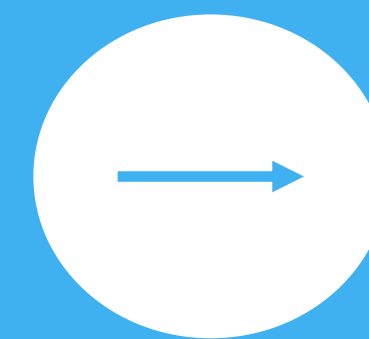




DEVELOPMENT OF A STARTUP ECOSYSTEM BASED ON UNIVERSITIES IN THE REPUBLIC OF KAZAKHSTAN

2024



This is not an ADB material. The views expressed in this document are the views of the author/s and/or their organizations and do not necessarily reflect the views or policies of the Asian Development Bank, or its Board of Governors, or the governments they represent. ADB does not guarantee the accuracy and/or completeness of the material's contents, and accepts no responsibility for any direct or indirect consequence of their use or reliance, whether wholly or partially. Please feel free to contact the authors directly should you have queries.



DELEGATION OF THE REPUBLIC OF KAZAKHSTAN



Assel Bulekbayeva
Head of Division of the Department of
International Cooperation
Ministry of Science and Higher
Education, Republic of Kazakhstan
a.bulekbaeva@sci.gov.kz



Madi Akylbekov
Chief Expert, Committee of Higher
and Postgraduate Education
Ministry of Science and Higher
Education, Republic of Kazakhstan
m.akylbekov@sci.gov.kz



Kendrick Davis White,
Vice Rector for Commercialization
Almaty Management University
(AlmaU)
k.d.white@almau.edu.kz



Zhadyra Konurbayeva
Vice rector for Science and
Innovation D. Serikbayev East
Kazakhstan Technical University
zhkonurbaeva@edu.ektu.kz

NEW ECONOMIC COURSE OF DEVELOPMENT

«It necessary to open five branches of reputable foreign universities in our country by 2025. And, two branches of technical universities in the west part of the country»

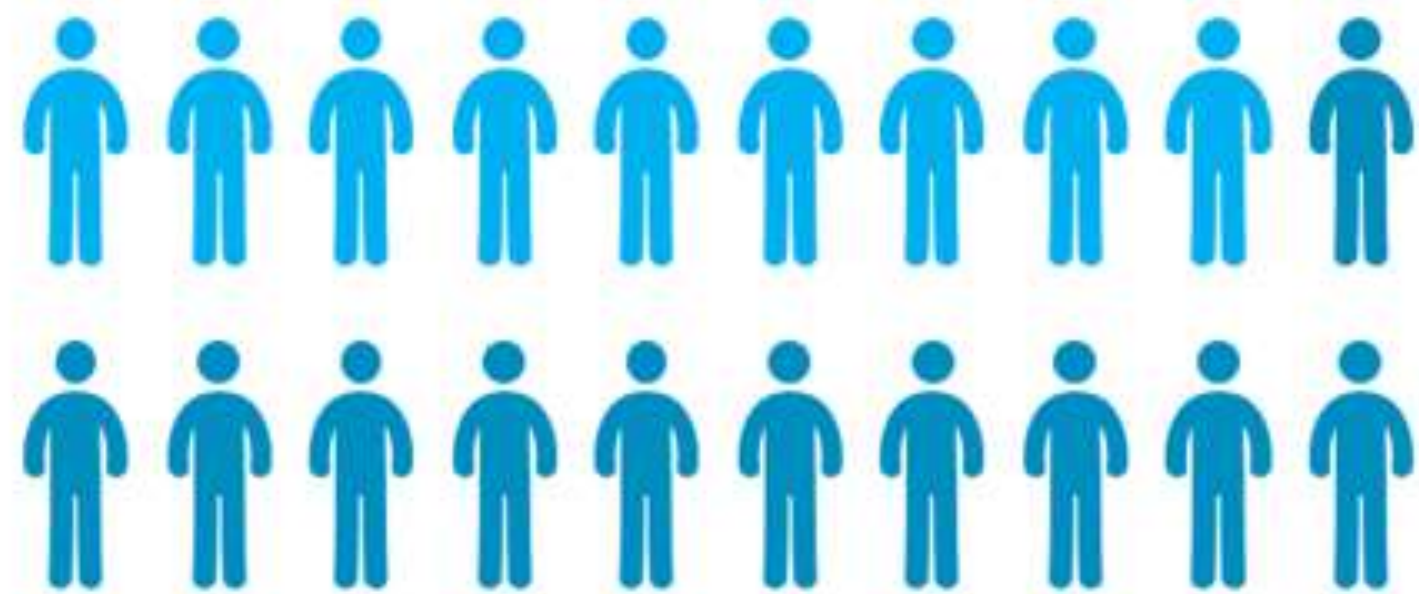
*DECREE OF THE PRESIDENT
OF THE REPUBLIC OF KAZAKHSTAN
June 11, 2022*



GEOPOLITICS AND MIGRATION

2 bln people

In the greater region
of Central Asia and Eurasia



Over 1 bln people

Below the age of 25

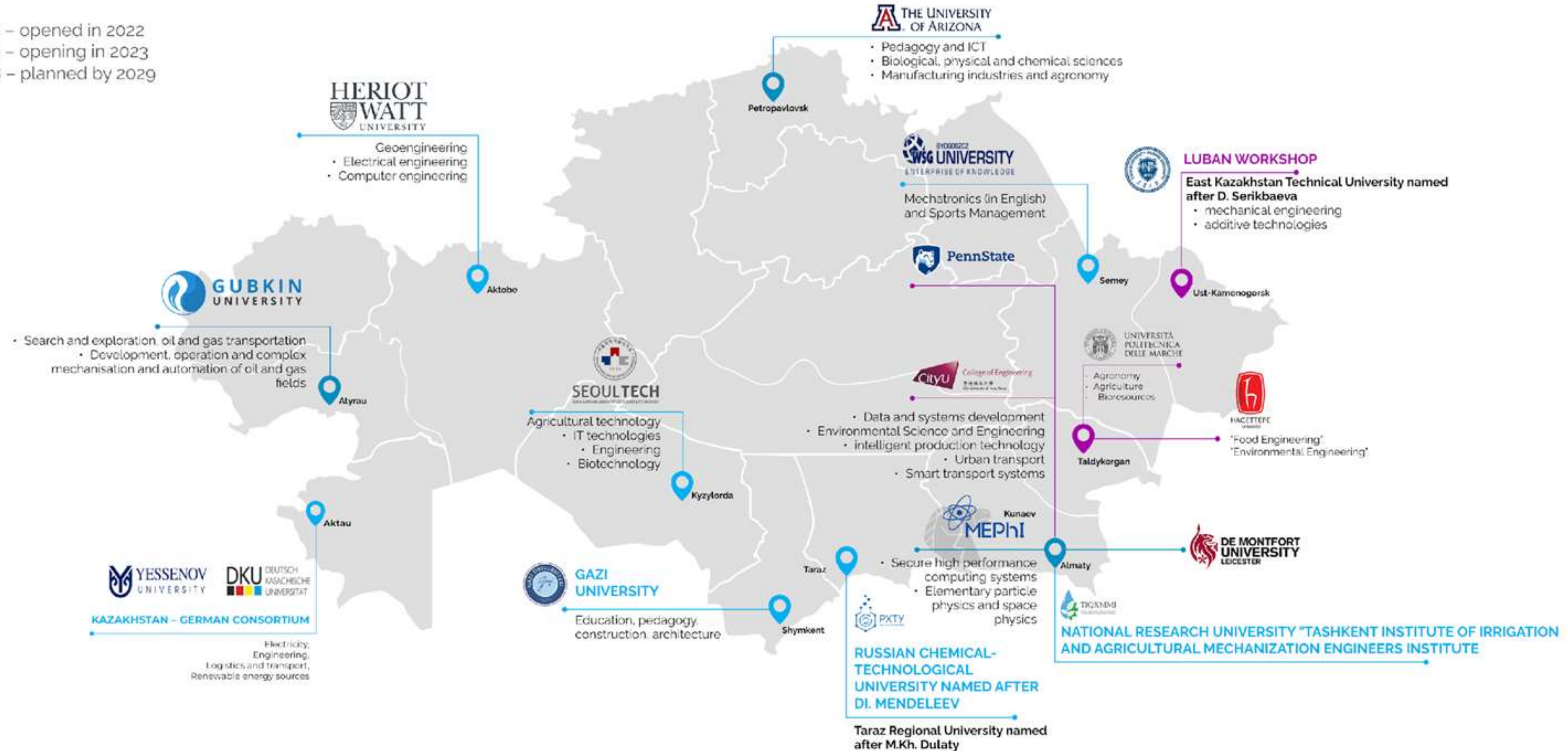
650 million Indians

nearly half the country's population - are below the age of 25



BRANCHES OF FOREIGN UNIVERSITIES IN KAZAKHSTAN

- 4 – opened in 2022
- 4 – opening in 2023
- 8 – planned by 2029



BRANCHES OF FOREIGN UNIVERSITIES IN KAZAKHSTAN

2023



**Mendeleev University
of Chemical technology**



서울과학기술대학교
SEOULTECH Seoul National University of Science & Technology



**Tashkent Institute of Irrigation
and Agricultural Mechanization Engineers**



**Kazakhstan – German
CONSORTIUM**

2029



**MICHIGAN STATE
UNIVERSITY**



**University of
Reading**



天津大學
Tianjin University

MODELS OF OPENING BRANCHES

FRANCHISE

Funded
by the investors



BASED ON KAZAKHSTANI UNIVERSITIES

Funded by the
State budget



STRATEGIC PARTNERSHIP

Funded by the
State budget



INTERNATIONAL UNIVERSITY

Funded
by the investors

**NEW ULYTAU
UNIVERSITY**



FUNDING



TAXATION



**LICENSE
OBTAINING**

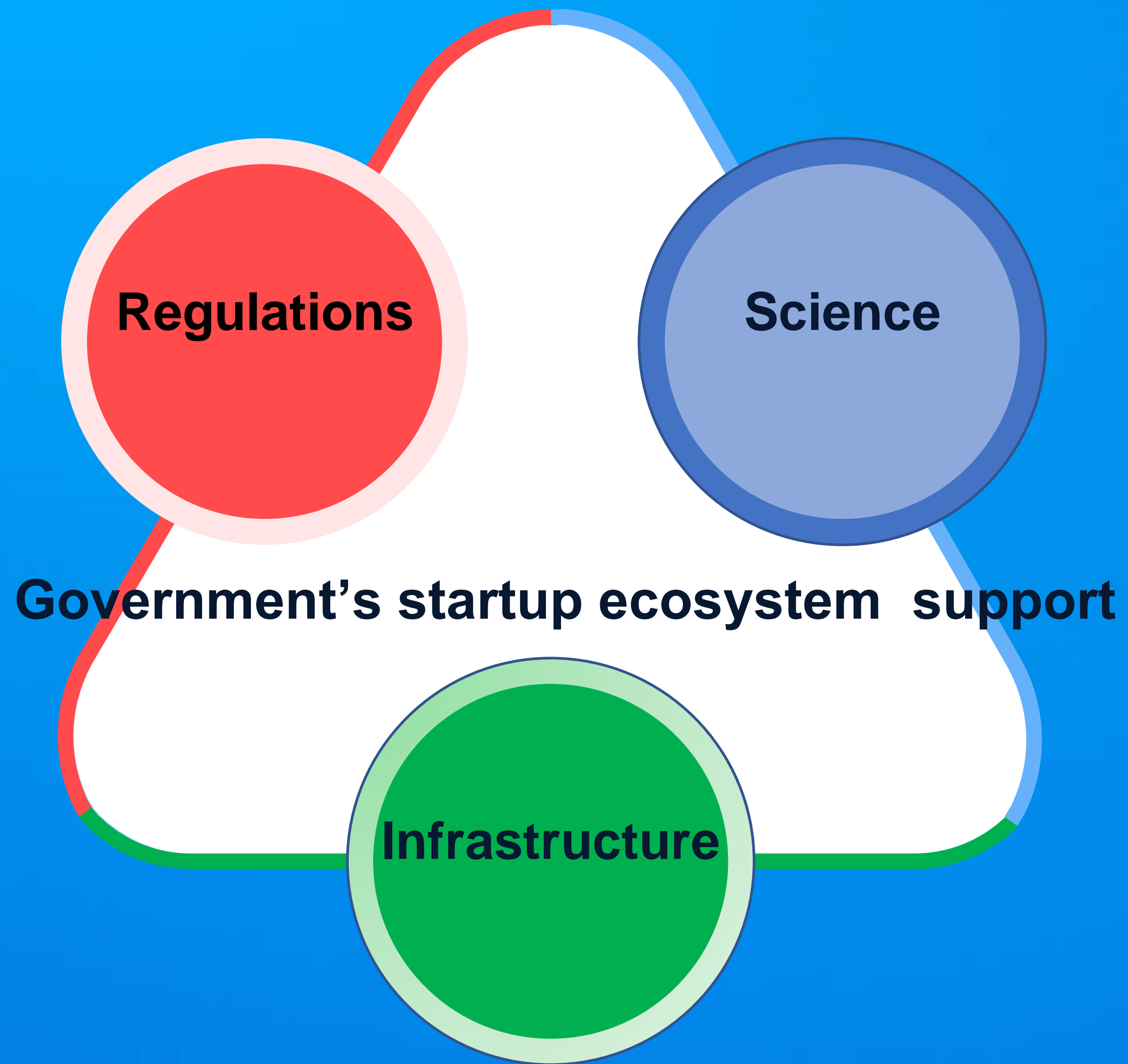
GOVERNMENT SUPPORT



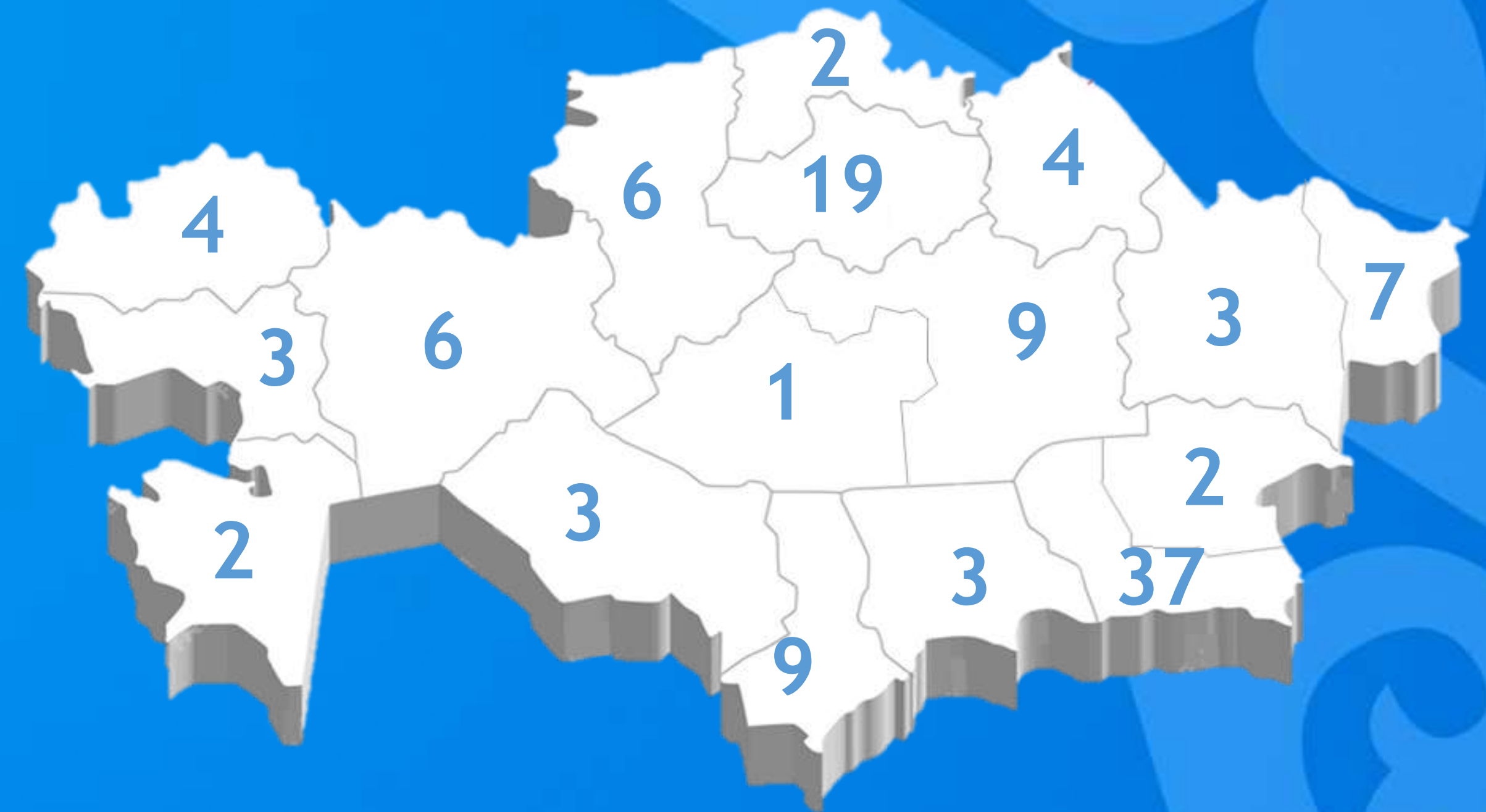
VISA REGIME



**LAND
ALLOCATION**



Kazakhstan's 120 universities





Legislative framework for further development

Laws of Education

- **regulates** the activities and competence of organizations of higher and (or) postgraduate education

Laws of Science

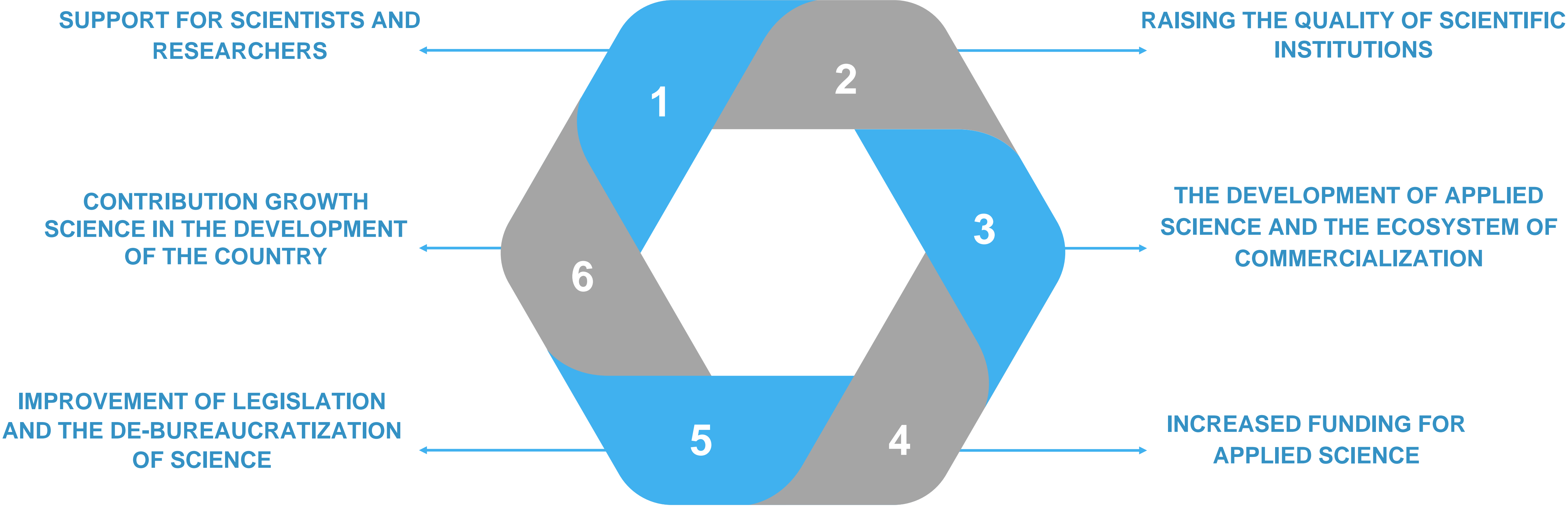
- **regulates** public relations in the field of science, scientific and technical activities, commercialization of the results of scientific and (or) scientific and technical activities

Policy of autonomy



- creation of technopolises, technoparks, business incubators, innovation centers, centers for commercialization and technology transfer, design bureaus and other structures in the field of activity;
- participation in the development, testing and implementation of innovative methods, technologies of teaching and research aimed at further development and improvement of the education and science system;
- organization, financing of development work, innovative and investment projects with the involvement of financial resources of subsidiaries and other organizations of the Republic of Kazakhstan and foreign organizations, as well as participation in the formation of mechanisms and infrastructure for venture financing of projects in the field of education and science;
- maintaining new mechanisms for assessing the validity and technological readiness of proposed scientific research;
- participation in the formation of mechanisms and infrastructure for venture financing;
- introduction of a mechanism for the collection, processing and analysis of scientific and technical information;
- expansion of the social support package for researchers.

Science as the driving force of the country's development



QONAYEV ACADEMIC CAMPUS

is a special territory for domestic and foreign subjects of the scientific and educational sphere:

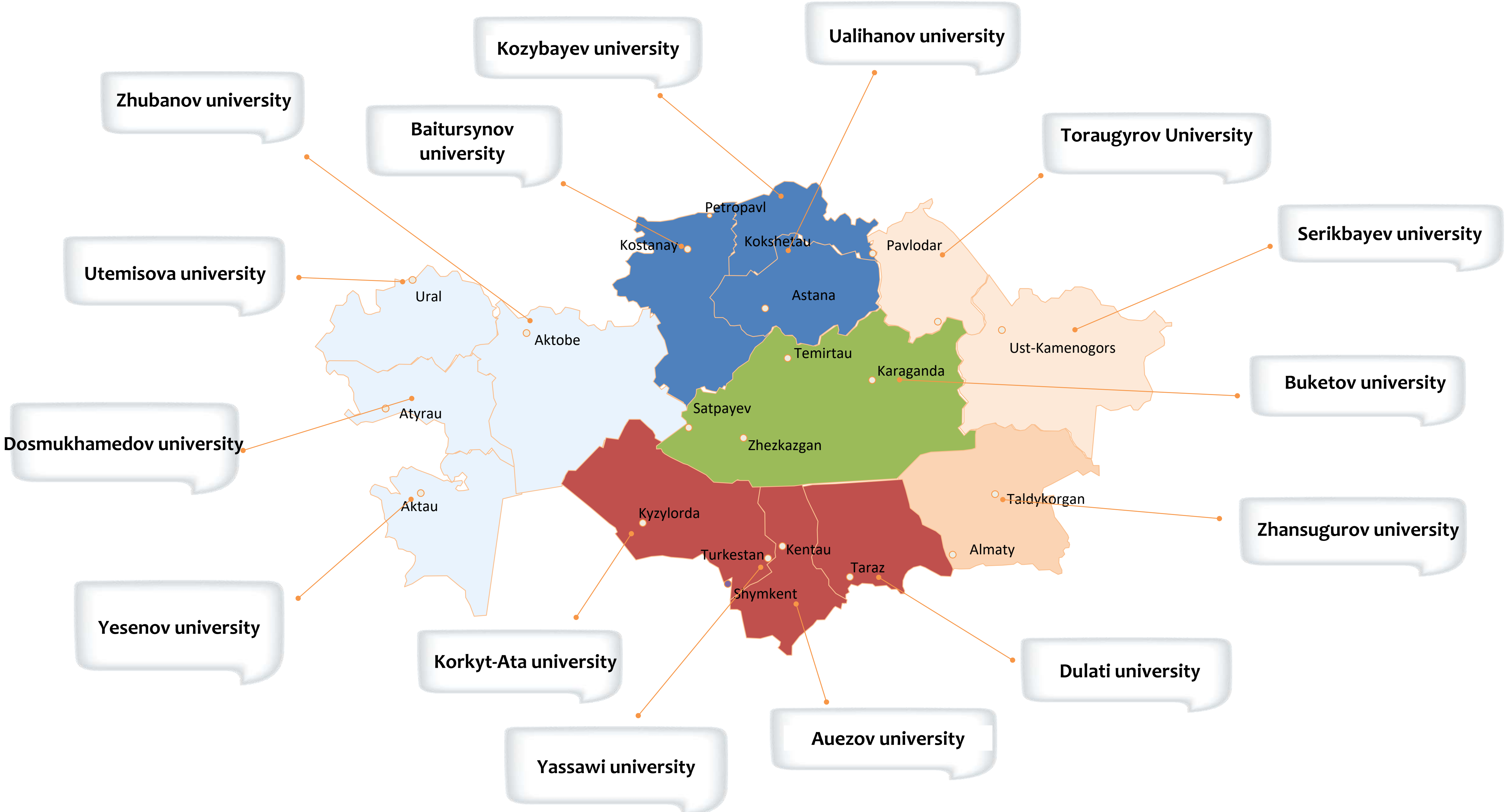
- symbiosis of academic research and higher education;
- an attractive area for relocation and a branch network of leading scientific and educational organizations;
- generator of innovative solutions for the needs of the domestic economy;
- modern scientific and laboratory base;
- comfortable environment for the commercialization of developments.

97 ha

Residents - universities (relocation of Kazakh universities, opening of foreign branches), research institutes and corporate R&D centers, technology start-ups, service organizations.



15 REGIONAL CENTERS OF ACADEMIC EXCELLENCE



ALMATY MANAGEMENT UNIVERSITY

2014-2024



1988-1995



Almaty School of Management

1996-2013



International Academy of Business



ALMA
ALMATY MANAGEMENT UNIVERSITY
Powered by
Arizona State University



TCC

Technology Commercialization Center



Number of programs

15+ short-term

7 Bachelor
6 Master's degree
20+ short-term

4 MBA
2 DBA

20+ Bachelor
8 Master's degree
200+ short-term

6 MBA
1 DBA
4 PhD



Number of students

200

2000+

70 foreign, through incoming and outgoing mobility

5000+

140+ foreign, through incoming and outgoing mobility



Number of faculty and staff

15 faculty (freelancers)
10 staff

100 full-time faculty

10+ foreign faculty

100 staff

235+ full-time faculty

20+ foreign faculty

493+ staff



Infrastructure

30 – 900 sq. m (rent)

900 – 8000 sq.m (owned)

8000 – 16000 sq.m (owned)

WHAT DRIVERS AN INNOVATION ECONOMY IN THE XXI CENTURY?

SYSTEMIC PROBLEMS IN FSU & CENTRAL ASIA:

Commodity driven export model benefiting select enterprises;

Industrial enterprises BUY foreign technical solutions rather than MAKE

value-added products;

R&D is locked inside university labs due to a weak local R&D market;

REQUIRING A SYSTEMIC SOLUTIONS:

University Tech-Transfer offices unable to assess the uniqueness and

commercial value of R&D ideas

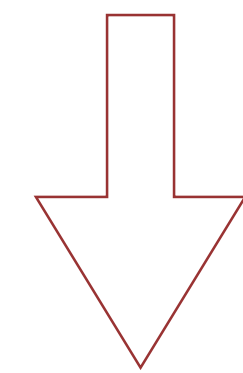
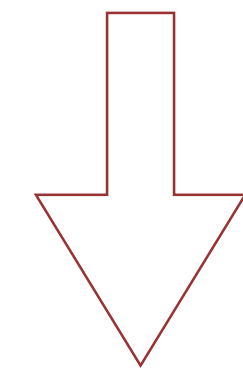
- Create an outsourcing technology commercialization center offering services to both

the science driven universities and the local and international business community

Few career opportunities attracting potential young scientists,

- Focused on assessing the commercial viability of university R&D
- Reviews global IP Patent landscape to understand industrial market
- Manages the Proof of Concept (POC) and “Translational Research” phases of R&D

work,

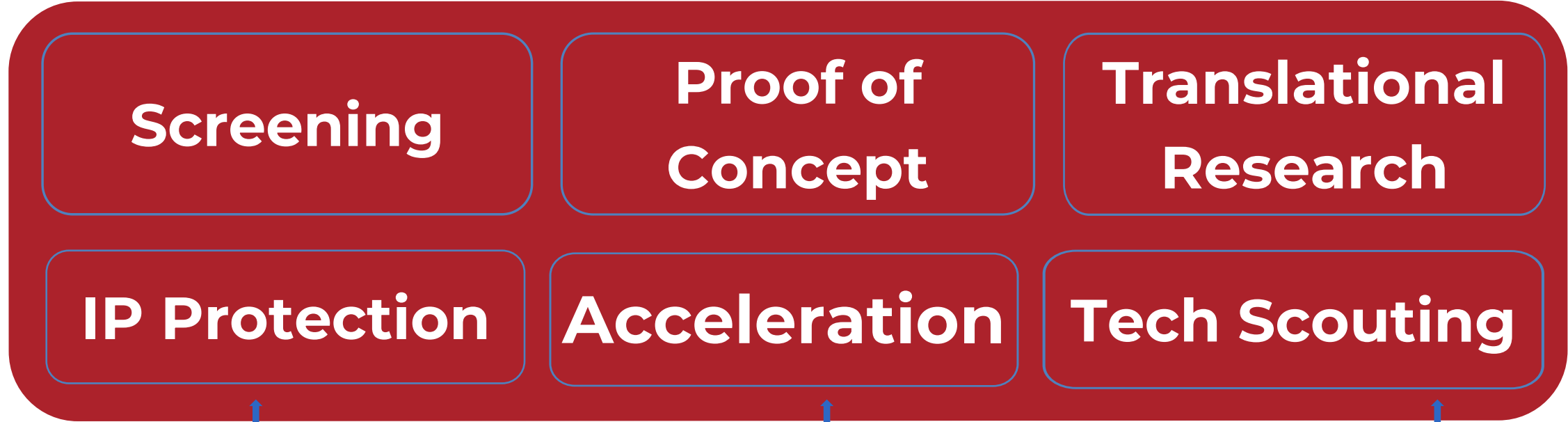


THE SOLUTION: TCC CREATES CENTERS OF COMPETENCE

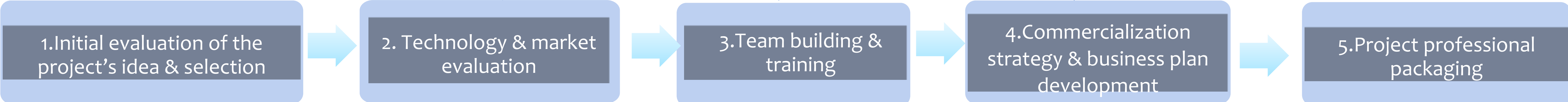


Industry Advisory Board

Venture Mentors Network
 Angels, mentors, coaches, incubators, accelerators, graduates, venture funds



InnoBoost
 Acceleration Program



Space Technologies New Sustainable Energy Tech Green Technologies Medical Technologies Agro Technologies



AlmaU TCC “Commercialization Alliance” Strengthens Cooperation Between Science R&D and Business

THREE STEP PREPARATION OF INNOVATION DRIVEN PROJECT TEAMS

Step One: Weekly Friday “STARTUP HUDDLE” open pitch coaching sessions



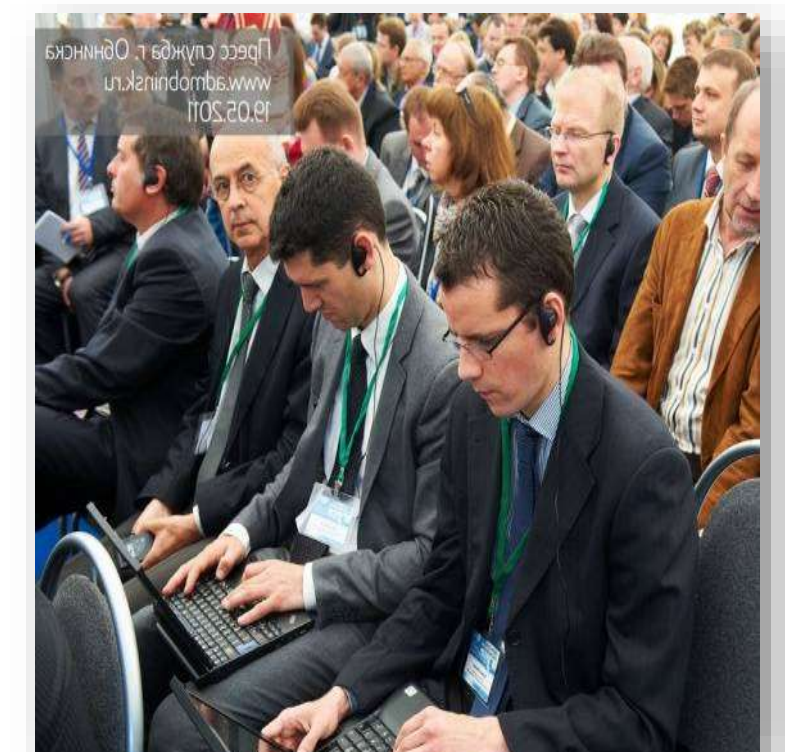
Step Two: 2-week Business Incubator “KITE” Team Building Program



Step Three: 8-week “Deep Tech Acceleration” Program & IAB Demo Day

No	Actions	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
1	Preliminary consultation	■	■						
2	Project development plan		■	■					
3	Express market analysis		■	■	■	■	■	■	■
4	Business models for certain markets				■	■			
5	Market analysis					■	■	■	■
6	Short presentation of the project				■	■	■	■	
7	Financial model of the project				■	■	■	■	■
8	Project materials review							■	■
9	Presentation of the project								■
10	Express business plan								■

Industry Advisory Board



D. SERIKBAYEV EAST KAZAKHSTAN TECHNICAL UNIVERSITY



D. Serikbayev
EAST
KAZAKHSTAN
TECHNICAL
UNIVERSITY

Center for Academic
Excellence in the Mining
and Metals Industry



- Doctorate
- Master
- Undergraduate



- Master
- Undergraduate

UK SDI

Specialty

1958-1980

1980 - 2000

2000-2020

2020-2025

- Industrial and civil construction
- Road construction

- Architecture and construction
- Geology and mining
- Metallurgy and enrichment
- mechanical engineering

- Geology and mining
- Metallurgy and enrichment
- Mechanics and metalworking
- Architecture and construction
- Energy
- Information and communication technologies



105
1 in KZ



901-950
Top- 10 in KZ



301-350
Top- 10 in KZ



850
#2 in KZ



EAST KAZAKHSTAN REGION



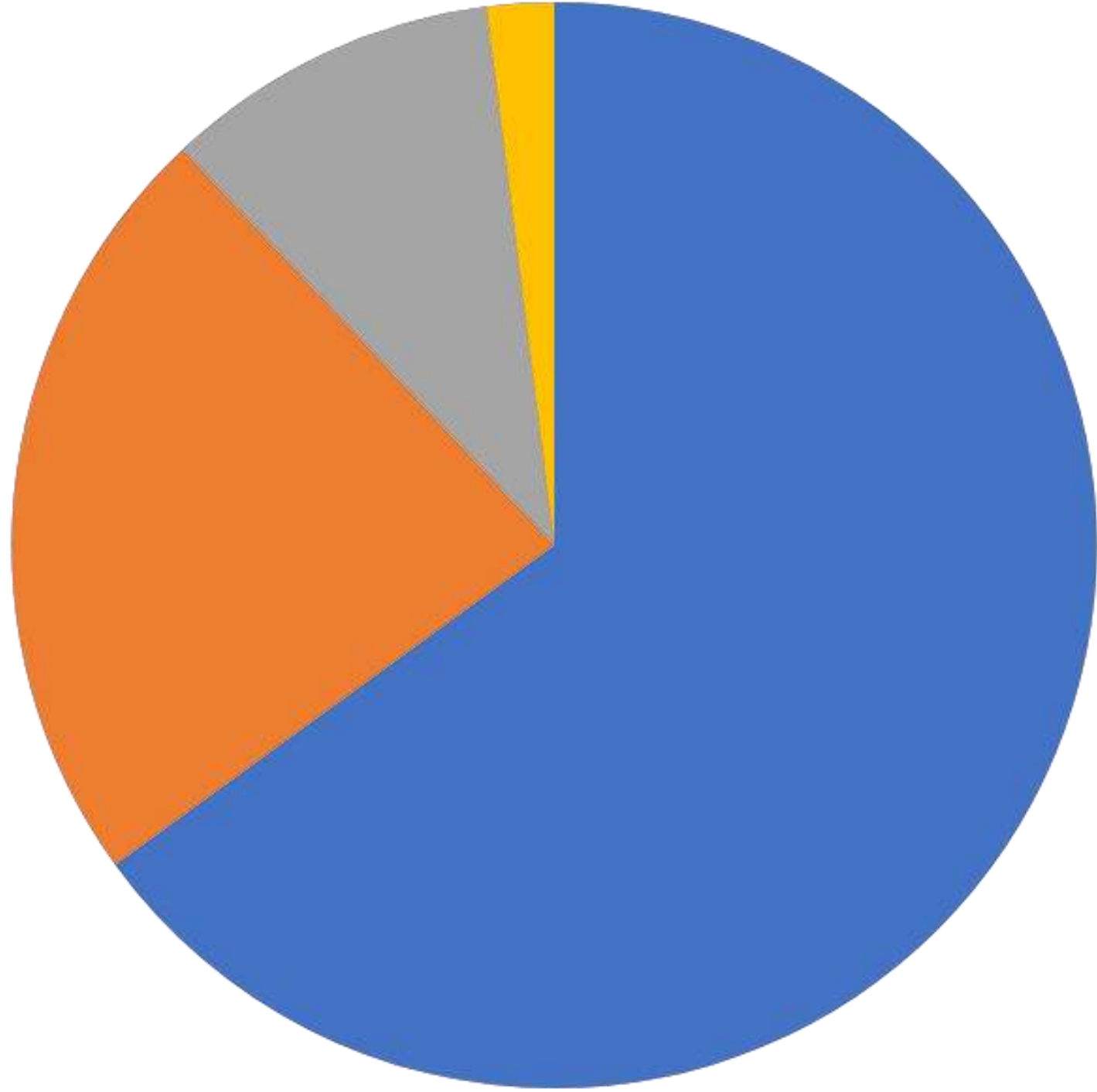
EAST KAZAKHSTAN is one of the main producers of lead, copper, refined gold and silver in the republic, and the only one - zinc, titanium, magnesium, tantalum, fuel for nuclear power plants.

- 60% of enterprises of the Republic of Kazakhstan in the field of metallurgy, mechanical engineering, mining and manufacturing industries;
- 40% of tax revenues to the country's budget are provided by enterprises in the region.

ENTERPRISES ARE WORLD LEADERS

<p>A large integrated zinc producer with a large share of the associated output of copper, precious metals and lead. The general investor is Glencore International AG</p>	<p>A leading supplier of titanium to the global aerospace industry</p>	<p>The 20th place in the world in the production of copper in concentrate and the 12th place in the production of rough and cathode copper</p>
<p>National operator for the import and export of uranium, rare metals, and nuclear fuel</p>	<p>One of the world's recognized producers of uranium, beryllium, tantalum and niobium products. The enterprise is a part of the National Atomic Company Kazatomprom</p>	<p>A copper mining company, the Group's shares are listed on the London and Kazakhstan Stock Exchanges</p>

- Mining & quarrying
- Manufacturing industry
- Electricity supply
- Water supply, collection, processing and ...



GRP structure of the East Kazakhstan Region industrial complex

CENTERS OF ACADEMIC EXCELLENCE

Priorities of the Centers of Academic Excellence of regional universities

20

Centers of academic excellence (technoparks, national and specialized laboratories, competence centers, etc.)

Specialization in the needs of the region

- Conducting a foresight study
- Development of a regional standard

Modernization of university management

- academic autonomy – Board of Trustees as the highest governing body, endowment fund, international accreditation

Modernization of educational and production centers, laboratories and campuses in accordance with the requirements of partners

- Creating STEAM labs

Strategic partnership with the best universities in the world and educational centers

- Joint educational programs
- Joint research with the world's leading scientific centers.

THE CENTER OF ACADEMIC EXCELLENCE IN THE MINING AND METALLURGICAL INDUSTRY OF EKTU

- The first (pilot) project in Kazakhstan
- Financing – the republican budget
- The project implementation period is 2024-2026
- Opening of 6 new and modernization of 24 laboratories
- Purchase of 352 pieces of equipment
- Opening of 4 new educational doctoral programs
- Implementation of 14 scientific projects and 6 scientific projects of young scientists

CURRENT INNOVATION INFRASTRUCTURE (ECOSYSTEM)



UNIVERSITY SCIENTIFIC INFRASTRUCTURE AND PERSONNEL

13

Competence and Technology
Transfer Centers

143

143 research, testing and scientific
laboratories

170

The staff of the scientific centers
includes more than 170 scientists

1500

more than 1500 units of analytical,
testing, educational and production
equipment

DEPARTMENT OF RESEARCH ACTIVITIES

FUNDAMENTAL RESEARCH

Research Office

general issues on science and innovation

Support Office

scientific support and procurement

POSTGRADUATE

Center «Postgraduate»

scientific support of PhD students' research

**APPLIED RESEARCH AND
ENTREPRENEURSHIP TRAINING**

**Technology Commercialization
Office (new)**

IP accounting and sales, contract research

Angar (new)

support for start-up initiatives of young
entrepreneurs

COMPETENCE CENTER «SMART ENGINEERING»

The purpose of the project

Creation of a sustainable competence center for industrial enterprises in the region, which will enable the development of related industries in the region

Expected results

- Development of manufacturing technologies for products and components of complex and non-standard equipment.
- Smart engineering and reverse engineering, including 3D scanning, 3-dimensional modeling;
- Creation of digital doubles for subsequent engineering analysis, calculations and simulations;
- Creation of design documentation in accordance with the requirements of the ESCD;
- Engineering analysis of equipment components and parts;
- Production of prototypes of assemblies and parts of complex non-



The World Bank grant

program "Consortia of the manufacturing sector: Centers of competence" within the framework of the project "Stimulating productive innovations"



D. Serikbayev
EAST
KAZAKHSTAN
TECHNICAL
UNIVERSITY



BUSINESS INCUBATOR “BI ANGAR”

ANGAR IDEA SPEECH

A total of 213 students participated, of which 25 students presented 17 projects at the “Angar idea speech” in the following areas:

agriculture (4) / service sector (4) / beauty and health (2) / tourism and recreation (5) / cafe (2)

ANGAR JUNIOR

Summer camps for schoolchildren with a training program in the basics of entrepreneurship and project development.

Total number of participants – 656 people

Total number of mentors - 54 people



A total of 249 students participated, of which 26 students were selected for Speech day. A total of 15 business plans were presented in such areas as:

services (3) / construction and construction services (4) / IT services and education (5) / production (3)





—

THANK YOU FOR YOUR ATTENTION

2024

