

The Future of Professions: Forecasts, Trends, and New Approaches



The impact of global challenges on the labor market are of interest to many governments and international organizations

Overall, the outlook for employment in most sectors is moderately positive, with growth expected in a number of sectors.

World Economic Forum

The challenge to society is not technological change per se, but the risk that some people - especially those in the lowest 40 percent - may incur a disproportionate share of the costs associated with any given change.

World Bank Group

Increased inequality, insecurity, instability and informality questioned the very foundations of the social contract at the beginning of the 21st century.

International Labour Organization

In the past, technological innovation has always provided more, not less, employment in the long run. But that could change.

The Economist



LABOR MARKETS ARE UNDERGOING DRASTIC CHANGES:

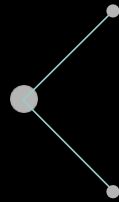
six global megatrends will exacerbate supply and demand imbalances

Changes factor

Megatrends

General challenges

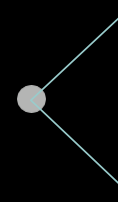
**Shifts in technology
and digital
productivity**



Digitalization, Automation
and technological innovation

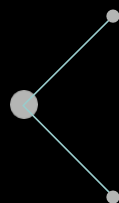


Big data
and in-depth analytics



- By 2035 - automation of 1/3 of work, which will significantly affect 3/4 of jobs
- Risk of lack of skills in occupations less affected by automation
- Weakening the relationship between wages and productivity

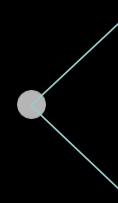
**Shifts in
resource
allocation**



New demographic
composition

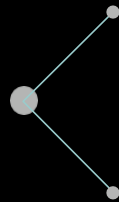


Displacement of geopolitical
and economic forces



- The working population spans several generations due to an aging population and the influx of Generation Z
- The growing involvement of women in labor, but mostly in low-paid professions
- Regional imbalances and the "war for talent"

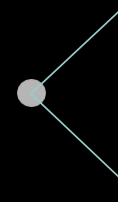
**Shifts in the values
and culture of the
working population**



Manifold
and inclusiveness



New business models



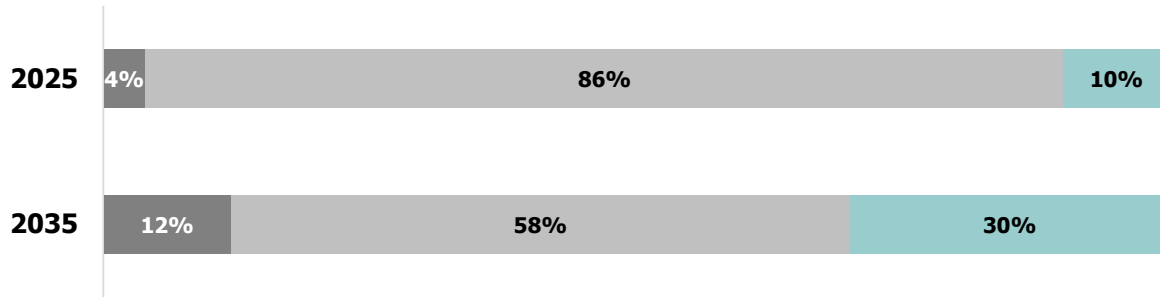
- Inclusiveness can be a major source of job creation
- Changing requirements for working conditions
- The importance of flexible forms of employment is growing, and a person may have multiple flexible jobs

GLOBAL CHALLENGE 1

Technology development and digitalization

Digitization will have an impact to jobs ...

World average based on OECD, WEF, McKinsey and PWC data



New activities

Related to the new technologies



Medical robot operator
Drone Navigation Manager

Labor functions will become more complex / change

Non-routine functions will be preserved



Technician-engineer Invest. broker
Sales manager

Will be automated

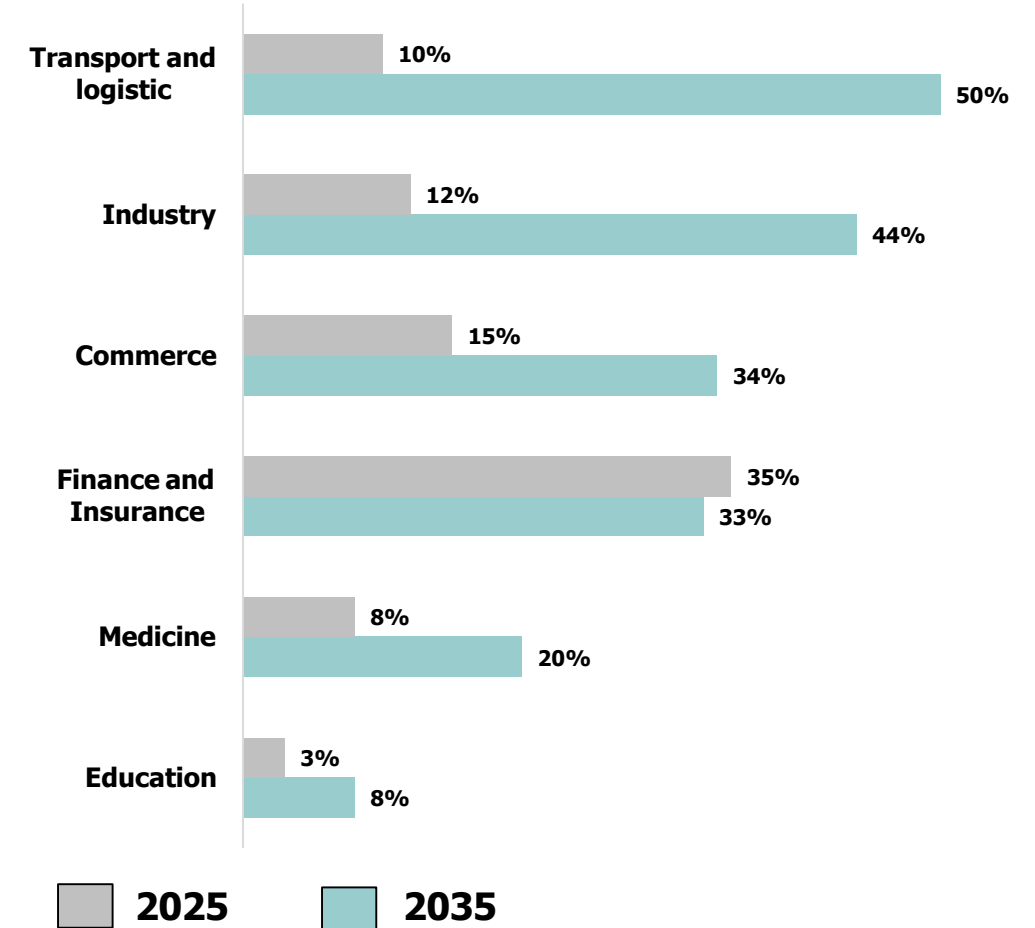
Manual, routine work



Accountant, Truck Driver,
Translator

... in all industries

% of jobs at risk of automation



2025

2035

Atlas — the instrument designed to develop and activate self-sufficiency skills among socially vulnerable groups

1. Qualitative component of the National Labor Force Forecasting System
2. The basis for a vocational guidance model for secondary schools and secondary schools
3. A platform for the development of new professional standards and curricula for VET and higher education organizations



ATLAS OF NEW PROFESSIONS AND COMPETENCIES OF KAZAKHSTAN



Choose
school



Choose
specialty



Career
solutions



Professional
literacy and skills

- **Constructor** – new skills and competencies, that should be mastered by the current workforce
- **Instrument** – vocational orientation for parents, teachers, students and people, who search for new development horizons
- **Accessible, simple and applied** – instrument for advancing training and choosing a profession
- **Assistant** – to candidates in search or rethinking of professional activity
- **Navigator** - in the development prospects of new professions, transforming professions, not-in-demand professions

NATIONAL LABOR FORCE FORECASTING SYSTEM

BTS·Education



АТЛАС
НОВЫХ
ПРОФЕССИЙ
И КОМПЕТЕНЦИЙ
КАЗАХСТАНА

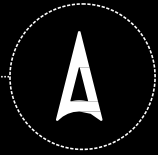
Forecast Type	Outcomes	Users	Application
<p>○ Short term 1 year</p>	<ul style="list-style-type: none"> Expected number of vacancies by professions and regions In-demand skills by professions 	<p>МИО ЦЗН</p> <p>Учебные заведения</p>	<ul style="list-style-type: none"> Short-term training for the needs of employers Curriculum Updates
<p>○ Medium-term 5 year</p>	<ul style="list-style-type: none"> Forecast for the main indicators of the labor market List of professions in demand The need for employees in the context of industries 	<p>МНЭ, МИО</p> <p>МОН, МИО</p>	<ul style="list-style-type: none"> Development of territorial development plans, STF forecasts Formation of the state educational order Career guidance
<p>○ Long-term 5-10 years</p>	<ul style="list-style-type: none"> <u>Atlas of new professions and competencies (new, transformative, disappearing professions, in-demand skills)</u> 	<p>МОН, МИО</p>	<ul style="list-style-type: none"> Formation of state order, updating educational programs Career guidance
<p>○ 25-30 years</p>	<ul style="list-style-type: none"> Expected population, birth rate, mortality Migration flows Labour force by sex, age and region Forecast of the inflow of personnel from the education system 	<p>МТСЗН, МЗ, МОН, МФ</p> <p>МИИР, МОН, МЗ, МИО</p> <p>МТСЗН, МИО</p>	<ul style="list-style-type: none"> Formation of social policy and planning of state expenditures Planning of the necessary social infrastructure (kindergartens, hospitals, etc.) Identification of regional imbalances in the labor market, resettlement to labor-deficient regions

ATLAS IS BEING IMPLEMENTED IN 9 PRIORITY SECTORS OF THE ECONOMY

Development of the Atlas of new professions and competencies in demand in the job market

Action plan for the implementation of the pre-election programs
of the President of the Republic of Kazakhstan Tokayev K.K

2019



Pilot project - Atlas of
new professions
DGOK ERG
May-July 2019

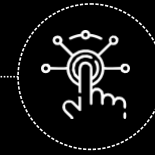


On October 31, 2019
a Memorandum
of Cooperation
was signed

2020



February 2020
Stage I - Analytics, Foresight sessions,
working with experts, Development of
regulatory and legal recommendations



September 2020
Stage II - Development of a
website, mobile application,
industry atlases

9 priority sectors of the economy



Oil production
and processing



Energy



Agriculture



IT-technologies



Tourism



Transport and
logistic



Mechanical
engineering and
metals

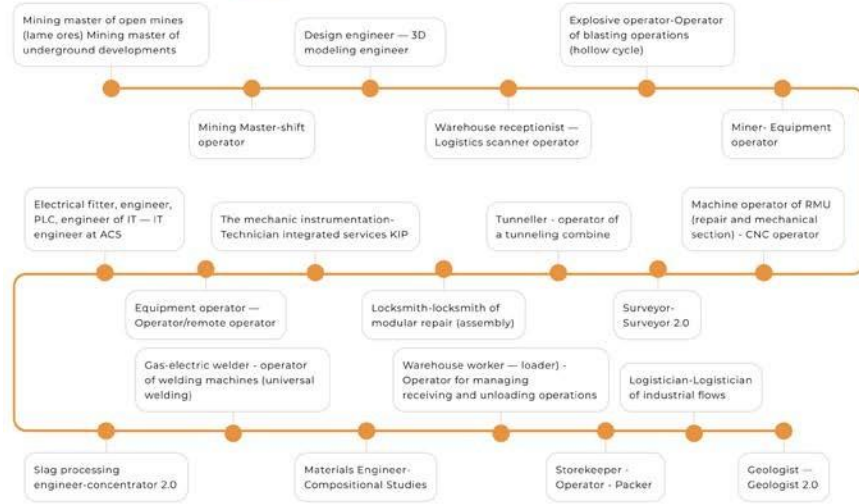


Mining and
metallurgical industry
(via BTS Education)

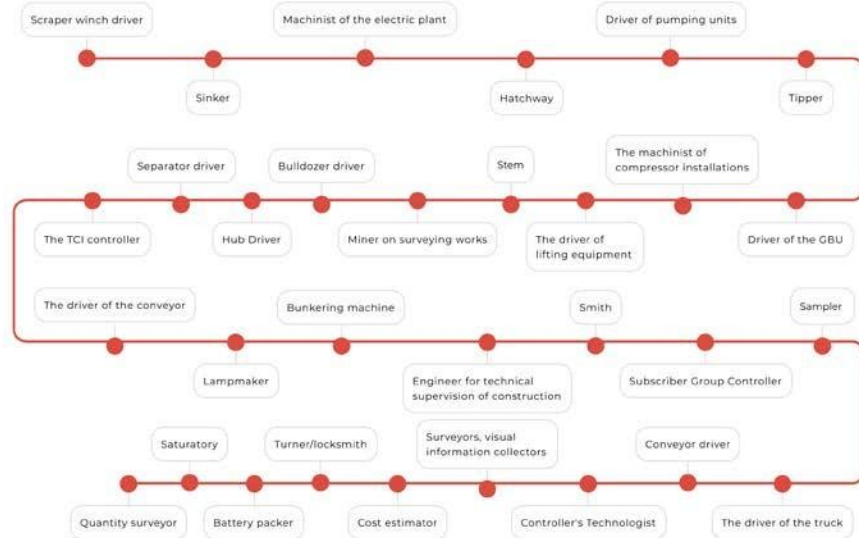


Construction and
building
materials

Transforming professions of MMC



Disappearing professions of MMC



New professions of MMC



CAREER GUIDANCE AND PROFESSIONAL DIAGNOSTICS IN SCHOOLS

TROUBLE

- Lack of uniform approaches to the professional orientation of students
- Career guidance work among schoolchildren is carried out mainly in the form of advertising, when colleges and universities organize visits to schools, informing about the specialties in which they are trained.
- According to the results of the sociological study of 2016 "The Future is My Choice" (Bilim - Central Asia), no more than 15% of high school students were able to decide on their future professional activities
- KASIPTTEST professional diagnostics showed that 75% of students of the 11th grades incorrectly chose the profile direction of study

HOW IT HAPPENS NOW

1

Who conducts: Educational psychologist

additional load to the main work
lack of career guidance skills

2

There is no single model of career guidance (disparate methods and approaches of career guidance in schools)

HOW THE NPP OFFERS

1

Trained CAREER GUIDANCE

independent unit in schools
refresher courses

2

Unified model of career guidance and professional diagnostics

Professional diagnostics
Vocational guidance support for the student
Professional tests, assistance in choosing a training trajectory
Work with parents
Choice of future profession and educational institution
Preparation of portfolio, etc.



UPDATED CLASSIFIER

New specialties and qualifications of the Atlas

As a result of the work, specialties and qualifications were introduced:

- specialty "Robotics and embedded systems (by industry)" and qualifications "Installer-adjuster of robotic systems and complexes", "Technician of mobile robotics", "Technician of industrial robotics";
- specialty "Technology of products based on nanomaterials" and qualification "Operator of production of products based on nanomaterials";
- specialty "Additive manufacturing technologies" and qualification "Operator of additive installations";
- specialty "Remotely manned aviation system" and qualifications "External pilot", "Technician-mechanic for the technical operation of unmanned aircraft systems";
- specialty "Computer-aided systems for the design and operation of buildings" and qualifications "BIM-user", "BIM-technician", "Technician for maintenance of intelligent building management systems";
- specialty "Real Estate Management" and qualification "Manager of a multi-apartment residential building";
- specialty "Destination Management" and qualifications "Manager of ecological tourism", "Manager for the promotion of tourist services", "Manager of the tourist information center".

10 universities and colleges from Aktobe, Akmola, Atyrau, East Kazakhstan, Pavlodar, Almaty regions plan to launch and develop new educational programs based on the Atlas

Higher College "Astana Polytechnis", Pavlodar State University named after S. Toraihyrov, Atyrau University of Oil and Gas, Higher College of Families, Amanzholov EKSU, College "Semey", Khromtau Mining and Technical College, Kozybayev SKU and others.

On the basis of Khromtau Mining and Technical College BTS Education, a pilot experimental training program for the training of UAV Operators was introduced

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И КОМПЕТЕНЦИЙ
КАЗАХСТАНА



Экспериментальный рабочий учебный план
технического и профессионального образования
ГККП «Хромтауский горно-технический высший колледж»
ГУ «Управление образования Актыбской области»

Код и профиль образования: 0716 Автотранспортные средства, морские и воздушные суда
Специальность: 07161100 Дистанционно пилотируемая авиационная система (по отраслям)
Квалификация: 3W07161101 Оператор беспилотных летательных аппаратов



Opening a new specialty with the integration of new competencies into the educational program



Existing Model Curriculum modules	Changes to be made
PM 05.1 "Information security of computer networks"	PM 05.1 "Cybersecurity of local area networks" - 60 hours
Coursework is not provided for in the standard plan	PM 06.3 "Management of information security tools" introduced the implementation of coursework - 30 hours
MOO in a typical plan without recommendation	IE introduced the discipline "Monitoring and analysis of network security" - 66 hours
	Diploma design - 216 hours

2 млн.
cyber attacks for 2019

Frequency of cyberattacks every **14 seconds**
(according to a study by the University of Maryland, USA)

6 trillion. USD
by 2021, total losses from cybercrime

The development of cyber defense tools and methods now and in the coming years will be one of the most relevant scientific and technical trends in the field of IT

Ecosystem of human capital development and advanced staffing of the region

Forecast of staffing needs

- Analysis and pre-analysis of the region, selection of key industries and growth points
- Foresight Vision: Identifying the Region's Technology Priorities
- Identification of new professions and competencies for the region
- Adjustment of the state order
- Updating of current and creation of new educational programs in universities and colleges for the demanded professions of the region

Professional diagnostics and career guidance

- Collection of data and analytics for schools, colleges and universities, their accumulation in the situation center
- Understanding the discrepancies between inclinations, popular occupations among the future workforce, and the region's personnel needs
- Measurement and evaluation (psychometrics, biography, behavior)
- Recommendation system (popular professions, labor market analytics and education systems)
- Services (formation of individual educational and career trajectory, marketing and data market)
- Tool for HR.
- Professional diagnostics of current personnel and modeling of career development of employees.
- Analytics of market needs

Training, professional development and retraining

- Courses on professions of the Atlas of New Professions of Pavlodar region
- Retraining of the USSN on the basis of the Employment Centers
- Certification of courses for further employment in the field
- Advanced training of teachers (RPCC)
- Advanced training courses for career guidance
- Closing the targeted personnel needs of enterprises through training, retraining and pov.qualification
- Platform for online staff development

Employment and Labour Market Analytics

- Full-scale transfer of Pavlodar region to data-driven decision making in the field of employment and education
- Reorientation of educational programs of universities and colleges to the needs of production and business
- Selection of qualified personnel on request "turnkey"
- Optimization and systematization of HR-processes of enterprises
-



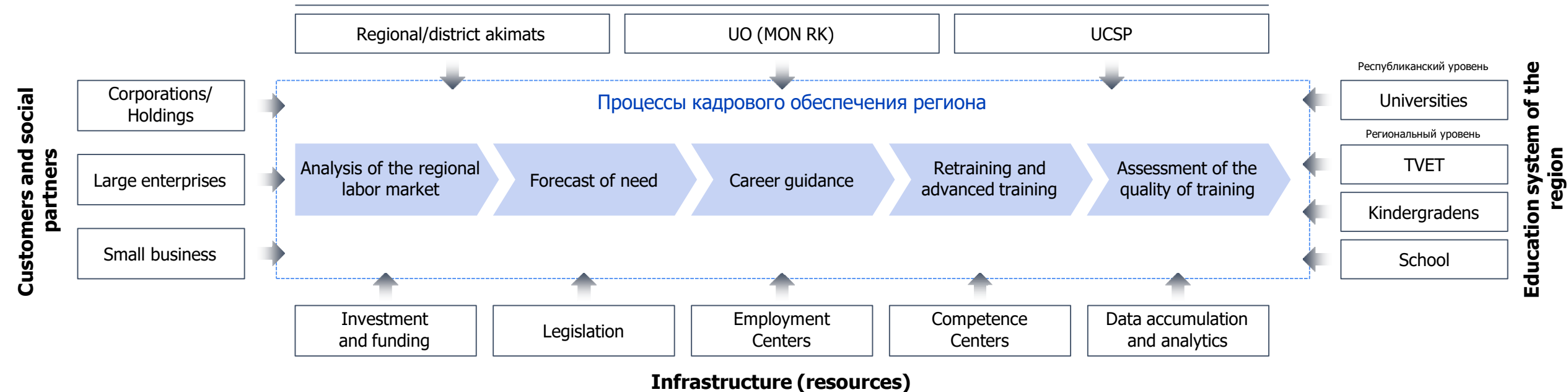
PILOT PROJECT: REGIONAL STAFFING STANDARD

STAFFING - becomes a separate object of management, around which the system of requirements is built in the form of the main provisions of the Personnel Standard.

STAFFING STANDARD – is a standard of modern management practices built into the regional management system and aimed at providing the industry (economy) of the region with the required highly qualified personnel:

- Coverage of the end-to-end process of staffing the region is ensured
- Different sides of the process with different interests in the field of staffing the region are involved
- Communication of different levels of decision-making is ensured
-

Government





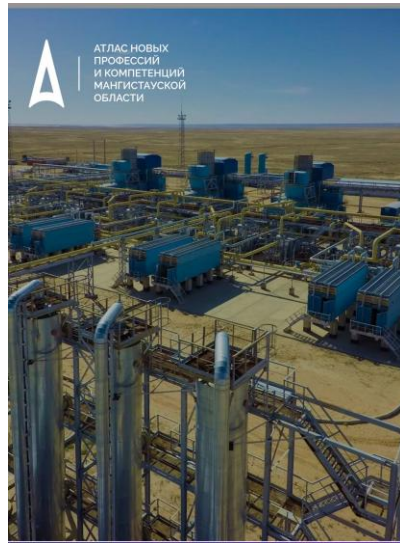
Pavlodar region



9 industries
40 promising professions
25 educational programs
of TVET

Professional diagnostics
338 schools
27,005 students

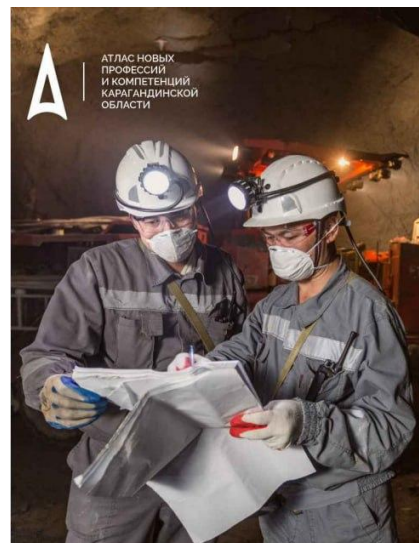
Mangystau region



3 industries
39 promising professions
41 key trends

Professional diagnostics
133 schools
11 177 students

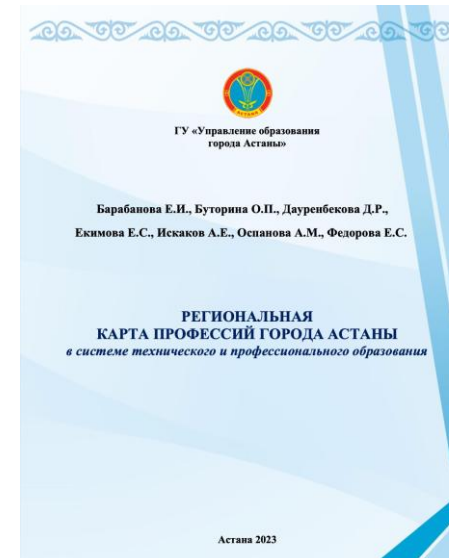
Karaganda region



5 industries
58 promising professions
26 key trends

Professional diagnostics
358 schools
12 500 students

Astana city



4 industries
17 promising professions
5 key trends

Almaty city



АТЛАС НОВЫХ ПРОФЕССИЙ И
КОМПЕТЕНЦИЙ
ГОРОДА АЛМАТЫ
в рамках Договора о государственном заказе услуг
№829 от 22 июня 2022 года

6 industries
114 promising professions
90 key trends

Professional diagnostics
214 schools
10 000 students

Regional maps of staffing needs (2024)



Министерство науки
и высшего образования
Республики Казахстан

Aktobe region



5 industries
43 promising professions

Professional diagnostics
387 schools
16 571 students

Zhetysu region



5 industries
66 promising professions

Professional diagnostics
10 977 students

Akmola region



3 industries
36 promising professions

Professional diagnostics
5 421 students

Zhambyl region



5 industries
68 promising professions

Professional diagnostics
7 175 students