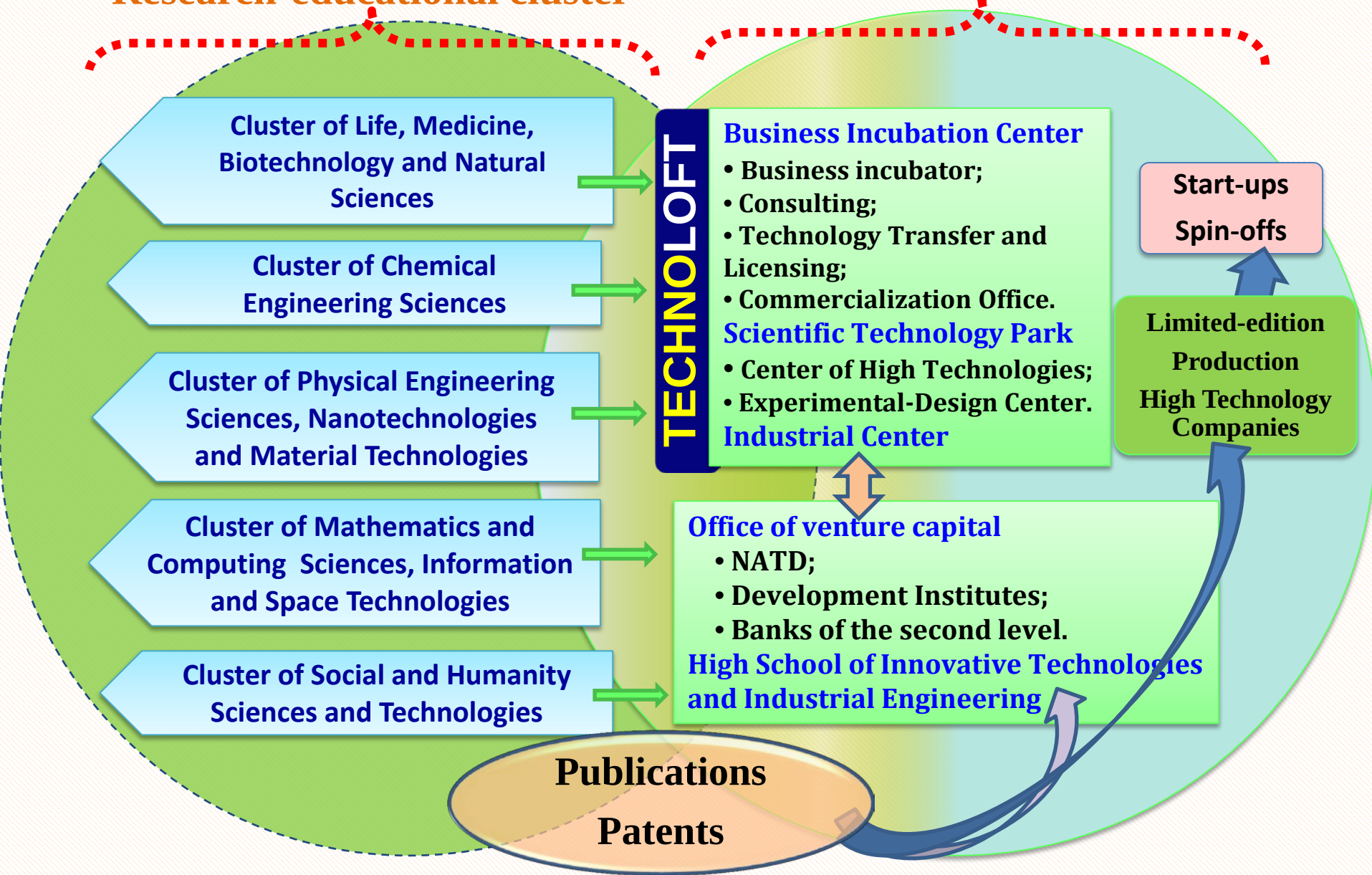




RESEARCH-EDUCATIONAL AND INNOVATION CLUSTER

Research-educational cluster

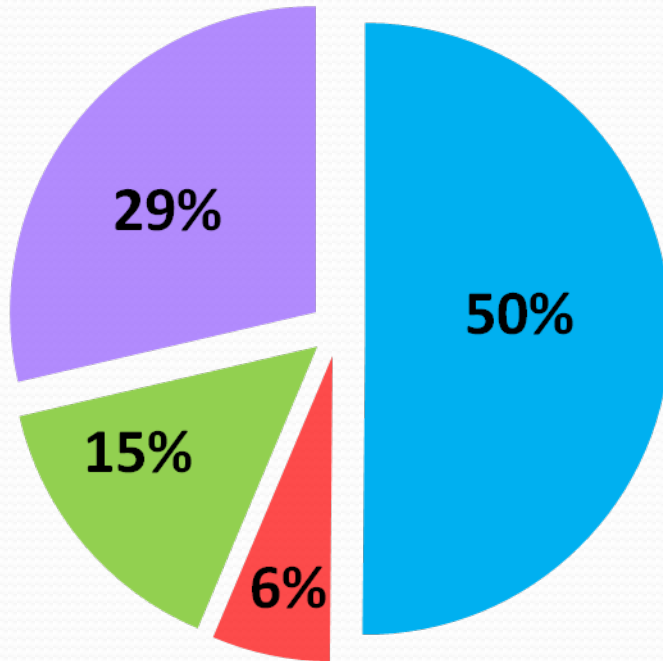
Innovation cluster





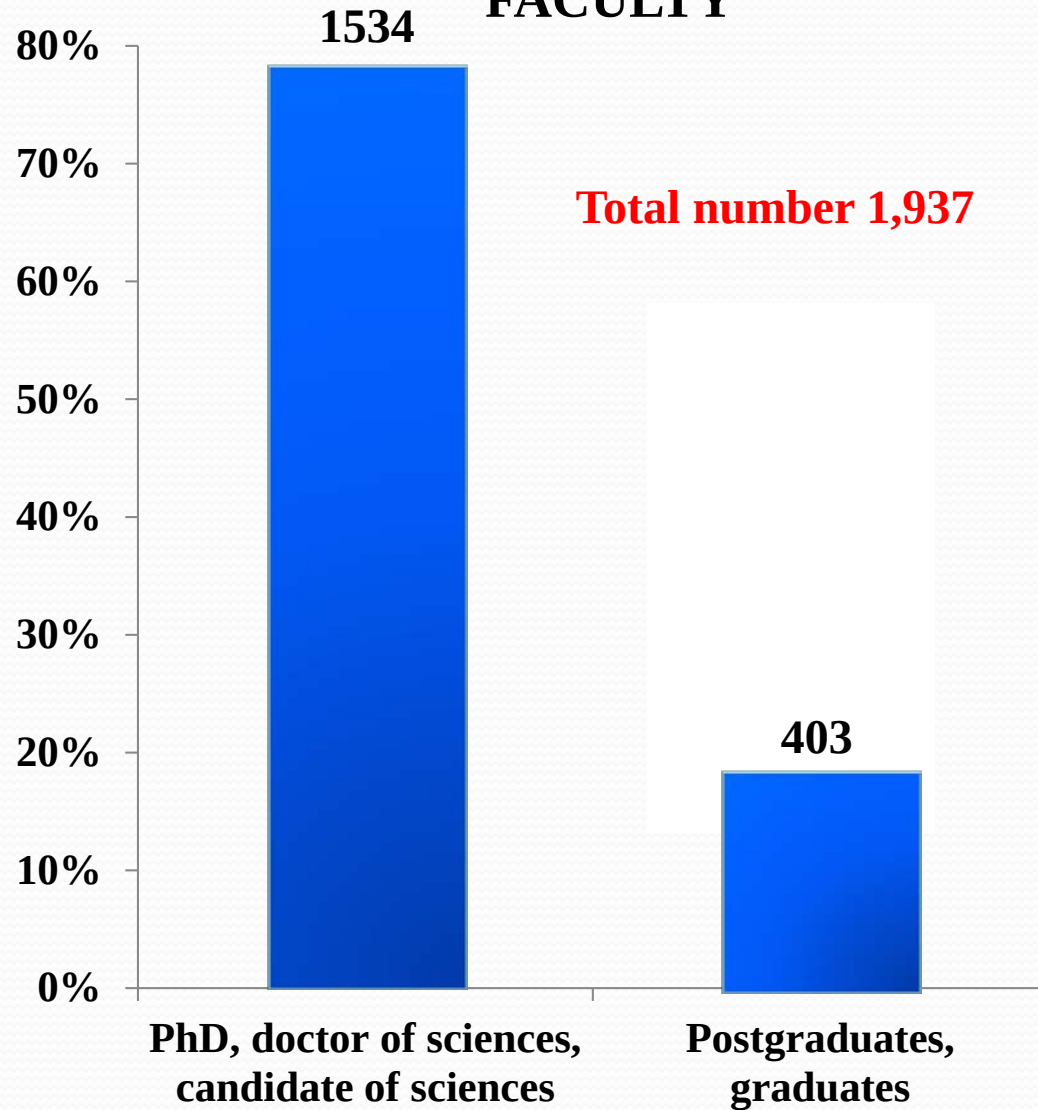
Contingent Staff Summary

EMPLOYEES



- Faculty
- Administrative staff
- Technicians
- others

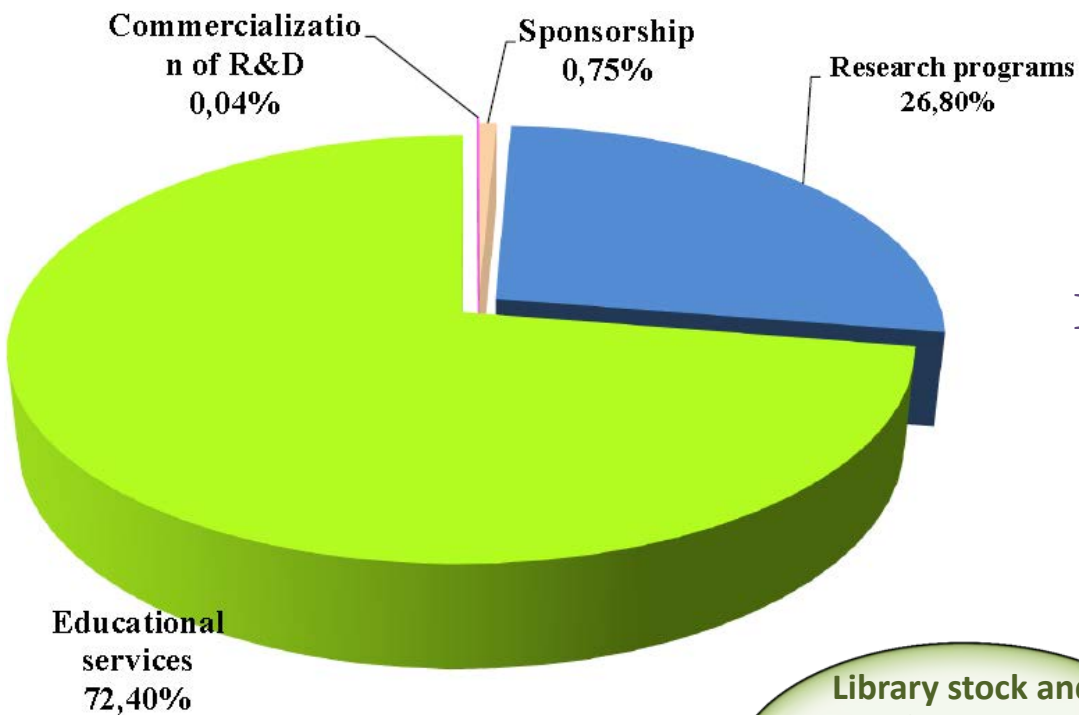
FACULTY



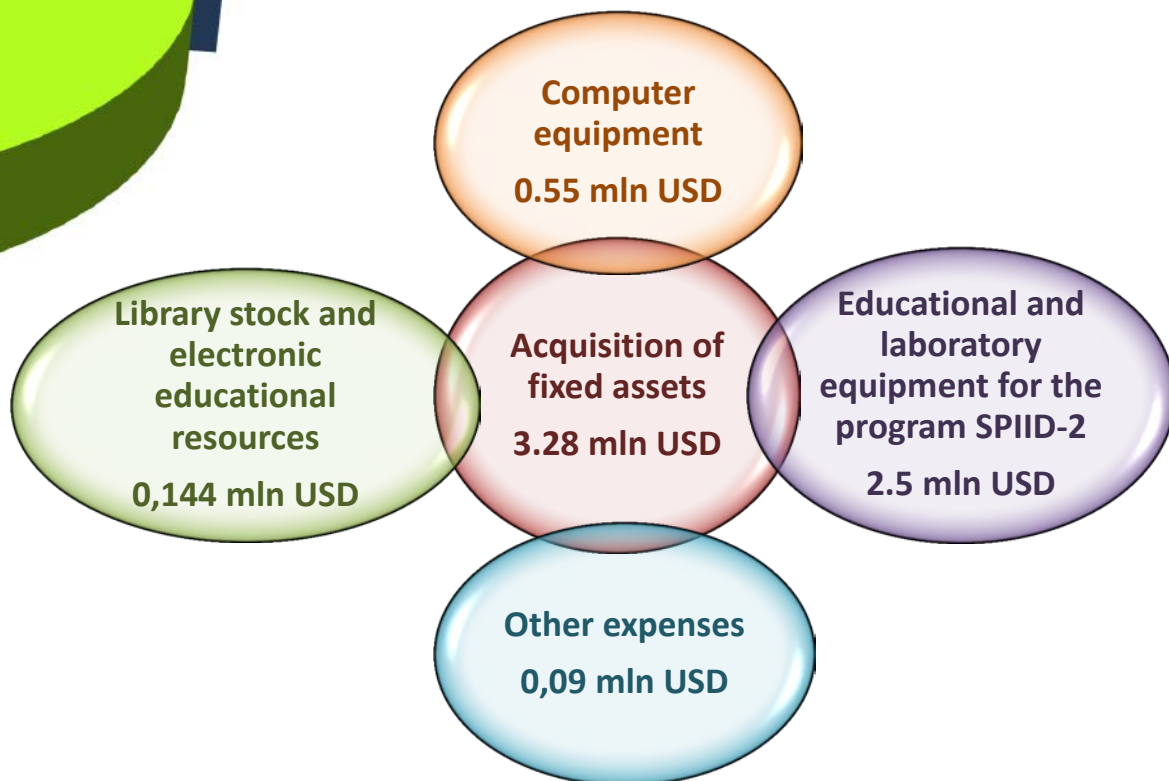


Financial and economic performance indicators

The proportion of university income for 2015

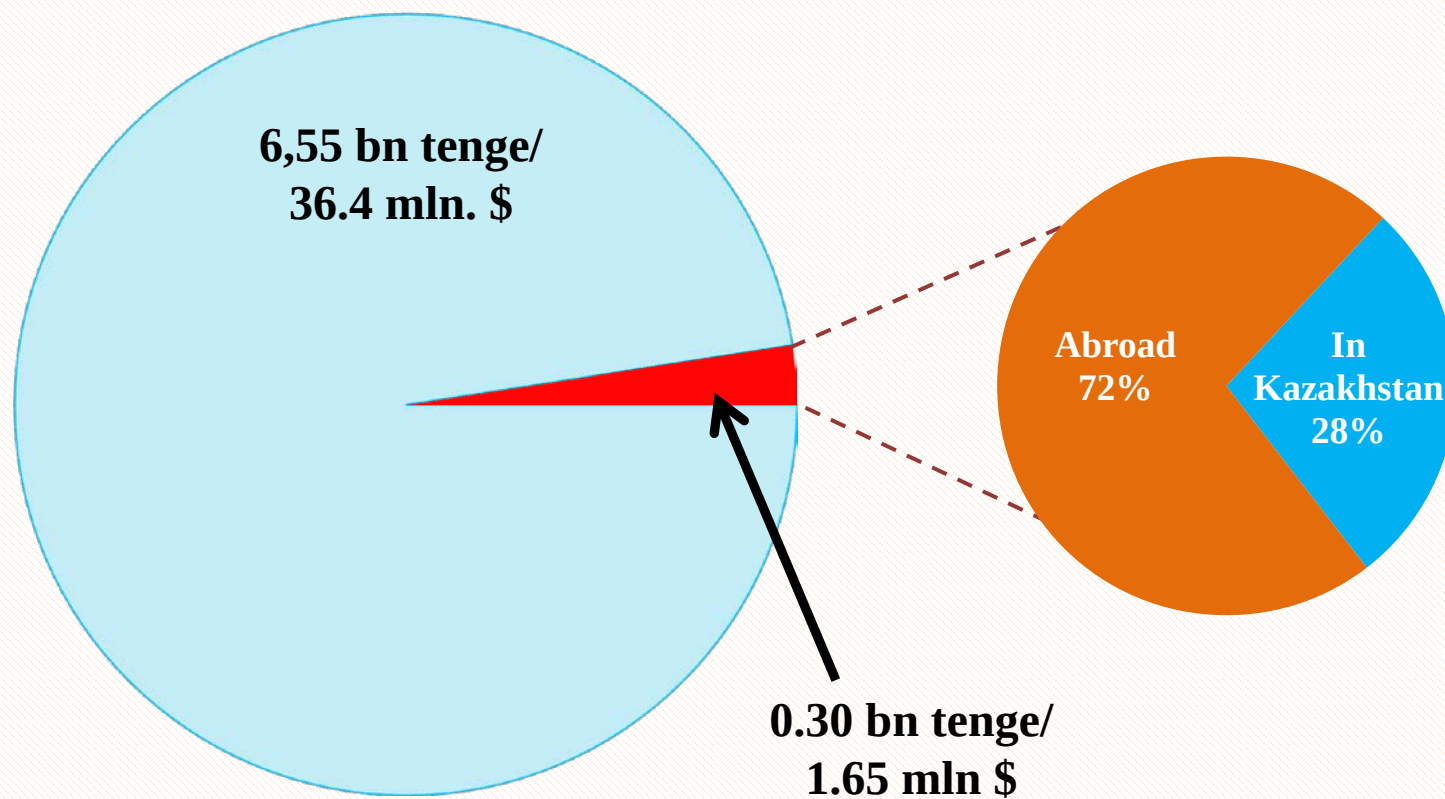


Material and technical base





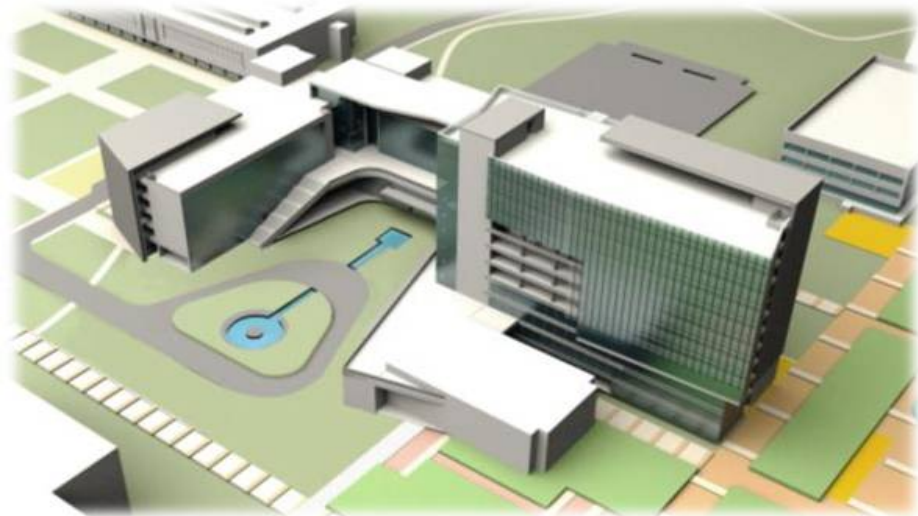
Capacity building activities



■ Budget of research activity ■ Capacity building activities



Funding of building within the framework of state-private partnerships



Innovation Cluster – 10 bn tenge (56 mln USD).



Buildings of Research Institutes – 7 bn tenge (39 mln USD).



Medical and Biological Cluster – 500 mln USD



Dormitory for 1500 people – 27 mln USD.



HOUSE FOR YOUNG SCIENTISTS AND GUEST HOUSE (414 places)



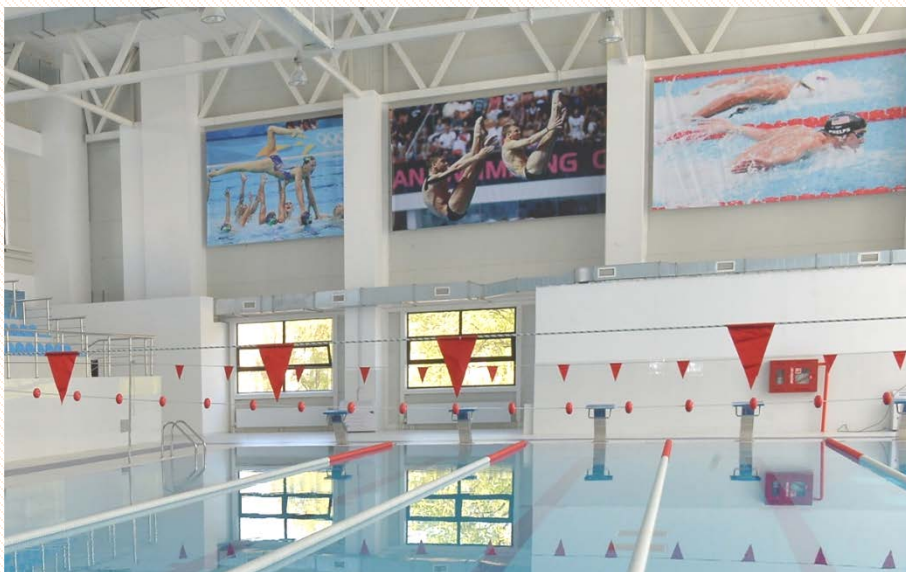
Students Service Center "Keremet» «Al-Farabi university smart city» - a virtuous city for students, based on the teachings of the great philosopher Abu Nasr al-Farabi about the virtuous city. Located at 7500 m, the center offers to visitors the latest high-performance automated service system and provides students with all the socially significant services.





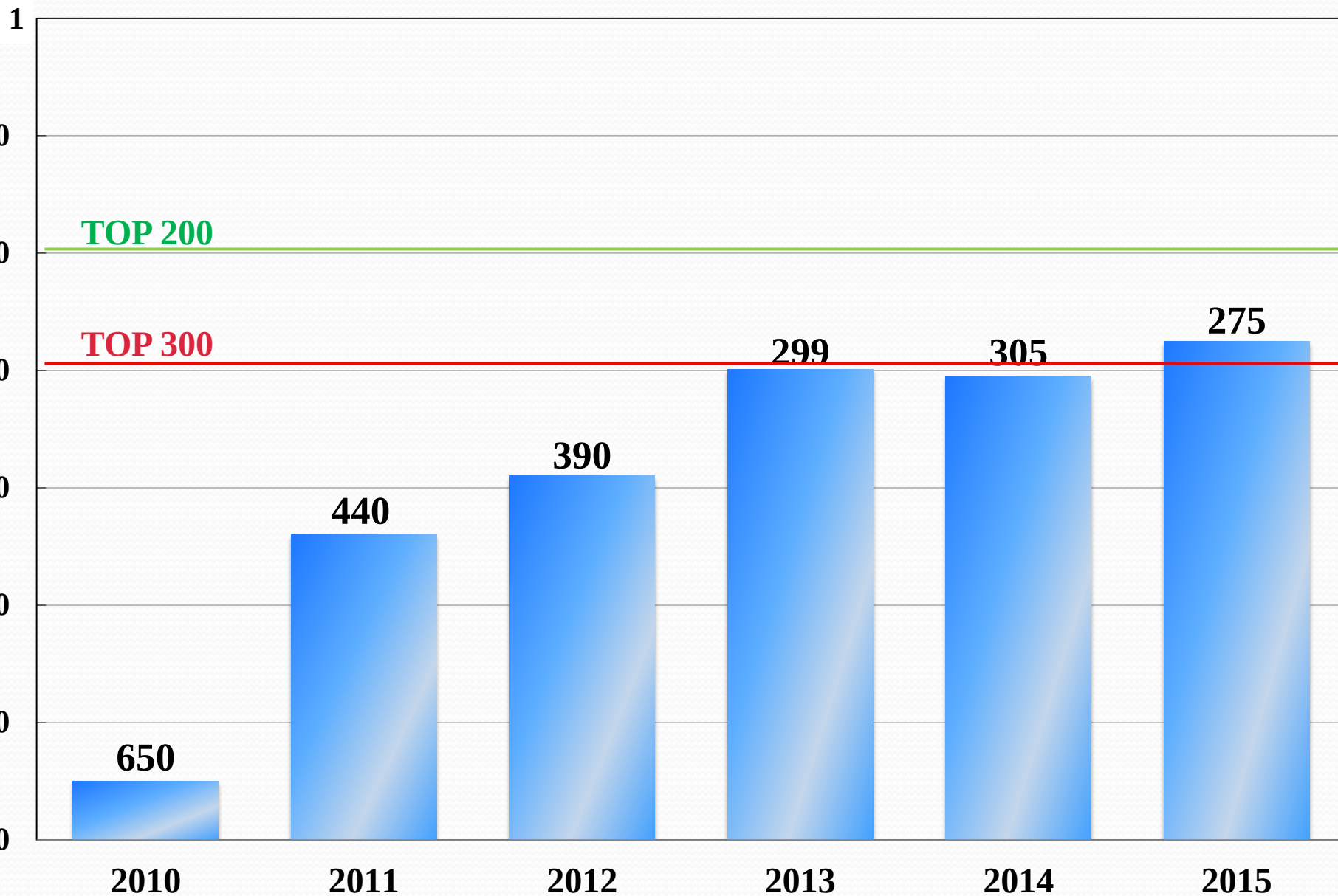
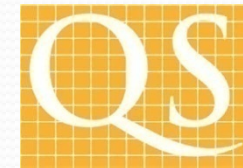
INDOOR SWIMMING POOL

(25 meters long)





Al-Farabi KazNU in TOP-300 (QS World University Rankings)





Great Value Colleges



The 50 Most Technologically Advanced Universities



1 place – École Polytechnique Fédérale de Lausanne



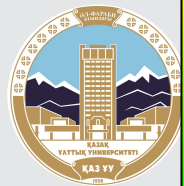
10 place – Cambridge University



12 place – Oxford University



30 place – University of Texas — Austin



31 place – **Al-Farabi Kazakh National University**



Australian
National
University

32 place – Australian National University



40 place – Utah State University



45 place – University of California San Diego



50 place – Wofford College



On-going programmes



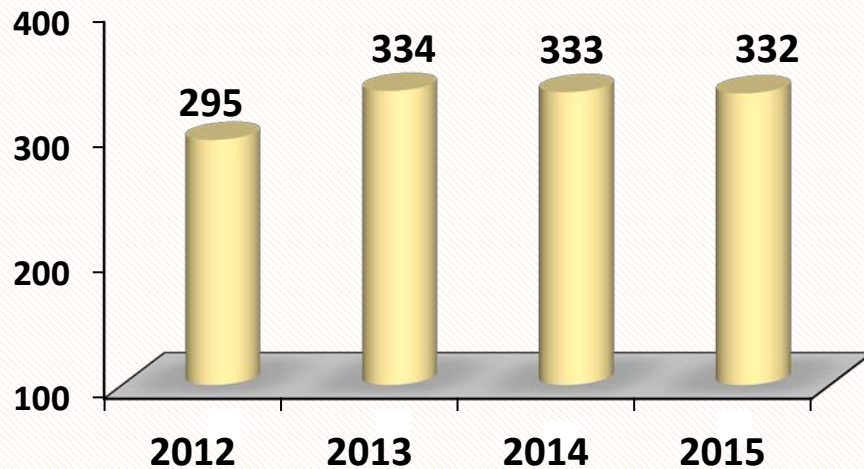
In 2015 the scientists of the University implemented 782 projects with total funding of 6.55 bn tenge (36.4 mln. USD), including:

- **448** projects of grant and program-targeted funding of Ministry of Education and Science of Kazakhstan on ASE RSI of Al-Farabi KazNU;
- **85** projects of grant and program-targeted funding of Ministry of Education and Science of Kazakhstan on DRIA of Al-Farabi KazNU;
- **12** projects of MES RK program «International collaboration and international scientific and technical programs and projects for 2013-2015»;
- **79** research works within the framework of business agreements with organizations and enterprises;
- **172** grants of international funds and organizations.

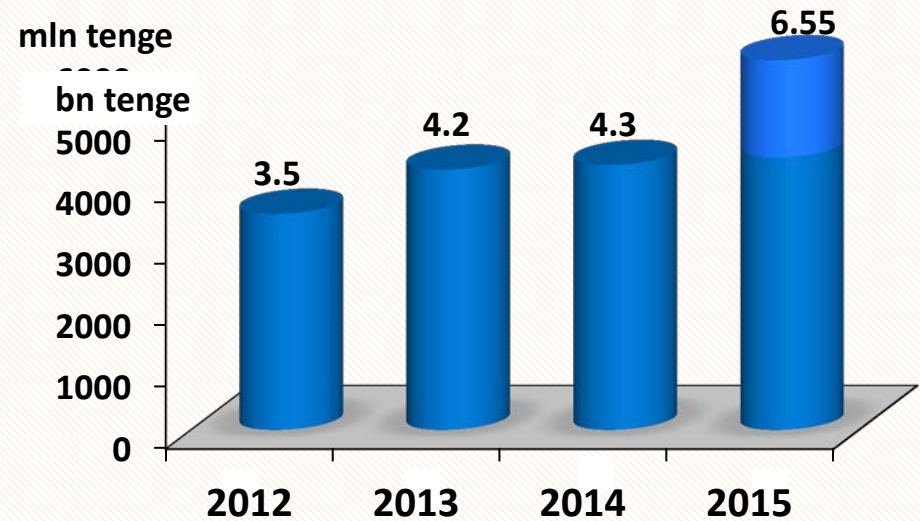


Research activity

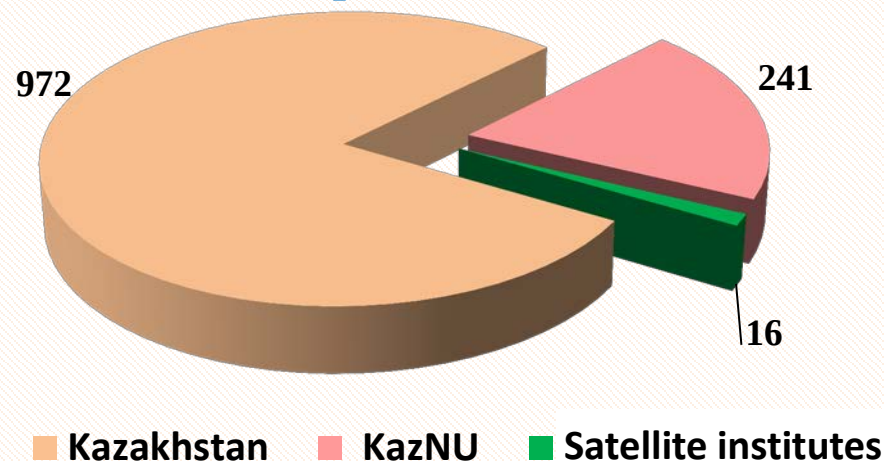
Number of projects of grant financing of MES RK



The amount of research activity funding



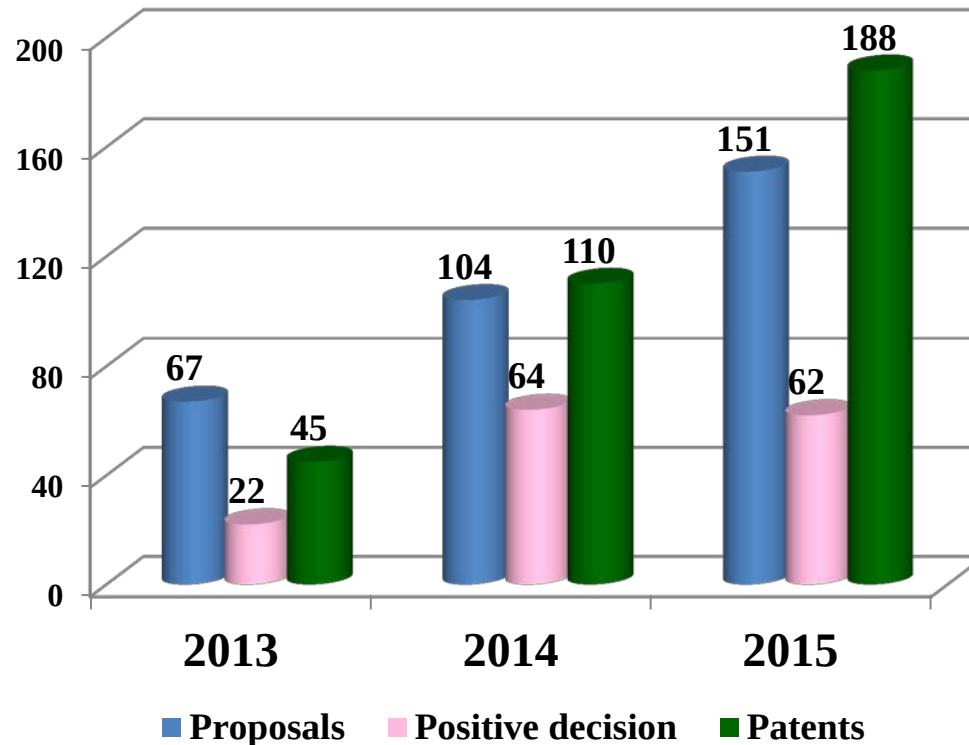
Publications in high-rated journals of Thomson Reuters and Scopus data bases in 2015





Patent-licensing activity

Foreign Patents



1. «Method for extraction of Beryllium from the minerals of Genthelvite group when processing the raw minerals (ores, concentrates)»

USA Patent № 8,945,492

2. «Method for extraction of Beryllium from raw genthelvite (danalite, genthelvite, helvite) and bertrandite (chrysoberl, euclase, bertrandite) mineral groups when processing the raw minerals (ores, concentrates)», USA Patent № 8,945,493

3. «Method for extraction of nicotine from tobacco raw materials», USA Patent № 9,004,074

4. «Method for production of “INGO-2” carbon enterosorbent», EP Patent № 2,694,202

5. «Method for production of carbon enterosorbent», EAPO Patent № 020323



III International Farabi reading

April 4-15, 2016



Қазақстан 2050



TURKSOY

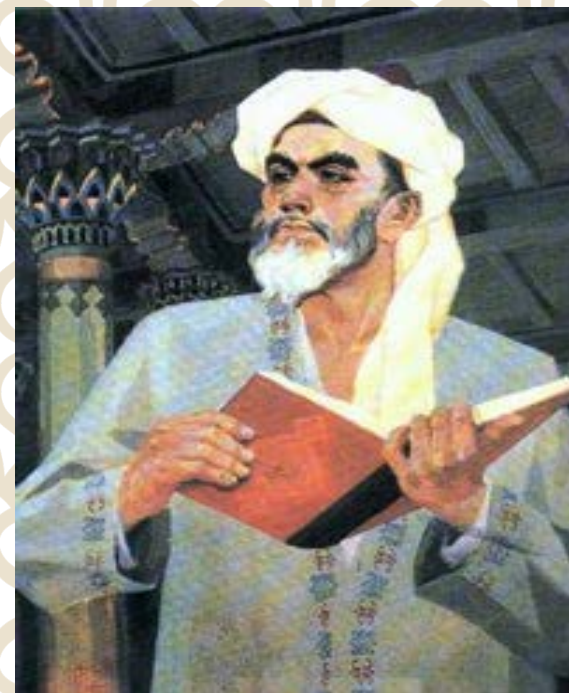
FARABI INTERNATIONAL FORUM «AL-FARABI AND MODERNITY»



11 international conferences, the International Student Forum «Green Bridge across generations» and International scientific conference of students and young scientists «Farabi alemi» were held within the framework of the III International Farabi readings devoted to the 25th anniversary of the Independence of Kazakhstan and to the year of Khoja Ahmed Yasawi under the aegis of UNESCO and the year of Yusuf Balasaguni under the aegis of TURKSOY



International scientific-theoretical conference «Contribution of Yusuf Balasaguni's creativity into the culture of the Turkic world», dedicated to the 1000th anniversary of the great thinker, scientist and poet Yusuf Balasuguni April 13, 2016



The conference worked in two directions: “The contribution of Yusuf Balasaguni’s works into development of Turkic languages and literature” and “Historical, philosophical and cultural heritage of Yusuf Balasaguni”

International Conference «Alikhan Bukeikhan and the heritage of «Alash», devoted to the 150th anniversary of Alikhan Bukeikhanov's birth

April 15, 2016

The conference was held on the 4 sections :

1-section. A. Bukeikhanov and Alash liberation movement;

2-section. A. Bukeikhanov and national spirituality (culture, literature, history, philosophy);

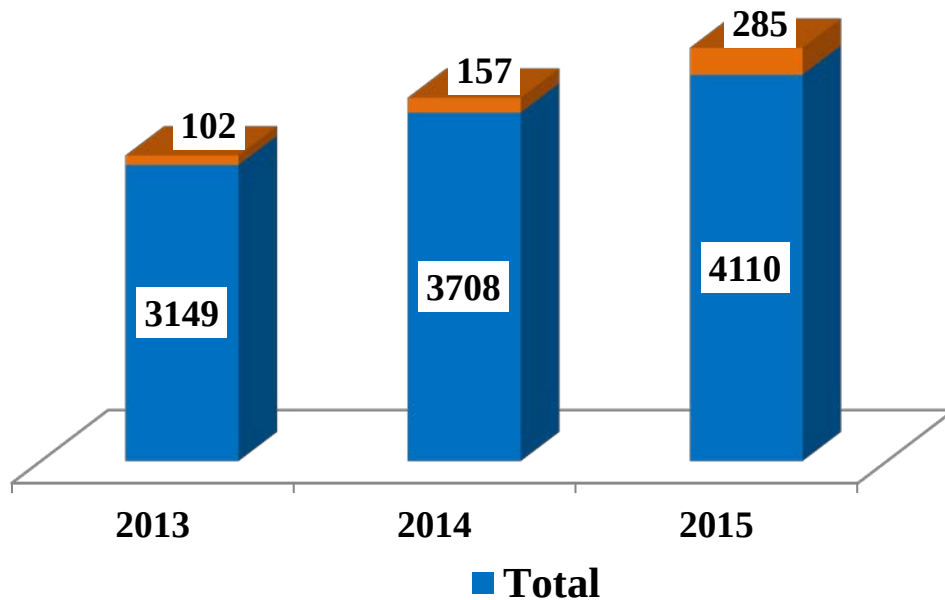
3-section. The literary heritage of Alash intellectuals;

4-section. Actual problems of modern Alash.



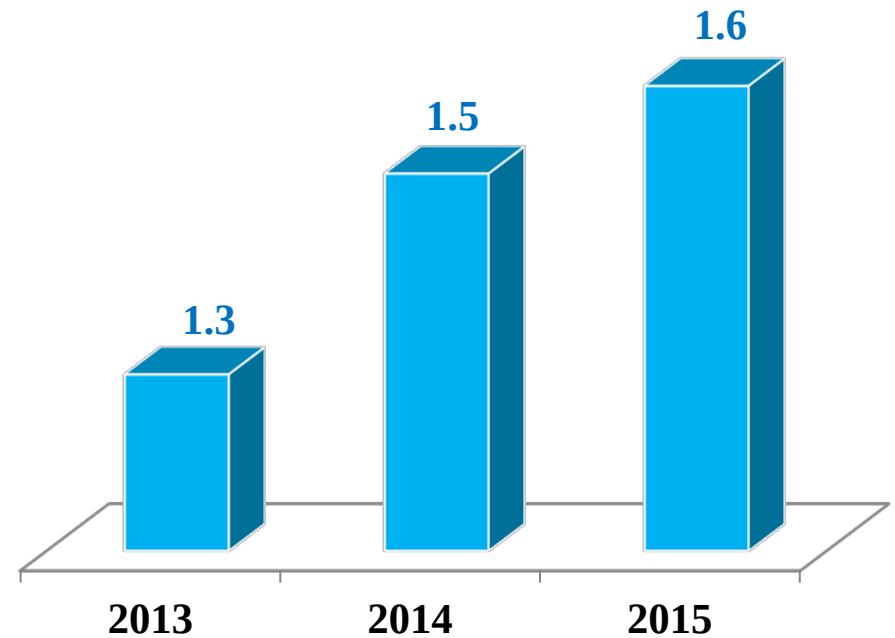


The research activity of students



**Publication activity of
students for 3 years**

**Allocations for attracting students
to research projects on a paid
basis (bn tenge) for 2013-2015**





The First Technology Festival «Tech Garden Fest 2015»



The 1st Technology festival «Tech Garden Fest 2015» held in September 26, 2015.

The project of PhD, specialist of laboratory of engineering profile Alpysbaeva Balausa “Membranes on the basis of nanoporous aluminum oxide” entered the 10 best innovation projects of the section "Smart Industry, and Infrastructure" and has received funding on the line of “NATD” in amount of **5 mln KZT (28,000 USD)**.



Competition of youth innovation projects «Zhastar Innovation»



November 23, 2015 the student of the 3rd course of the Faculty of Geography and Nature Management of Al-Farabi KazNU with the presentation of R&D «Using the VA bioluminescent strain for bioindication of the ecological state of Almaty» won the contest of youth innovation projects «Zhastar Innovation» and was awarded a grant in amount of **1 mln KZT (5,600 USD)**.



The State program of industrial and innovative development of Kazakhstan for 2015-2019 is developed in accordance with the long-term priorities of the Strategy «Kazakhstan-2050»

Goal

- Stimulation of diversification and improvement of competitiveness of the manufacturing industry

Tasks

- advanced development of the manufacturing industry;
- improvement of efficiency and increasing the added value in the priority sectors;
- expansion of markets for non-primary goods;
- increase of productive employment;
- giving a new level of manufacturability to priority sectors of industry and providing a basis for development of future sectors through the formation of innovation clusters;
- stimulation of entrepreneurship and development of small and medium-sized businesses in the manufacturing industry.



Offered educational programs on 2017-2019 years

No	The educational program within the framework of SPAIID-2	Master speciality	Year
1	Innovation technologies for food industry	Biotechnology	2017
2	Technology of pharmaceutical production	Chemical technology of organic substances	2017
3	Clean Energy and Sustainable Development Standards	Standardization and certification	2017
4	Petrochemical Engineering	Petrochemistry	2018
5	Innovation technology of new materials for industry	Materials science and technology of new materials	2018
6	Technology of building materials	Chemical technology of inorganic substances	2019

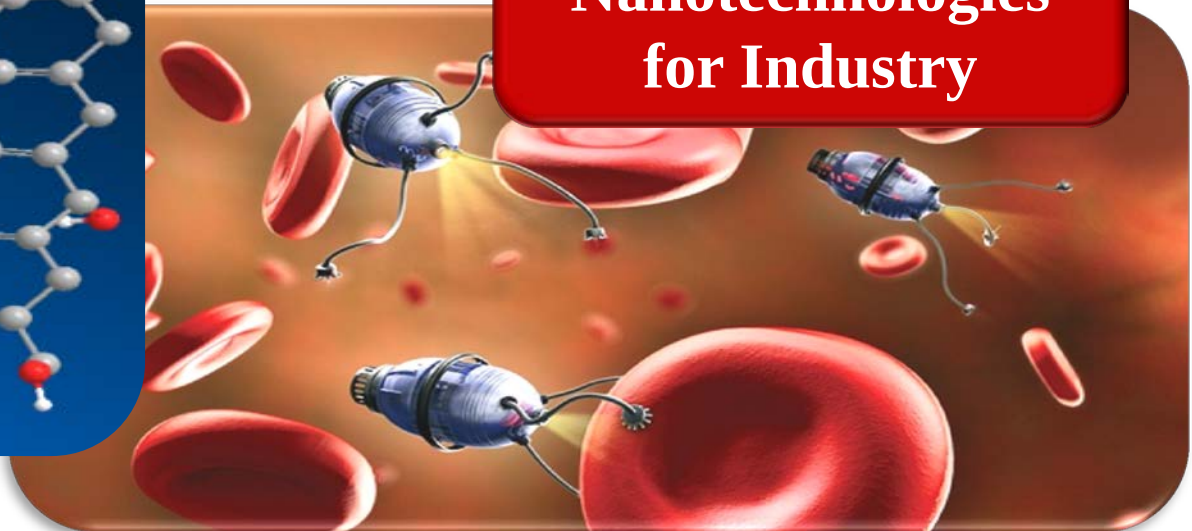
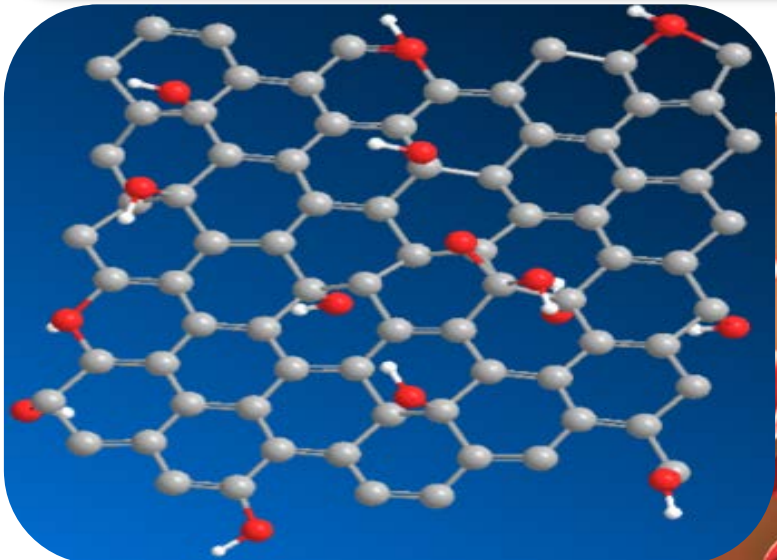


New educational programs for 2016

**Green energy
for industry**



**Nanomaterials and
Nanotechnologies
for Industry**





Perspective directions of SPIID-II

Oil and gas complex

Chemical Industry

Metallurgical complex

Food industry

ICT / Space technologies

“Green” Energy

Pharmaceutics

**Opening of
laboratories**

Research

**Increasing
the material-technical base**

2015 год

2,1 bn tenge/ 11,7 million \$

2016 год

2,3 bn tenge/ 12,5 million \$

2017 год

2,3 bn tenge/ 12,5 million \$



UNIVERSITY

Educational
programs SPIID-2

MA
student

Specia
list

*Process of formation of
competences*

Theoretical training
(Specialists – production
workers, Universities are
partners)

Practical
training in
enterprises

Graduation
work in the
industrial area

Attestation of
qualification in
professional
associations

Stage 1

Stage2

Stage3

Stage4

Educational stands,
specialized
laboratories

Equipment of
enterprises

Semi-industrial
equipment
Specialized laboratories

Equipment of
enterprises

Material and technical base

The research work of a student
(Theoretical calculations, chemical
experiments, simulation, analysis)



Pilot developments (3D-printing)
(semi-industrial sample, implementation of
developments, commercialization of ideas)



Al-Farabi Kazakh National University

Directions of SPIID-II:

Oil and gas complex



Metallurgical complex



Chemical Industry



Food industry



"Green" Energy



ICT / Space technologies



Educational Programs:

• petrochemistry



• Materials science and technology of new materials, • Nanotechnologies



• Chemistry and technology of rare and rare earth metals



• Genetic engineering, • Food and Biological Safety,



• Nuclear power, • Alternative energy and energy saving technologies • Geo energy



• Automation and robotics, space technologies, • Innovation management, innovative entrepreneurship





Program of Development of al-Farabi Kazakh National University in 2015-2019 within the Framework of SPIID-2

Number of the developed up-to-date profiled Master programs for various SPIID-2 branches on examples of the best world universities: **9 EP in 2015-2017**

Number of the opened world level educational and research laboratories: **3 laboratories in 2015-2017**

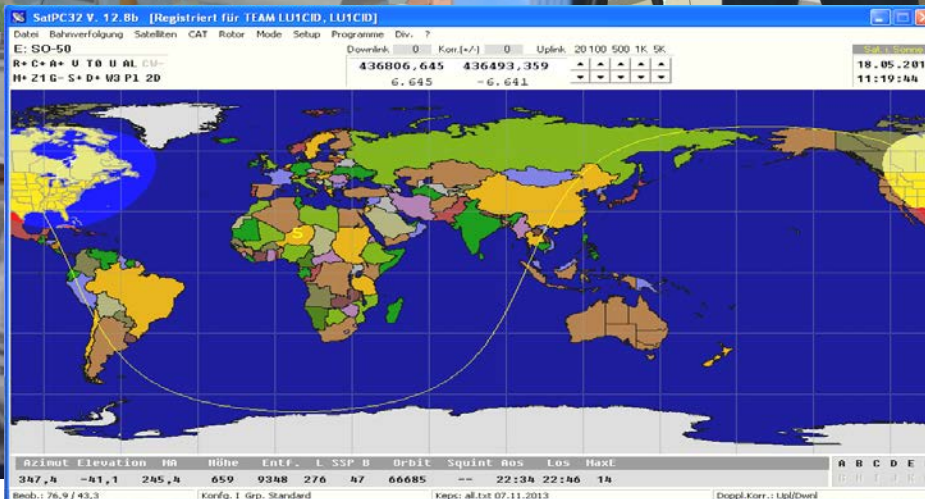
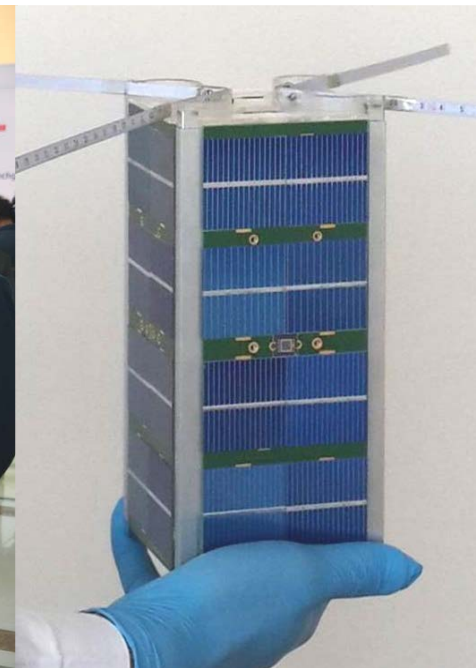
Number of undergraduates, annually credited to profiled Master programs for training at state budget expense: **350 undergraduates in 2015/2016 year; 350 - in 2016/2017 year, 350 - in 2017/2018 year**

Average evaluation of readiness of graduates on SPIID-2 specialties to work on the basis of an independent survey of key employers in SPIID-2 industries (score on a 100-point scale) **(80 in 2017, 83 in 2018, 85 in 2019)**

Number of undergraduates employed after graduation on the specialty, which were trained in SPIID-2 programs - **100%**



First time in Kazakhstan the scientific and technological nanosatellites “Al-Farabi-1” and “Al-Farabi-2” are designed and assembled on the basis of the University within the framework of realization of the student international project UNIFORM with the University of Tokyo





CREATION OF START UP AND SPIN OFF COMPANIES TOGETHER WITH BUSINESS



«Rochshiaru»



«KMprint»



«Top generation group»



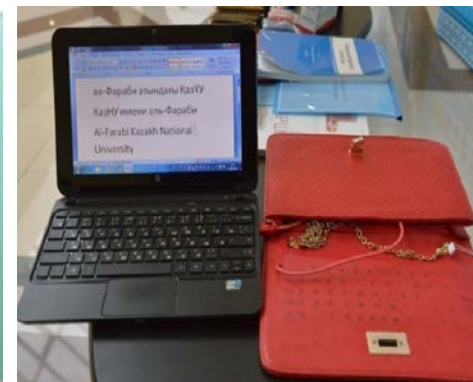
«Smart student press»



«Atameken Exchange»



«GeoGISCad»



« New type of keyboard with
optical encoding»



«First entrepreneur school»



«Elevate»



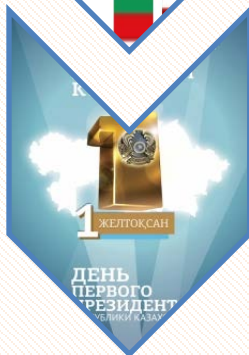
Social projects of international and republican significance are realized



- International Student Forum "Green bridge across generations"



- The international project «STUDIK» with the support of "Tempus" program



- Republican patriotic festival "Men zhastarga senemin"



Innovation socially significant projects



«BRIGHTEN ON ONE CORNER!»
with information support of «Aikyn» newspaper



«100 KITAP» (“100 Books”)
with information support of «Zhas kazakh» newspaper



«CULT OF HEALTHY AND BEAUTIFUL BODY»



«KazNU - GREEN CAMPUS»



«Day of national cinema»



Al-Farabi Smart University - a support of creation of smart city, smart economy, scientific and technological progress based on the spiritual and moral foundations



"Point of growth" of innovation economy



"Point of growth" of a new worldview

✓ Corporate network, e-Campus

✓ Security monitoring system

✓ Smart-library

✓ Students Service Center – Micro model of the smart city

✓ Technology parks, business incubators, innovation and biomedical clusters

✓ III stage of PIT “Alatau” development

"Point of growth" of innovation economy

✓ Code of corporate culture, honor code of student

✓ “Brighten your corner”, “100 books”

✓ Pedagogical mentorship

✓ Implementation of breakthrough projects

✓ Competence-based approach

✓ An independent evaluation of students' knowledge

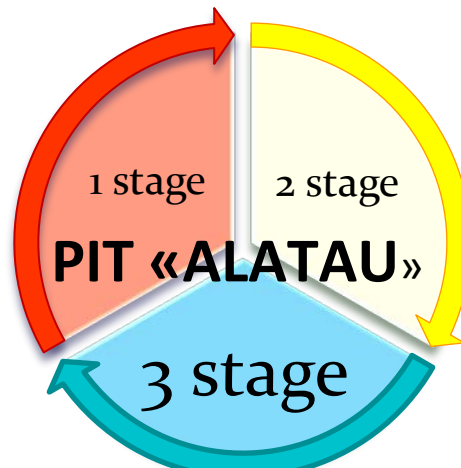
✓ Rating system of remuneration

✓ Student government

"Point of growth" of a new worldview



III stage of realization PIT “Alatau” on the basis of REIC KazNU



REIC Al-Farabi KazNU

«Innovative
Almaty»

IT Technopark

KazNU

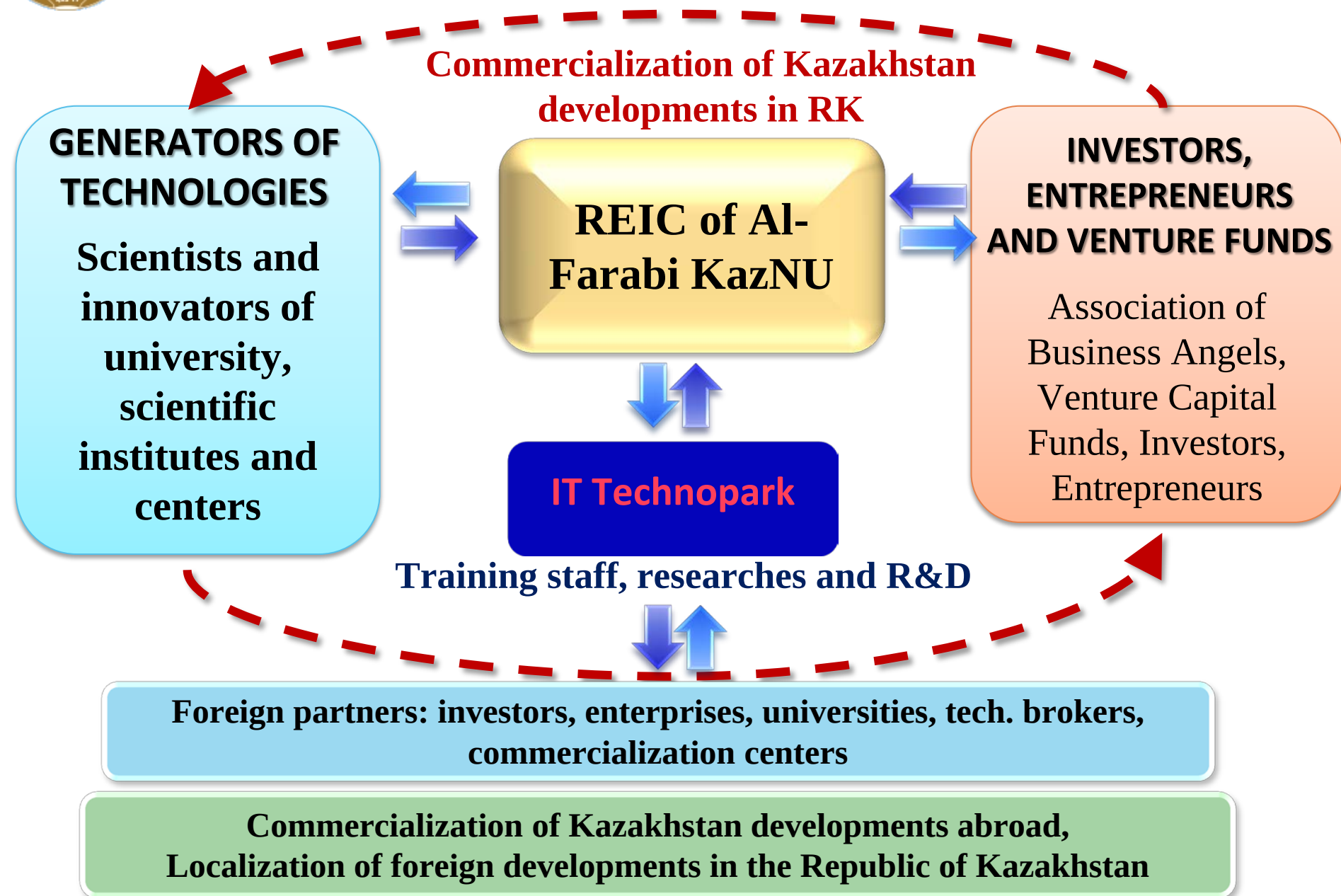
Medical and
biological
cluster

Innovation cluster

 - residents of PIT “ALATAU”



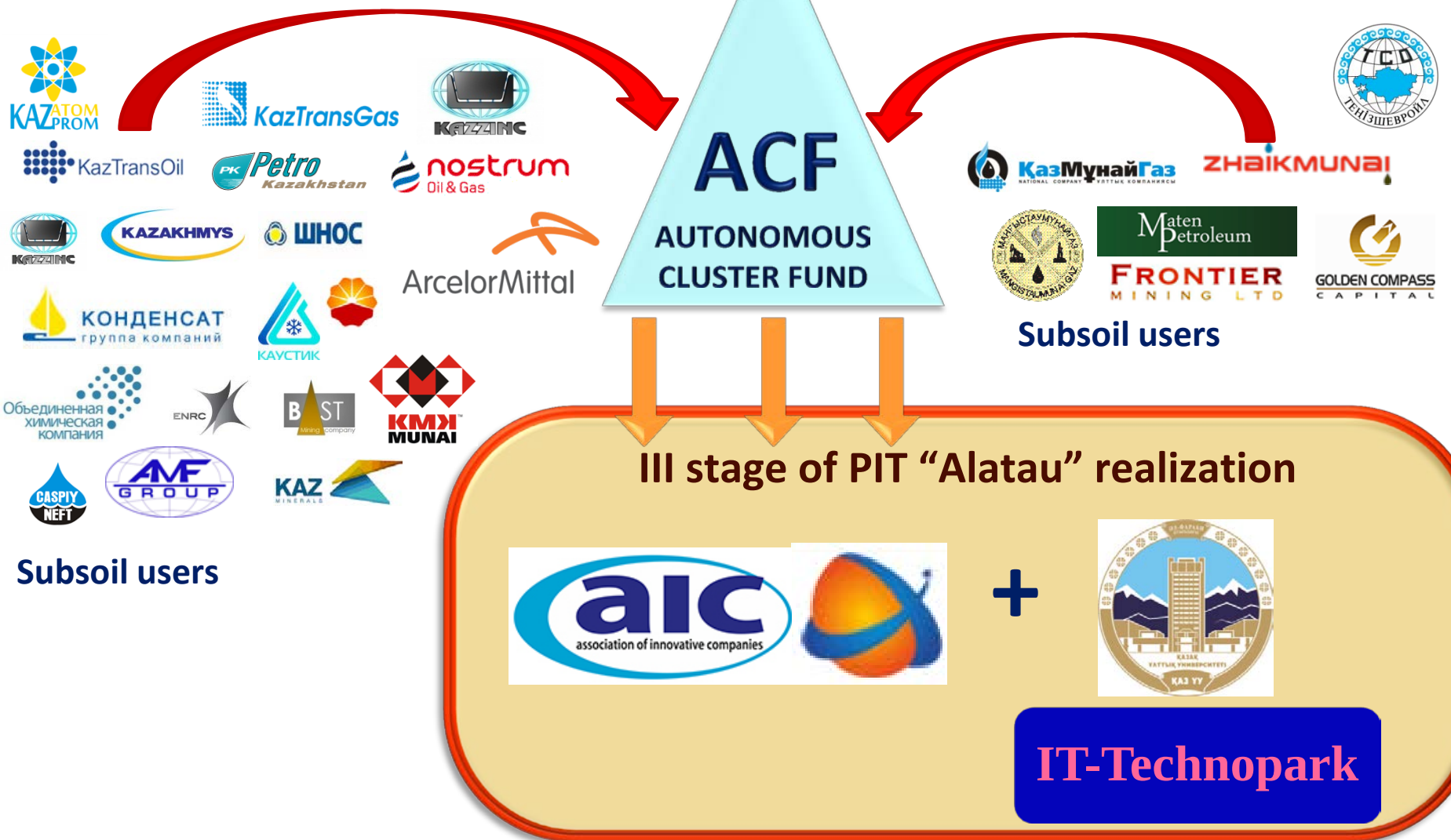
Scheme of interactions of REIC KazNU





Interaction of IT-Technopark with Autonomous Cluster Fund (ACF)

1% of the total gross income of mineral developers

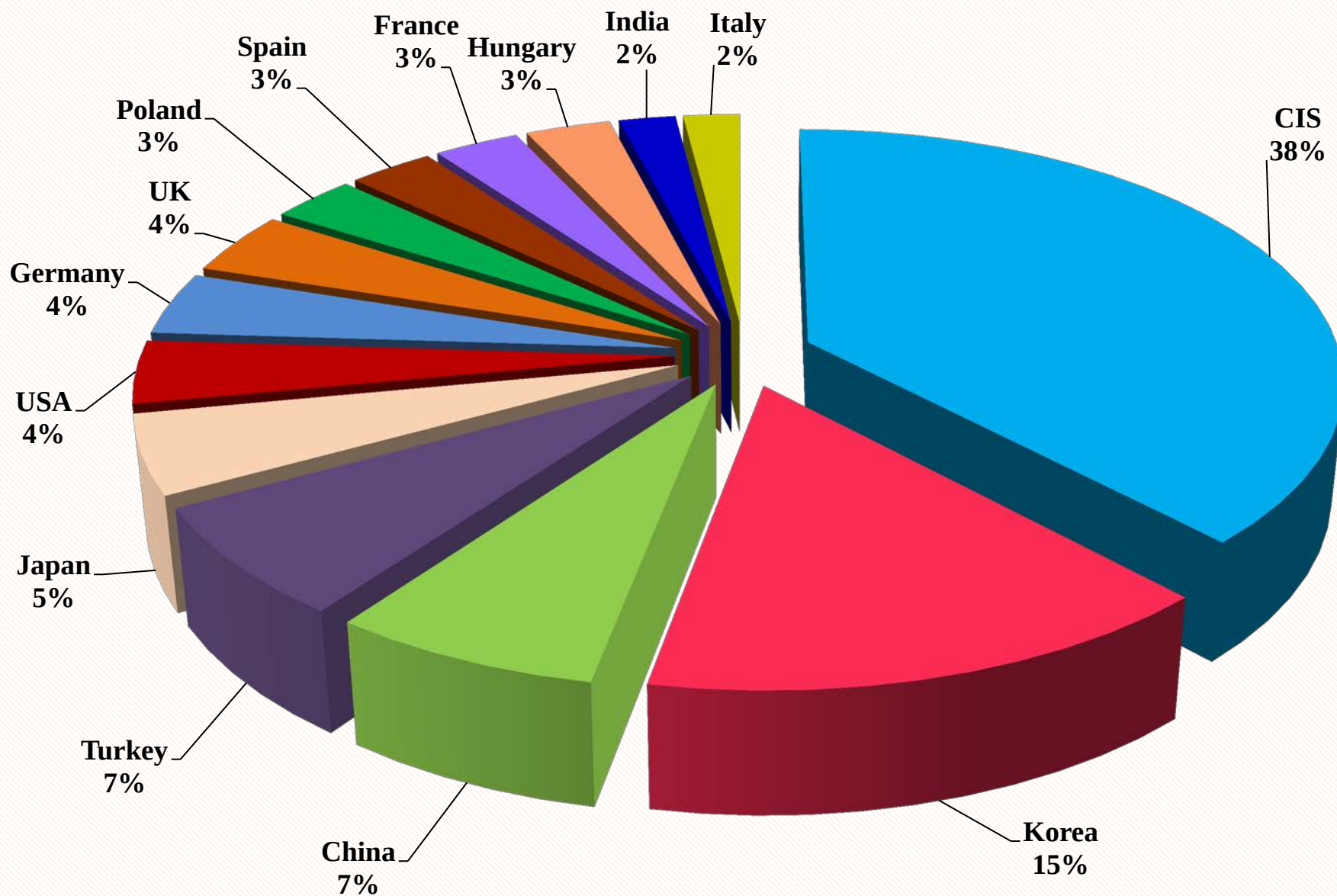




International collaboration

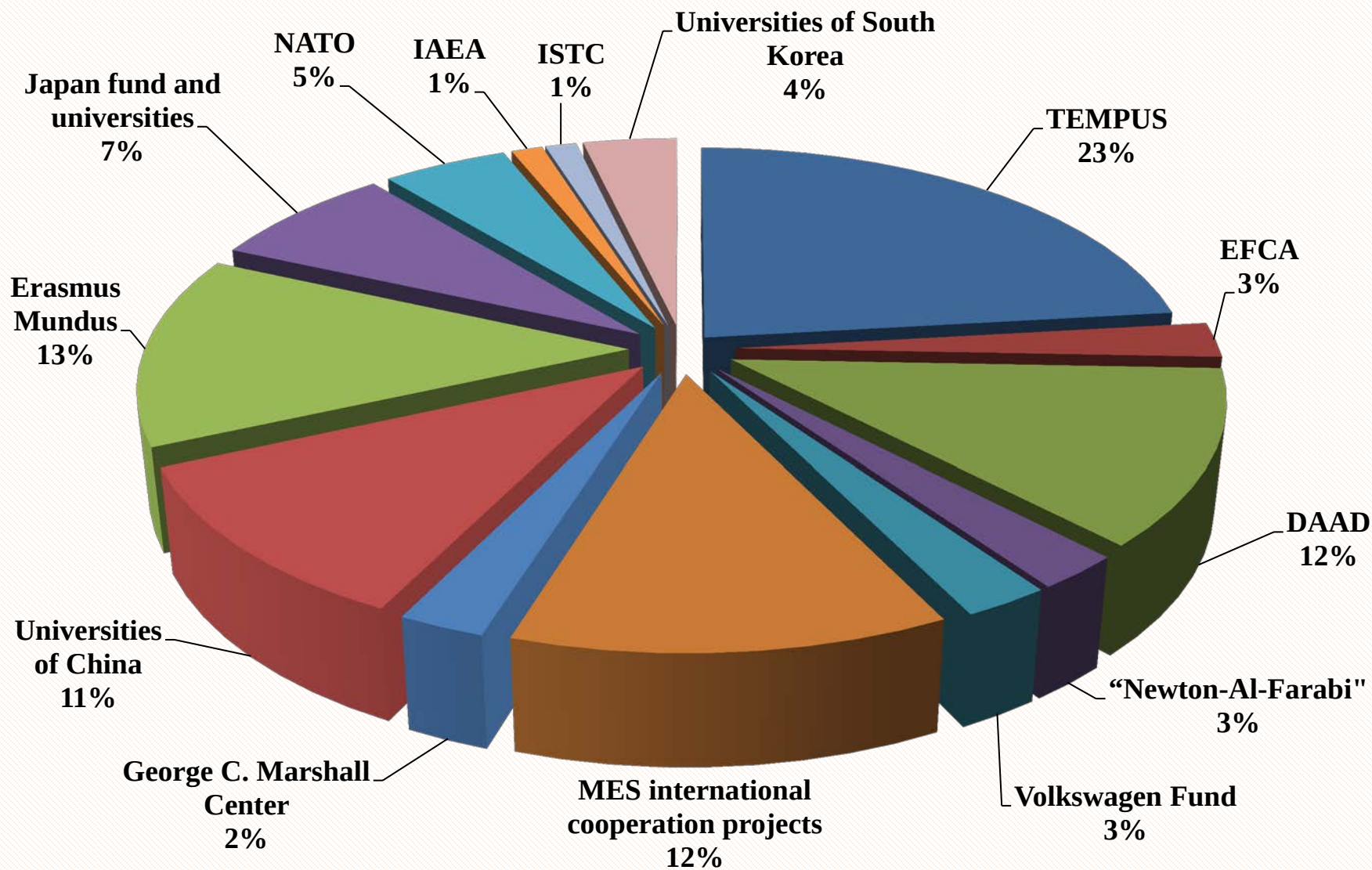


Partner universities by countries





International funds and organizations financing university projects





International recognition of KazNU



Global Hub for Sustainable Development of the Program “Academic Impact” of the United Nations



Regional Hub for Sustainable Development within the framework of the UNESCO Program – UNITWIN

KazNU is the only university in Central Asia acceded to:



World University Consortium (WUC) (2014)



Network of universities of Clinton Global Initiative – Clinton Global Initiative University (CGI U) (2015)



COMSATS organization, uniting 24 universities of the world (2014)



Alliance of universities of Silk Road countries (Silk-road Universities Network) and its Board of Directors (2015)



World Academy of Art and Science (WAAS)
Rector G.Mutanov is elected a member of WAAS

In the framework of the VII Astana Economic Forum on May 21-22, 2014, **III Asian Universities Forum** was held on the basis of the Al-Farabi Kazakh National University.



UN Program «Academic Impact»



AL-FARABI KAZNU- GLOBAL HUB
OF THE UN
"ACADEMIC IMPACT"
PROGRAM ON SUSTAINABILITY
<http://unaihub.kaznu.kz/>



2nd Seoul Forum of the UN «Academic Impact»



UNESCO/UNITWIN Chair Program
UNESCO Chair on Sustainable Development at al-Farabi KazNU

G-Global Conferences:
problems and perspectives of sustainability
www.g-global.kaznu.kz



Meeting with representatives of the UN



**Meeting with the Secretary-General
of the UN Ban Ki-Moon
in Astana, 2015**



**Visit of the Deputy of the Secretary-
General of the UN Christina Gayak**

**KazNU is the Global Hub for Sustainable Development of the
UN and has become a very important partner of the UN
in promoting the ideas of the international organization.**



TURKSOY – International organization for Turkic Culture

On the occasion of the 20th anniversary of the founding of People's Assembly of Kazakhstan in the framework of the program «Almaty - Capital of Islamic Culture – 2015» in March 4, 2015 at Al-Farabi University the opening ceremony «Chair and Scientific-educational and cultural center of TURKSOY» was hosted



The purpose of the center - to explore the rich spiritual heritage of Turkic peoples, to contribute to the coordination of international relations between independent Turkic states, to give impetus to the development of friendly relations between related Turkic peoples of Kazakhstan, and to raise cultural, humanitarian, scientific and technical integration between the countries of the Turkic world to a new and dynamic level.



TURKSOY chair

**TURKSOY chair was founded in 2015
on the basis of Chair of Turkology and Indology**

**Mission of the chair - training of competitive
specialists in Turkic studies for ensure of
innovative development and socio-cultural unity
of Kazakh society**





Iran-Turan

**Joint project with the University of Cambridge
and Islamic Culture and Relation Organization**



**The purpose of center is implementation
of joint international projects in the field of medieval history,
cultural and literary relations of Iran and Turkic countries,
in the field of epic tradition of the Eastern peoples and others.
Center provides preparation of international interdisciplinary projects
for participation in the competitions of international organizations and
foundations for Turkish-Iranian grant funding programs such as
Newton - Al-Farabi and others.**



Future plans



«New Silk Way – Nurly Zhol»



IT TechnoPark of the University Alliance "NEW SILK ROAD" on the "Silicon Valley" model

Center of Supercomputing and Cloud Computing of Al-Farabi KazNU



The project of supply and
installation
of a supercomputer





Center of Supercomputing and Cloud Computing of Al-Farabi KazNU

«Silk Way» Fund,
Ministry of commerce of PRC



**60 teraflops
CPU**

**20 teraflops
GPU**

**20 T teraflops
Cloud**

**10 teraflops
MIC**

Areas:

- Ecological problems;
- Problems of oil and gas industry;
- The objectives of bioinformatics;
- E-campus;
- Nanotechnology; Seismic and exploration tasks;
- Economic and social forecasting;
- Health and others.

**13 teraflops
Virtual Desktop
for E-campus**

**7 teraflops
Cloud computing**



Goals of Al-Farabi KazNU for 2015-2019

- Enter the top 200 leading research universities in the world
- Transformation of the classical national university into the world-class research university
- To increase quantity of publications in rating journals with impact-factor to 2000
- To increase volume of revenues from commercialization of scientific developments to 1.8 bn tenges/10 mln \$
- To achieve 98% employment of graduates
- To increase share of accredited educational programs to 100%
- Creation of scientific, educational and innovation cluster for realization of the third stage of PIT "Alatau" at Al-Farabi Kazakh National University.



Proposals for participation in COMSATS' programmes



We would like to enter into a partnership with



**TÜBİTAK Marmara
Research Centre (MAM)**



**COMSATS Institute of
Information Technology**



**International Center for Climate and Environment Sciences
Institute of Atmospheric Physics, Chinese Academy of Sciences**



**National Research
Centre (NRC) Egypt**



Embrapa Agrobiologia



**International Centre for
Environmental and Nuclear
Sciences (ICENS)**



**International Center for
Chemical and Biological
Sciences (ICCBS) Pakistan**

and also we are glad to welcome other organizations



Thank you for attention!

