



**Student
DigitalFest**



Student DigitalFest

StudentDigitalFest

Astana, 2022



HOSTING PARTY

LEGAL ENTITIES ASSOCIATION “KAZAKHSTAN ASSOCIATION OF OIL AND GAS AND ENERGY COMPLEX ORGANIZATIONS “KAZENERGY”

KAZENERGY Association was established on November 2, 2005. The Association unites companies operating in the oil and gas industry, electric power and the nuclear industries. The goal of the Association is to promote the sustainable and balanced development of the energy industry of the Republic of Kazakhstan (oil & gas, electric power) in the context of changing priorities in energy and environmental policy globally and in the Republic of Kazakhstan.

As part of its human capital development activities, KAZENERGY Association has been acting as a social partner on employers' behalf at the oil and gas industry level since 2011 and at the republican level since 2021; participates in the development of qualification requirements for specialists based on professional standards and industry qualification frameworks; participates in advisory, expert and other working groups when discussing the law enforcement practice of labor legislation; concepts of legislative initiatives concerning employers.

The Youth Forum which has been held since 2008 by KAZENERGY serves as creative, communication platform for gathering the young people in the oil and gas field.

Since 2015, KAZENERGY Association is an Operating Authority of the Ministry of Economy of the Republic of Kazakhstan which selects candidates for awarding educational grants paid by subsoil user companies (NCOC, KPO). For the academic year 2022-2023, grants were approved for 552 students of universities and colleges in Kazakhstan.

StudentDigitalFest is an outstanding example of supporting creative ideas, pro-scientific activity, development of project teams and creative independence among the student youth of the country. Every year for the past three years, the best offers for digitalization of the oil and gas industry among university students have been collected by the competition organized actively by KPO.



SPONSOR

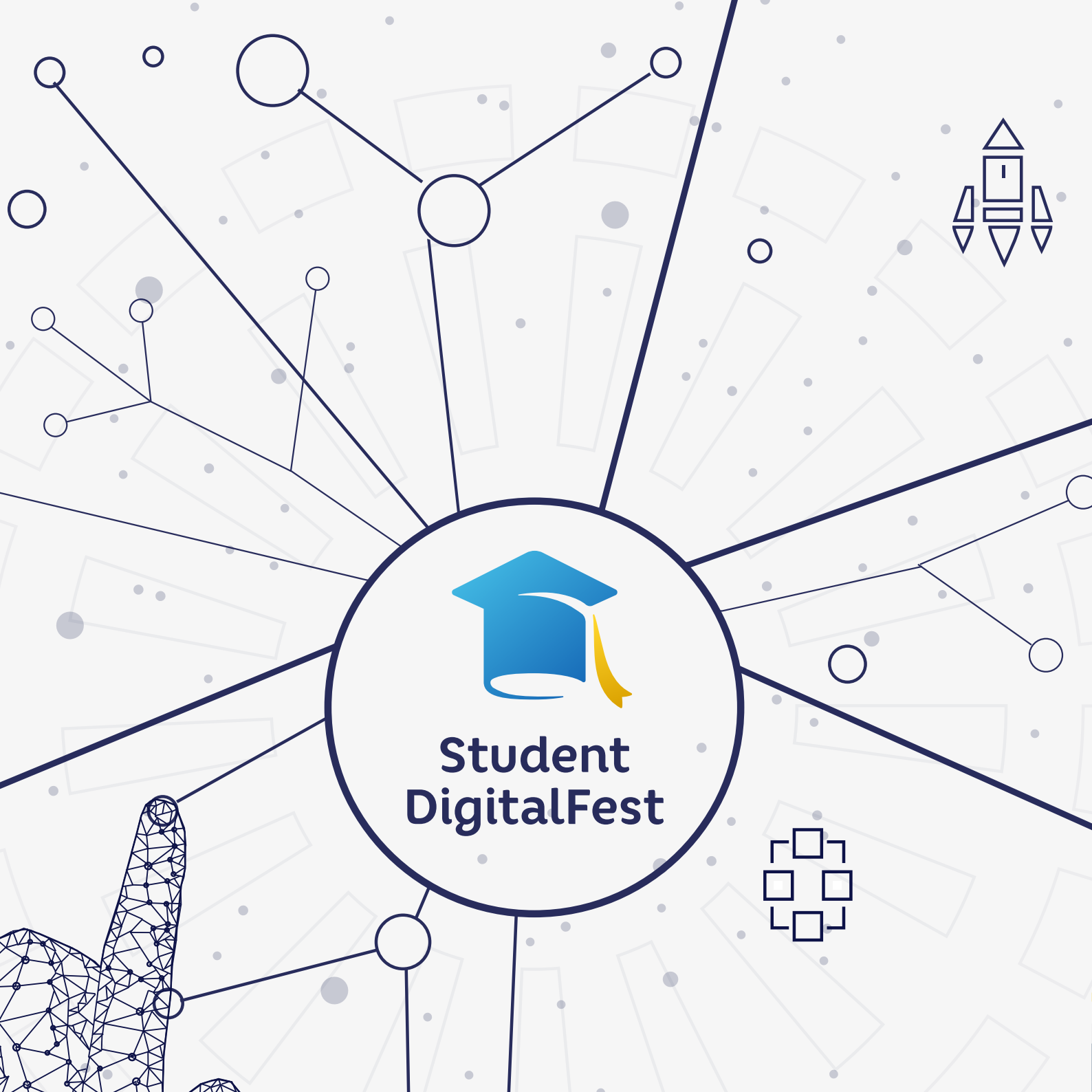
Karachaganak Petroleum Operating B.V. (further KPO) is the operator of one of the largest oil, gas and condensate fields in the world. Work to improve the skills of own employees and interact with universities to attract young talent is an important part of creating a talent pool for KPO.

KPO is one of the signatories of the Cooperation Memorandum between the Ministry of Energy of the Republic of Kazakhstan, KAZENERGY ALE, PSA LLP and North Caspian Operating Company N.V. dated September 29, 2015, according to which candidates are selected and awarded with educational scholarships under the Final North-Caspian and Karachaganak Project (FNCK).

KPO's priority direction is to train young specialists for Kazakhstani oil industry. KPO implements a wide range of initiatives and educational programs for youth as part of dual education. The educational programs provide an understanding of modern methods of work in the oil and gas industry based on new oil and gas production technologies and international standards.

Strengthening cooperation with Kazakhstani universities, stimulating development of digital ecosystem by motivating the younger generation, developing local qualified personnel with a long-term perspective is part of KPO's digitalization strategy which remains committed to achieving progress in this direction.

Since 2020, KPO has been a Sponsor of "StudentDigitalFest" which is devoted to develop and improve digital solutions for Karachaganak field.



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»» INTRODUCTION

In recent years, the youth have become more active, and such activity is supported by the State, companies, associations and other stakeholders. If we talk about trends inherent in Kazakhstani youth, the most popular are transition to high mobility, total digitalization and growing popularity of social networks, healthy lifestyle, and participation in voluntary activities and etc. Modern youth are "digital natives." They have grown up in an interconnected world with mobile phones and internet where the boundaries between physical and digital are absent.

For Kazakhstan which has achieved a lot in a short time and faces ambitious socio-economic and political tasks of a global nature, the questions about what modern youth is like, what its potential is, are especially relevant. Large national companies pay serious attention to these issues, develop and implement youth policy aimed at developing, stimulating and supporting talented youth.

Within the youth policy, many companies strive to create all necessary terms for professional and personal growth, creativity and innovative potential of both current and future young personnel. Different youth events are held – forums, meetings, competitions in support of young people. The youth are actively involved when they have been sent to internships by the national universities.

The youth competitions held is only a kind of start and motivational support for further independent activities, expressing creativity and professional initiative, growth and career. Today, development of IT and mobility of human resources are accelerating. Status of young specialists in the field of education is becoming more and more relevant. Digital solutions are pierced into business processes of oil companies starting with geological exploration, development, production and ending with oil refining and chemistry. At the same time, oil and gas companies are actively involved in increasing diversity in hiring and personnel policy, expanding cooperation between business and academic world, investing in digital skills and digital culture.

Digitalization in Karachaganak Petroleum Operating B.V. (KPO) is carried out consistently and systematically. It has a significant impact on all areas of activity of KPO subdivisions and its contractors, creates additional opportunities for improving their performance and introducing innovative processes.

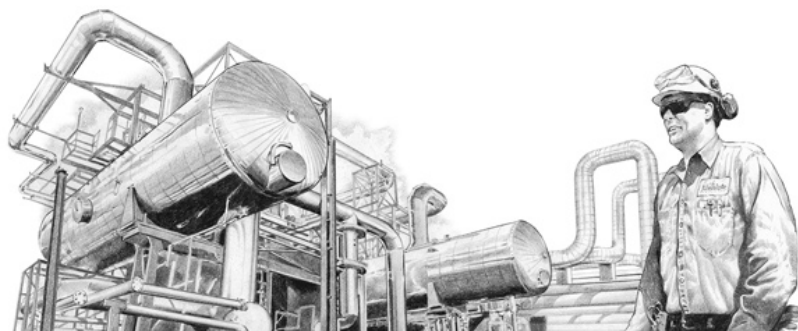
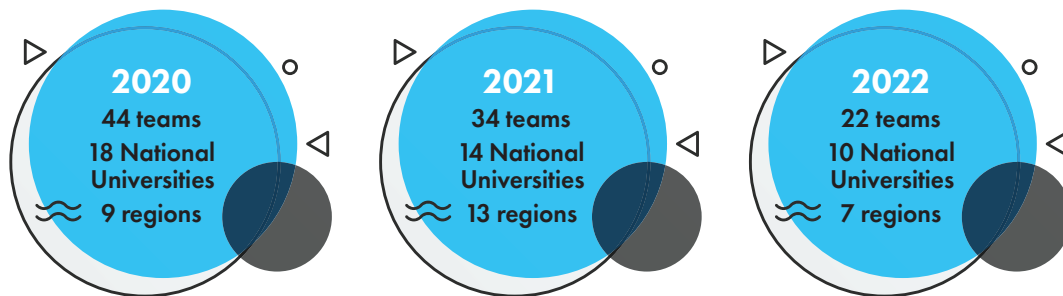


1. ABOUT

StudentDigitalFest 2020-2022

"StudentDigitalFest" Competition was initially announced by KPO's HR Manager – Suri Rajagapol at the XI KAZENERGY Youth Forum "Youth and Challenges of Time" in 2019 in Astana.

For 3 (three) years, 117 applications were submitted from teams from 20 national universities of which almost 40% are girls.



Topics of technical tasks are developed annually by specialists of Karachaganak Petroleum B.V.

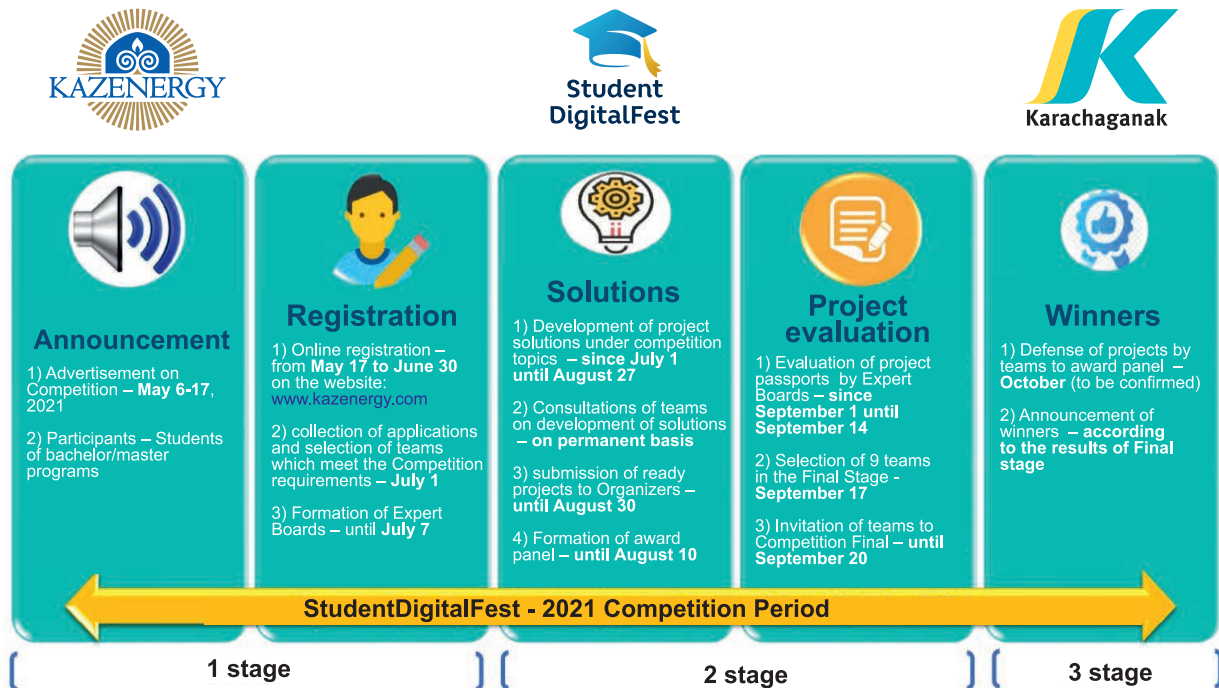
2020		
Development of a stand-alone MAASP (maximum allowable annular surface pressure) calculator based on the ISO/TS 16530-2 and API 90-2 guidelines.	Digital solutions in order to enhance the control of access for vehicles to gas-prone areas of the field.	Opportunities for introducing digitalization into integrated electronic system for registering potential suppliers in the company database.
2021		
Automation of calculations of pollutant emissions, greenhouse gases and energy efficiency.	Implementation of a remote system of pressure sensors on the surface to improve and optimize monitoring the integrity of wells.	Development of a pattern recognition-based search engine for scanning and detecting designated characters in technical drawings.
2022		
Optimization of well production collection system by machine learning methods.	Digital catalogue for well hookup.	"Waste Management" Automated System.

The First Final of the Competition was held in Nur-Sultan City on February 27, 2020. The Competition consisted of two stages: development of a passport of a draft solution under competition topics, public defense of solutions to the award panel.



The second season of "StudentDigitalFest" started in May 2021.

The Competition included an additional stage which provides for an expert review of the passports of the project passports. According to review results, the finalist teams were determined. Thus, the competition of the second season consisted of three stages: development of a passport of the draft solution under competition topics, expert review of project passports, public defense of solution to the award panel.

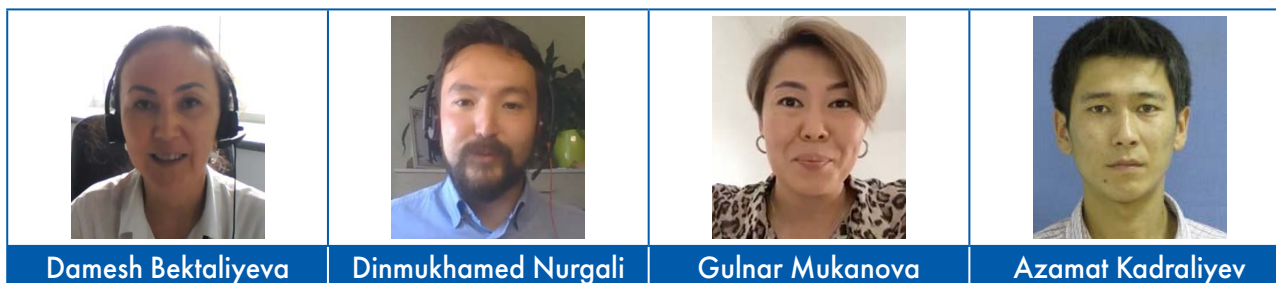


**when the Competition is held ONLINE, the Final stage will be conducted on virtual platform.*

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In 2021, the competition was accompanied by constant online consultations of the teams. And on July 2, 2021, 34 student teams from 14 leading universities of the country had an online kick-off meeting with Mr. Glen Sondak, Digitalization Manager of Karachaganak Petroleum Operating B.V. (KPO), specialists and experts of KPO and KAZENERGY Association on topics of technical tasks within competition.

During the meeting, participants got acquainted with KPO's business and the work conducted in the field digitalization of the company.



KPO Specialists - Damesh Bektaliyeva, Dinmukhamed Nurgali, Gulnar Mukanova, Azamat Kadraliyev spoke about goals, objectives and expected results, about features in the preparation of projects under technical tasks and answered participants' questions.

In own turn, students were interested in topics related to the data required to perform the tasks, methods of calculation, national standards and other issues that would help teams in developing the passport of future projects. More detailed discussions of the technical tasks were held at separate online meetings differentiated on each topic. In the period from May to August 2021, KPO specialists conducted online consultations with each team in the areas of technical tasks.

Digitalization team KPO

KPO digitalization team enables KPO to be a best in class company by delivering capabilities (people, process, data, technology) and insights that can be trusted valued

Identify proven key digital technologies → Speedy deployment incorporating lessons learnt → Integrate Capabilities

Digitalization is a top priority for KPO and success is achieved in collaboration with partners, customers, service providers, research, and start-ups

№	Наименование объекта	Мощность, кВт	Тип топлива	Средний расход топлива, кг/ч	Средний расход воздуха, м³/ч	Средний расход воды, м³/ч	Средний расход газа, м³/ч	Средний расход пара, м³/ч	Средний расход электроэнергии, кВт	Средний расход тепла, Гкал/ч	Средний расход холода, Гкал/ч	Средний расход пара, т/ч	Средний расход газа, м³/ч	Средний расход воздуха, м³/ч	Средний расход воды, м³/ч	Средний расход пара, м³/ч	Средний расход холода, Гкал/ч
1	ТЭЦ-1	10000	Уголь	1000	10000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000

The following teams took part in the second season of the Competition: Nazarbayev University, Kazakh-Britain Technical University, Utebayev Atyrau Oil and Gas Institute, Almaty University of Power Engineering and Telecommunications. The following teams participated for the first time: Astana IT University, East Kazakhstan Technical University named after D. Serikbayev, Shakarim State University of Semey, Karaganda Technical University, Buketov Karaganda University, Ualikhanov Kokshetau University, International University of Information Technologies, Dulati Taraz University, Turan University in Almaty.

An Expert Board from KPO specialists was created at the second stage of the competition for each technical task:

- **Kaporali Marko**, Well Integrity Site Head;
- **Khan Israr Ahmad**, Mechanical Maintenance Section Head;
- **Damesh Bektaliyeva**, Head of Energy Efficiency and Environmental Assessment Department;
- **Aigul Kireyeva**, Head of the Sector for Interaction and Monitoring of Environmental Efficiency;
- **Aina Khaimuldina**, Digitalization Advisor;
- **Azamat Kadraliyev**, I Category Energy Efficiency Advisor;
- **Gulnara Mukanova**, II Category Well Integrity Engineer;
- **Dinmukhamed Nurgali**, Process Engineer.

The main task of the Expert Board was to evaluate project passports under the Competition criteria.

Maximum score for teamwork was 50 points. Evaluation of each work included technical feasibility under the technical tasks, economic significance, importance of the project in solving the issue of digitalization of the industry, description of project implementation stages, effectiveness of the proposed project in case of implementation.

7 (seven) teams moved to 2021 final stage according to the results:

1. **Jojo Aupet Crusaders Team**, Almaty University of Power Engineering and Telecommunications named after Gumarbek Daukeyev Non-JSC;
2. **Androgynous Team**, Almaty University of Power Engineering and Telecommunications named after Gumarbek Daukeyev, Non-JSC;
3. **Digital_EKTU Team**, East-Kazakhstan Technical University named after D.Serikbayev
4. **BOTTi Team**, Kazakh-British Technical University;
5. **Shoqan Team**, Kokshetau University named after Sh.Ualikhanov;
6. **SKYWALKERS Team**, Nazarbayev University;
7. **KazTech Team**, Nazarbayev University.

“StudentDigitalFest” Competition is distinguished by transparent and objective selection criteria. The Award panel is composed of KPO professionals and evaluates projects according to qualitative and quantitative indicators.



2021 AWARD PANEL

Glen Martin Sondak

Business Integration Manager KPO b.v.
Karachaganak Petroleum Operating B.V.

Gulnar Mukanova

Well Integrity
Engineer
Karachaganak Petroleum Operating B.V.

Dinmukhamed Nurgali

Process Engineer
Karachaganak Petroleum Operating B.V.

Zhandos Askar

Vessel and Piping Mechanical Engineer
Karachaganak Petroleum Operating B.V.

Damesh Bektaliyeva

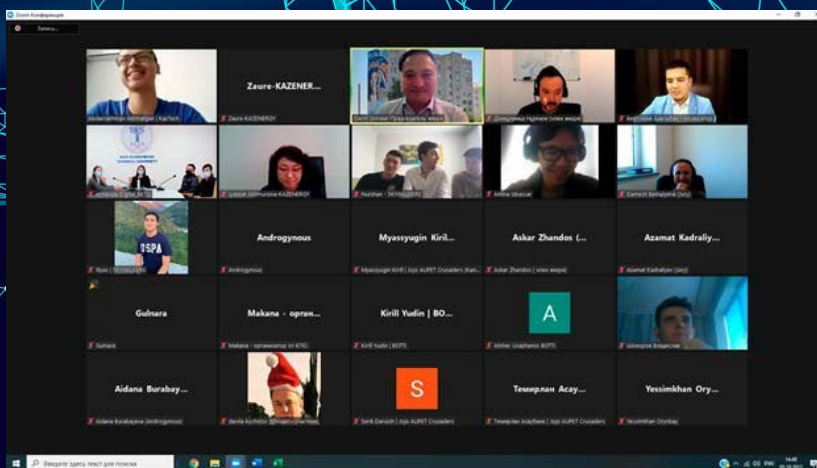
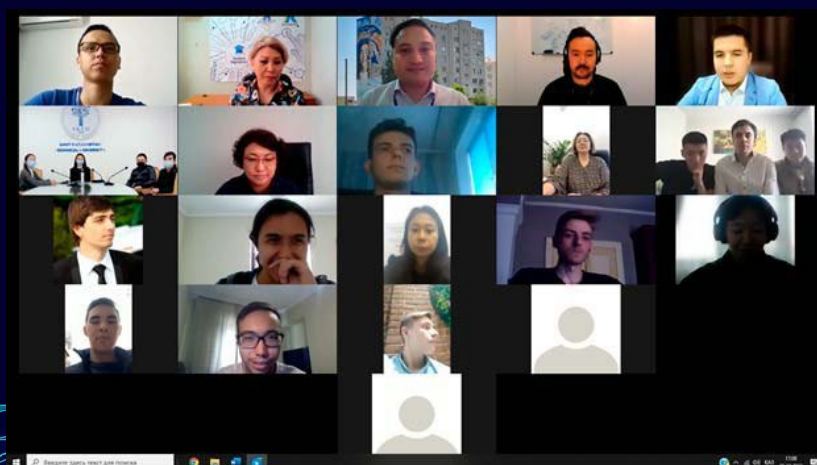
Energy Efficiency
and Environmental Evaluation Department Head
Karachaganak Petroleum Operating B.V.

Azamat Kadraliyev

Energy Efficiency Advisor
Karachaganak Petroleum Operating B.V.

The Second Final of "StudentDigitalFest" was devoted to celebration of the 30th Anniversary of the Independence of Kazakhstan and the XII KAZENERGY Youth Forum - "Personnel training in new realities: from rethinking to transformation".

Due to the conditions related to 2020 Coronavirus Pandemic, the second season final of the Competition was held online as of October 5, 2021 under the XIV KAZENERGY Eurasian Forum "KAZENERGY WORLD ENERGY WEEK 2021 LIVE "ENERGY FOR BETTER LIVES".



WINNERS OF STUDENTDIGITALFEST - 2021!



"BOTTi"

Kazakh-British Technical University

Kirill Yudin, 4th-year student

Alisher Uvazhanov, 4th-year student

Nursultan Bekzulda, 4th-year student



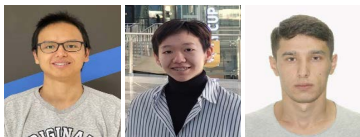
"Shoqan"

Kokshetau University named after Sh.Ualikhanov

KDanila Kochinov, 2nd-year student

Meruyert Ospanova, 1st-year student

Vladislav Shokorov, 2nd-year student



"KazTech"

Nazarbayev University

Akhmetgali Abdarrakhman, 3rd-year student

Amina Izbassar, 3rd-year student

Orynbay Yessimkhan, 3rd-year student

TOTAL PRIZE FUND – 15 000 USA DOLLARS





More about outcomes of 2021 Competition at: <https://kazenergy.com/ru/operation/educational-program/160/1770/>

2. WELCOMING SPEECH TO "StudentDigitalFest" PARTICIPANTS



KARABALIN UZAKBAY SULEIMENOVICH

Deputy Chairman KAZENERGY Association

Dear Friends,

I am glad to welcome all participants of "StudentDigitalFest" on behalf of KAZENERGY Association and in my own name! This is a joint competition organized together with Karachaganak Petroleum Operating B.V. which promotes prospective ideas and initiative of the Kazakhstani youth. We have long-standing partnership with Karachaganak Petroleum Operating B.V. and for many years the Company has been

providing grants to students of colleges and universities for educational programs, and for 7 years this work has been carried out with participation of KAZENERGY Association.

Organization of "StudentDigitalFest" is very important for us in the part of development of talent pool - one of the important directions of our joint activities. Like the rest of the world, we expect that the digitalization will help us to achieve an unprecedented breakthrough. At the same time, Kazakhstan is building its own path.

In the era of the fourth industrial revolution, the development of any industry is possible only with close co-operation of business with educational, scientific and technical centers. Only combining the traditional points like experience, skills and knowledge with new innovative solutions can provide a synergistic effect. Digital transformation is changing the economy and the main driver of growth should be mobile creative youth.

I am convinced that this Competition will allow to take a fresh look at development of intellectual skills of young talents, actively involve students into project work, build effective interaction with their peers, exchange experience and successfully demonstrate their innovative developments on the selected topics of the Competition.

My young friends! Your mission is to develop Kazakhstan in the XXI century, and you must successfully cope with this large-scale task. I believe in your talents and young energy! I wish you all success and victory!



GIANCARLO RUYU

Chief Executive Officer

Karachaganak Petroleum Operating B.V.

Dear participants,

Taking this opportunity, I would like to welcome you on behalf of Karachaganak Petroleum Operating B.V.!

We truly appreciate your participation at "StudentDigitalFest" which is an effective platform for students to implement their intellectual potential and develop technological solutions in the field of digitalization.

"StudentDigitalFest" is aimed at the development and improvement of digital solutions for Karachaganak field which is one of the largest enterprises in the oil and gas sector of Kazakhstan and not only.

KPO is proud to be a partner of KAZENERGY Association and has been hosting this prestigious event since 2019.

I would like to assure you that during the competition you will be provided with all required assistance. I am sure that you will get an unforgettable experience of working in a team and positive emotions.

With a great pleasure, I invite you on this wonderful journey and would like to emphasize that this will be a wonderful opportunity for your personal development and wish you good luck in the competition. Thank you very much!



2.1. THE THIRD SEASON OF STUDENTDIGITALFEST - 2022

Announcement of the Competition “StudentDigitalFest” is published annually in social media (Facebook, Instagram) and on the official website of KAZENERGY.

In 2022, receipt of applications for the third season of the Competition from student teams was declared in the period from May 25 to June 31, 2022. The teams that submitted application for participation in the competition have started to develop projects of solutions on the selected theme under the goals and tasks of technical specifications to projects.

Teams were registered through electronic questionnaire on the website of KAZENERGY at: <https://sdf.kazenergy.com/>

During two months, 22 teams that successfully registered for the Competition, have participated in online consultations with KPO experts, authors of the already developed technical tasks.

The third season of the Competition was conducted on the following competition topics:

- Optimization of well production collection system by machine learning methods;
- Digital catalog for well hookup;
- “Waste Management” Automated System.



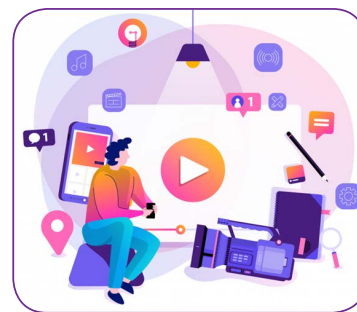
The Organizers (KAZENERGY, KPO) annually improve competition terms based on the surveys among participants aimed at transparency of its conducting.

Thus, such proposals were made as formation of the Expert Board for each technical which accompanies the teams at developing solutions, provides them with advices, as well as representatives of the Boards take part in the evaluation of project passports and can act as the jurors.

Teams could replace a team member during preparation of the project passport, as according to the results of two years, some members leave the team at the project development.

Requirements for teams were strengthened in the part of compliance with generally accepted ethical and moral standards, as well as expressing respect to the representatives of the Organizer, award panel and other participants.

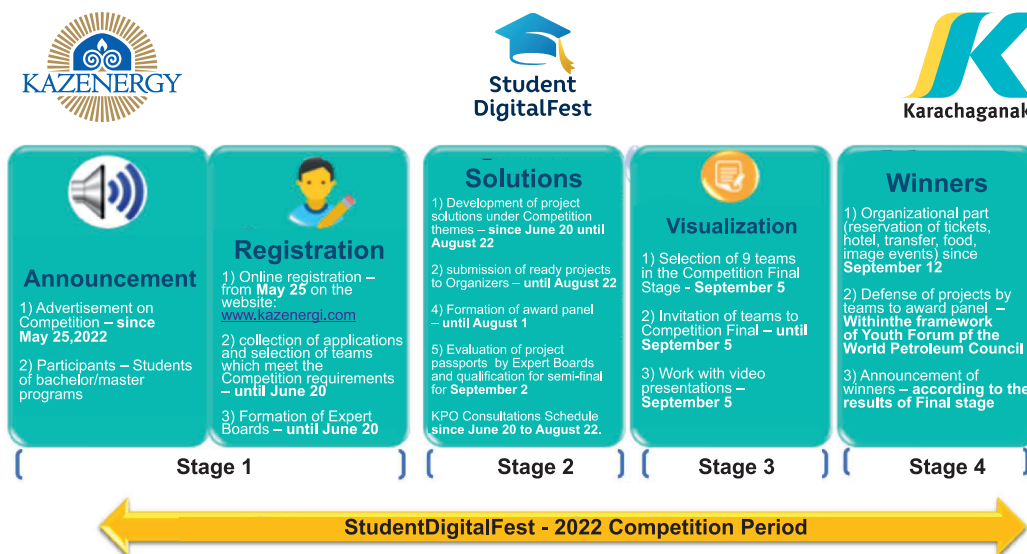
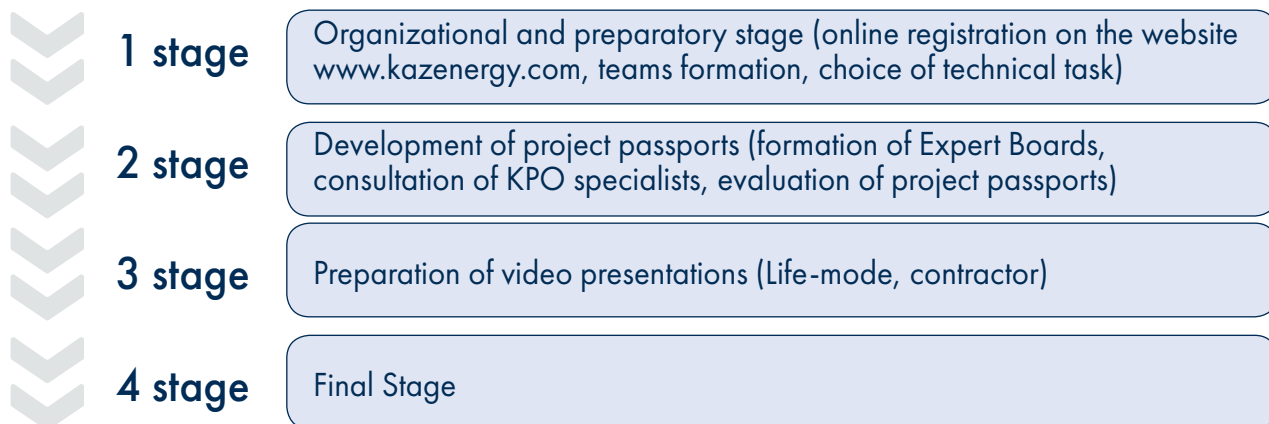
The teams were offered to develop a video of the project passport independently or involve a third party.



2.2. ABOUT STAGES OF STUDENTDIGITALFEST - 2022

In order to conduct the Competition, the topics were determined, and one of the topics was chosen by the contestant and they presented own innovative projects/technological solutions (topics may vary every competition).

2022 Competition included 4 (four) stages:



*Dates and terms of conducting the Competition are indicated approximately and may be changed by the Competition Organizers (as agreed with Sponsor)
 **when the Competition is held OFFLINE, expenses for travel, accommodation and food of the finalist teams and scientific supervisors will be financed by the Competition Organizers.
 ***when the Competition is held ONLINE, the Final stage will be conducted on virtual platform.

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STAGE. ORGANIZATIONAL-PREPARATORY STAGE

At this stage of the Competition, a video was made in three languages (Kazakh, Russian, English) and published on social media (Facebook, Instagram), as well as on the Organizer's website.

This stage of the Competition stipulates:

- submission of application by teams for online registration on the website www.kazenergy.com using the link <https://sdf.kazenergy.com/>
- formation of teams corresponding to the Competition terms;
- consultation of teams by Organizers;
- formation of the Expert Board on each topic of technical task.

From May 25 to June 31 of 2022, applications for participation in the Competition were submitted by 22 teams from 10 universities of the Republic of Kazakhstan.

Nº	University	Teams
1	Kazakh-Britain Technical University	Ninja Turtles, Amplified, Baysz, SiteLine, UNIT1
2	Astana IT University	AIS BDA, NBS, BUSY, G.O.A.T, NIC
3	Nazarbayev University	Petro Mechanics, Olive Oil, DUAAl
4	Satpayev Kazakh National Research Technical University	A3, NASA
5	Almaty Management University	MAYDAI, Disposito
6	Korkyt Ata Kyzylorda University	BIBON
7	Kokshetau University named after Sh.Ualikhanov	Shoqan
8	Caspian University of Technology and Engineering named after Sh.Yessenov	YessenovGuys
9	Karaganda Technical University	MRG
10	Gumilev Eurasian National University	KZMIT



The teams received a task to develop own solutions in relation of:

- problems and digitalization of well production collection where it is proposed to proxy the physical model with models based on data/machine learning in order to increase the run time and solve the optimization problem;
- digitalization of the catalog for well hookup in order to increase the efficiency of engineering work on well hookup (WHU) through application of the

approach “Digital catalog”, “One design database and creation of many”;

- completeness of control and quality management of waste management processes, teams are expected to receive software for accounting of the company’s waste, access to which is possible online from any electronic device (computer, tablet, phone).



STAGE. DEVELOPMENT OF PROJECT PASSPORT

Formation of Expert Boards. The second stage of the Competition stipulates evaluation of passports of projects/solutions which is performed by Expert Boards formed for each technical task.

Expert Board for technical task #1 “Optimization of oil and gas collecting pipelines of wells using machine learning methods» was presented in the following composition:

1. **Amir Dospayev**, Integrated Field Modeling Engineer, KPO;
2. **Nurbek Jabasphev**, Production Data Management System Engineer, KPO.

Expert Board for technical task #2 “Digital Catalog for well hookup” was composed of:

1. **Rahul Kumar**, Design and Technical Control Department Head, KPO;
2. **Francesco Rossi**, Design and Technical Control Head, KPO.

Expert Board for technical task #3 “Waste Management” Automated System” was represented by **Dinara Aldamzharova**, Atmospheric Air Protection Specialist, KPO.

Consultation of teams on topics of technical tasks. In the period from July to August of this year, 20 online consultations of teams were held. Weekly online meetings of KPO experts with teams were held in a general and individual manner. According to the terms of the Competition, each team shall submit its solution only for one technical task.



Rahul Kumar
Design and Technical Control
Department Head



Amir Dospayev
Integrated Field Modeling Engineer,
KPO



Dinara Aldamzharova
Atmospheric Air Protection Specialist,
KPO

Evaluation of project passports.

Organizers have formed the Expert Board composed by KPO specialists for each technical task.

Evaluation of team solutions was performed under established criteria:

1. Structured presentation, proper formatting, clear ideas;
2. Technical feasibility under technical task;
3. Economic significance;
4. Role of the project in solving the issue of digitalization;
5. Description of stages of project implementation;
6. Expected efficiency in solving issues.

According to the results of the expertise of students' project solutions and review by the experts, 7 (seven) teams from 22 teams were allowed to take part in the Final stage with presentation of own team works.



Team «MAYDAI»
Team «Dispose»
Almaty Management
University



Team «BUSY»
Astana IT University



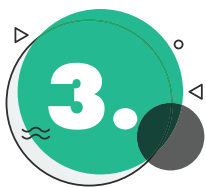
Team «DUUAL»
Nazarbayev University



Team «Shoqan»
Kokshetau University named after
Sh.Ualikhanov



Team «Amplified»
Team «SiteLine»
Kazakh-British Technical University



STAGE. VIDEO PRESENTATIONS

The third stage of the Competition offered to finalist teams several options to work on visualization of team solutions: preparation of a video, presentation of ready-made solutions in live-mode (demonstration of the solution in real time), preparation of a video and demonstration of the draft solution in live-mode.

The purpose of visualization is to describe the developed solution (product, process, technology, etc.) and demonstrate during the project defense at the Final stage

Each team receives additional points for choosing methods of demonstration of ready-made solutions:

- independent preparation of a video - up to 5 (five) points;
- demonstration of the draft solution in live-mode - up to 5 (five) points;
- independent preparation of a video and demonstration of the draft solution in live-mode - up to 10 (ten) points.



STAGE. COMPETITION FINAL

In 2022, the Competition Final was held as part of the VII Youth Forum of the World Petroleum Council "Energetic transmission: Dialogue of Generations" in Almaty.

For four months, 22 teams which included students of different courses and majors worked together on a task under one theme of the technical task.

7 (seven) best teams were invited to the Final stage, they have passed evaluation by experts and moved to defend own projects to award panel.

3. FINAL OF StudentDigitalFest - 2022



Final of the 3rd season of the Competition was held on September 29-30, 2022 in Almaty at Kazakh-British Technical University which is located in the former building of the Government House built in the middle of the last century (1951-1957) and has historical value and is an architectural monument. It was in this building in the "round" hall that Kazakhstan first declared its sovereignty to the whole world by signing the Declaration of Independence of Kazakhstan in 1991. The venue for the Final of the Competition was not chosen by chance.

The VII Youth Forum of the World Petroleum Council «Energy Transition: Dialogue of Generations» was held at Kazakh-British Technical University these days. The forum was organized by the Youth National Committee of the World Petroleum Council which unites about 60 world oil and gas countries.

3.1. OPENING OF COMPETITION FINAL



AIGERIM SULTANOVA

Assistant to Head of Oncology Division in Kazakhstan, Uzbekistan and Mongolia of the Branch of Novartis Pharma Services AG in the Republic of Kazakhstan

Moderator of StudentDigitalFest

On September 29, 2022, at 10.00 a.m., opening of the Final of the third season of "StudentDigitalFest" took place with participation of the finalist teams, research advisors, experts, award panel and organizers.

Lyazzat Akhmurzina, Executive Director of KAZENERGY Association, welcomed the finalists.

"Dear participants and guests, I am happy to welcome all participants of the third season of "StudentDigitalFest" Competition!

I deeply appreciate your choice to participate in a competition that requires your time, energy, imagination and courage. By winning the qualifying stages, you have shown team cohesiveness and determination to win. I hope that StudentDigitalFest, no matter what place the team takes, will become a springboard for a future professional career. I would like to wish all finalists success in a fair fight for prizes in the final round. And most importantly - success in your personal plans, health and kindness!"



Yuliya Piven, Digitalization Advisor of Karachaganak Petroleum Operating B.V., made greetings on behalf of sponsors.

"Dear Colleagues! Dear Friends! On behalf of Karachaganak Petroleum Operating B.V., I am glad to welcome participants of "StudentDigitalFest" which takes place in Almaty City at Kazakh-British Technical University. During two days of the competition, you will compete for the title of the best team of 2022 demonstrating your knowledge and skills, professional skills and life experience, improvisation and creativity. Conducting such competitions is one of the steps towards the future. I wish success to all participants self-

confidence and, of course, bright, positive emotions from communication with colleagues and friends!"

3.2. WELCOMING SPEECH TO FINALISTS

Competition is always excitement, creative thrill and inspiration. It gives new experience, new ideas, desire to change and grow or stop and rethink your actions. Sharing the gained experience among professionals is a truly unique chance. Members of the award panel of “StudentDigitalFest” welcomed the finalists. Each of the Jurors gave the most cordial greeting and wished success to teams.

AWARD PANEL



FINALIST TEAMS



Amplified
SiteLine



MAYDAI
Dispose



BUSY
DUUAI



Shoqan

3.3. AWARD PANEL

Work of the teams was evaluated by professional award panel – representatives of Karachaganak Petroleum Operating B.V., oil and gas industry, besides industry long-service employee, member of the Union of Oil and Gas Complex – Kituyev Balgazy Nurgaziyeovich was also invited.





Xeniya Yurkavets, Head of Energy Transition Division, KPO, President of Jury

Amir Dospayev, Integrated Field Modelling Engineer, KPO

Zemfira Tulemissova, Environmental Expert, KPO

Nurbek Jabashev, Production Data Management System Engineer, KPO

Dinara Aldamzharova, Energy Conservation and Efficiency Expert, KPO

Nurdaulet Mukulbekov, Integrated Field Modelling Engineer, KPO

Jury tasks:

- signing a declaration on absence of a conflict of interests;
- study and consideration of the project passports of the finalist teams;
- familiarization with expert opinions for each project passport;
- evaluation of passports of projects/solutions of the semi-finalist teams in the Final stage during the defense of project passports;
- evaluation of visualization of the project passport of finalist teams;
- discussion to determine the Competition winners under established Competition criteria;
- making decisions on winning teams with the award of prize fund;
- signing the Competition minutes.



A month before the Final of the Competition, 7 (seven) team works were sent to the Competition jury members for review.

1	Amplified , Kazakh-British Technical University	"Waste Management" Automated System"
2	Dispose , Almaty Management University	
3	Shoqan , Kokshetau University named after Sh.Ualikhanov	
4	MAYDAI , Almaty Management University	"Optimization of well production collection system using machine learning methods"
5	BUSY , Astana IT University	
6	DUUAI , Nazarbayev University	"Digital Catalogue of Wells"
7	SiteLine , Kazakh-British Technical University	



The work of the teams was evaluated under the following criteria:

- Clarity in justifying the purpose, objectives and practical significance of the project;
- Substantiation of the implementation of the project on digitalization from a technical and economic point of view and compliance with the current state of science, engineering and technology;
- Persuasiveness/understanding and mastery of the theme and clear presentation of the project solution;
- Justification of expected result;
- Ability to answer the questions of the Jury (demonstration of material proficiency);
- Visualization of visual aids in the project presentation.

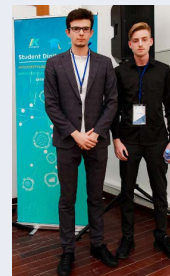
3.4 FINALIST TEAMS



«Amplified»
Kazakh-British Technical University
Aitan Aibek Tlepbergenuly
Utumov Tamirlan Nurymzhanuly
Shyntasuly Narul (Online)



«Dispose»
Almaty Management University
Lindt Bella Petrovna
Dadabayev Asatulla
Auezkhan Daniyar Kairatuly



«Shoqan»
Kokshetau University named after
Sh.Ualikhanov
Shokorov Vladislav Yuriyevich
Kochinov Danila Andreyevich



«MAYDAI»
Almaty Management University
Omurbekova Nuraim Mirlanovna
Chynybekov Islambek Chynybekovich
Temirkhan Jamilya Orazkhankyzy



«BUSY»
Astana IT University
Khajidursunogly Sultan Khazretovich
Kudaibergen Ulpan Tolepbergenkyzy
Edgenova Yerkezhan Naurzbayevna
Batyrkhan Shutenov



«SiteLine»
Kazakh-British Technical University
Syrym Serikov
Daniyar Kazi (Online)



«DUUAI»
Nazarbayev University
Zhunis Ali Zhanatuly
Ulan Tore Seriluly



3.5 WORK OF AWARD PANEL

Smart Team Competition Assessment Sheet on the topic/Оценочный лист командного конкурса «StudentDigitalFest» по теме ТЗ: _____

Name of expert/Ф.И.О. эксперта: _____ Date/Дата: _____ Signature/Подпись: _____

Evaluation proceeds with 10 maximum points / Оценка производится по 10-балльной шкале, где:
9-10 (excellent/отлично); 6-8 (good/хорошо); 4-5 (satisfactory/удовлетворительно); 1-3 (not satisfactory/неудовлетворительно)

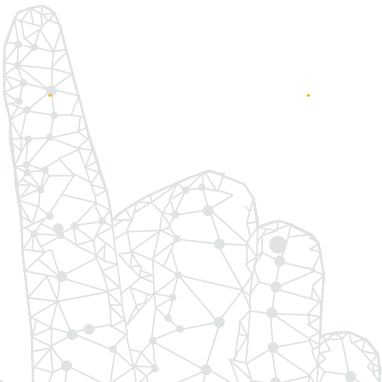
(оценка публичной защиты)

№ п/п	Name of the team/ Название команды (ВУЗ)	Project Theme/ Тема проекта	Project Expertise/ Экспертиза проекта	Additional points for self-development of the video and/or demonstration in the life-mode of the project passport /Дополнительные баллы за самостоятельную разработку видеоролика и/или демонстрацию в live-режиме паспорта проекта*		Clearly in substantiating the goal, task and practical significance of the project /Четкость в обосновании цели, задачи и практической значимости проекта	Justification of the project for the digitalization of the technical and economic point of view and compliance with the current state of science, engineering and technology /Обоснование реализации проекта по части цифровизации конкретной области и обоснование точки зрения и соответствия современному состоянию науки, техники	Persuasiveness / understanding and mastery of the topic and clear presentation of the project design / Убедительность, понимание и владение темой и умение изложить проектного решения	Justification of the expected result / Обоснование ожидаемого результата	Ability to answer questions from the jury (demonstration of material ownership)/ Умение отвечать на вопросы Жюри (демонстрация владения материалом)	Visualization of the project presentation/ Визуализация материала средств в презентации проекта	TOTAL SCORE (max. – 70 points)/ ИТОГОВАЯ ОЦЕНКА (макс. – 70 баллов)					
				Maximum - 5 points максимально – 5 баллов	Maximum - 5 points максимально – 5 баллов												
				Maximum - 10 points максимально – 10 баллов													
				Maximum - 10 points максимально – 10 баллов													
1				1		2		3		4		5		6		7	
2																	
3																	
4																	
5																	

* На основании пункта 26 Положения за самостоятельную разработку видеоролика команде начисляются до 5 (пяти) баллов, за демонстрацию проекта решения в live-режиме – до 5 (пять) баллов, за самостоятельную разработку видеоролика и демонстрацию проекта решения в live-режиме – до 10 (десяти) баллов. Данные баллы являются дополнительными и не относятся к оценке качества и содержания визуализации (графа 1).

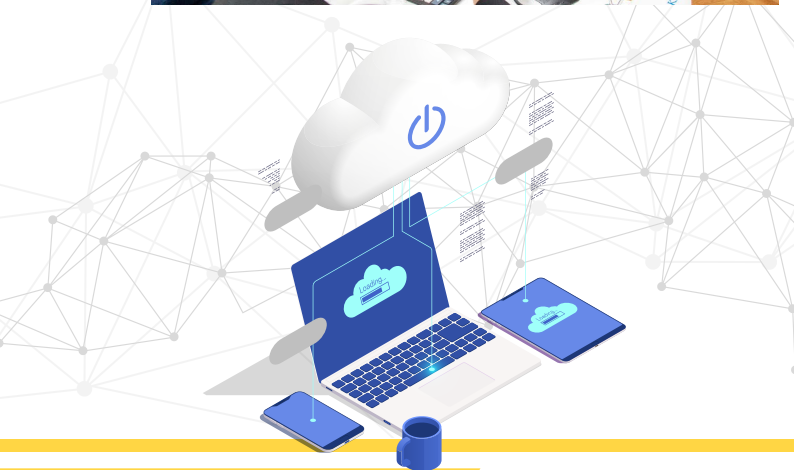
Work of the Jury award panel of "StudentDigitalFest" is regulated by the Regulations on competition. The Jurors members evaluate teams collectively based on own professional experience and competence guided by established criteria that is the same for all participants.

Points and rating are used to evaluate the teams. Each project is estimated by each award panel member based on each criterion and is fixed in the Assessment Sheet of the award panel member.





DEFENSE OF FINALIST TEAMS



3.6 PARTICIPATION OF TEAMS IN TRIZ ONLINE TRAINING

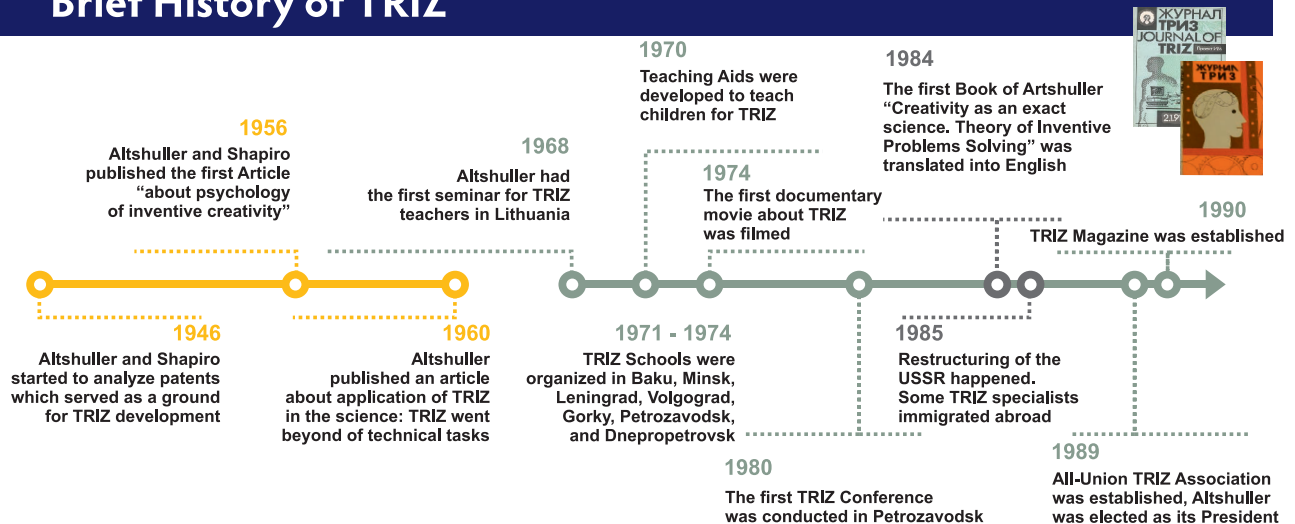
On September 29, 2022, an online training was organized for all participants of the Competition with invitation of the President of the International Association of Theory of Inventive Problem Solving (TRIZ) – Mr. Oleg Feigenson who is currently also the Chief Engineer of the Global Research Center of Samsung Electronics in Suwon, South Korea.

During two-hour training, the participants got acquainted with a brief history of TRIZ, main TRIZ provisions, experience of TRIZ application in the leading global corporations. Separately, examples of completed projects were presented.

The training participants were actively involved in the discussion process, offered ideas, exchanged views.

The training was organized in order to teach students to choose goals and tasks of innovative projects, study approaches to identify technical tasks within innovative projects, and get acquainted with tools of a modern TRIZ, as well as to teach the students to improve skills to apply tools of a modern TRIZ in solving tasks arisen in the process of innovative activities.

Brief History of TRIZ



- TRIZ was developed by two persons: G.S.Altshuller and R.B.Shapiro.
- TRIZ spread throughout the USSR. Developments were conducted by Altshuller and his students.
- TRIZ spread globally.

Based on GEN TRIZ Company study materials.

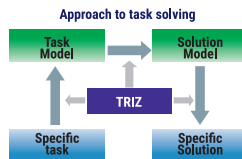


TRIZ is a Theory of Inventive Problem Solving formalized in the methodology which is applied globally. Author of the theory is the Soviet science-fiction author, engineer and inventor Genrikh Altshuller who

studied more than two hundred thousand patents in order to understand how the invention process works from the inside.

TRIZ approach in solving tasks

- A huge number of inventive problems that exist in the world can be modeled by a limited number of "typical" problems.
- To solve "typical" problems, there are "typical" solutions



The first ideas of the theory appeared in the middle of 1940s of the last century, took shape by the end of 1970s and is represented as an analysis of how to find effectively the most suitable solution with minimal expenditure of resources.

TRIZ offers a structured approach to thinking and a number of tools (techniques) that allow you to come up with new things, and find non-standard.

The main advantage of TRIZ according to practitioners and scientists, is that the methodology is well systematized, reproducible, reliable, does not depend on psychological aspects of different people and gives more knowledge about how creativity works. The process of solving inventive problem of TRIZ consists of the following steps:

1. Define the task;
2. Indicate all contraindications which are subject to elimination in order to solve the defined task;
3. Describe a desired ideal end product;
4. Define the resources that you are able to allocate in order to achieve the result;
5. Apply one (or several) technique(s) described in the theory to solve the task;
6. Analyze results.

Training courses



4. StudentDigitalFest WINNERS AWARDING CEREMONY

As part of the VII Youth Forum of the World Petroleum Council «Energy Transition: Dialogue of Generations» held in Almaty at Kazakh-British Technical University on September 29-30, 2022, the Final of the third season of the team competition «StudentDigitalFest-2022» (hereinafter referred to as the Competition) was conducted.



For the third year in a row, the best students from all universities in Kazakhstan get a chance to solve real problems of the oil industry by offering their original technologies in the field of digitalization and automation of processes¹.

For four months, 22 teams, consisting of students of different courses and majors, worked on a wide range of technical tasks - from optimizing the ground infrastructure using machine learning methods to automating the waste management process under the guidance of KPO various departments.

On September 30, 2022, the winners of the third season of "StudentDigitalFest" were awarded in Abai Hall.

"StudentDigitalFest" began with a speech by Ulan Burkotov, Head of KPO Digitalization and Continuous Improvement Department who noted that the most important thing in this competition is that the winners will have a unique opportunity to meet leading practitioners of the company.



He wound up his speech by wishing success to teams in the new academic year, and also stressed that the competitions give the students- future specialists, an opportunity to contribute to the development of the industry through ideas that can be applied in practice and in the future.

The Jurors shared their impressions about Competition's final stage and noted that it was difficult to evaluate teams. Each presented project was unique.

Besides the Jury members noted a high-quality of presentations prepared by teams, the competition will allow to have a fresh look at development of intellectual skills of young talents, and actively involve students to project work.

¹ <https://zhaikpress.kz/ru/news/kpo-podderzhala-provedenie-intellektualnogo-komandnogo-konkursa-student-digital-fest/>



Competition Organizers are KAZENERGY Association and Karachaganak Petroleum Operating B.V. (KPO), long-standing partner of KAZENERGY and Competition Sponsor.

4.1. CERTIFICATES AWARDING TO TEAM MEMBERS

By traditions of the Competition, all participants are awarded with certificates on behalf of KAZENERGY and Karachaganak Petroleum Operating B.V. The solemn awarding ceremony was held at Kazakh-British Technical University and conducted by the Jurors before announcement of 2022 season winners.



Yuliya Piven

KPO Digitalization Advisor

Team «Amplified»

Kazakh-British Technical University

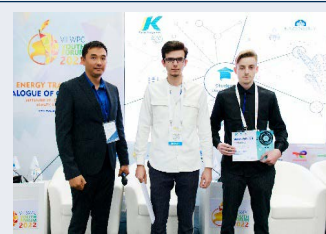


Xeniya Yurkavets

*Head of KPO Energy Transition
Department, Jury Chairman*

Team «Dispose»

Almaty Management University



Amir Dospayev

*KPO Integrated Field Modelling
Engineer
Jury member*

Team «Shoqan»

Kokshetau University named after
Sh.Ualikhanov



Nurbek Jabashev

*KPO Production Data Management
System Engineer
Jury Member*

Team «MAYDAY»

Almaty Management University



Zemfira Tulemissova

*KPO Environmental Expert
Jury Member*

Team «BUSY»

Astana IT University



Dinara Aldamzharova

*KPO Integrated Field Modelling
Engineer, Jury Member*

Team «SiteLine»

Kazakh-British Technical University



Nurdaulet Mukulbekov

*KPO Integrated Field Modelling
Engineer, Jury Member*

Team «DUUAI»

Nazarbayev University



4.2. ANNOUNCEMENT OF WINNING TEAMS

Winners of the third season of 2022 “StudentDigitalFest”!

On the theme “Optimization of well production collection system using machine learning methods”:

Team **«BUSY»**

Astana IT University, Astana City



Team **«Shoqan»**

Kokshetau University named after Sh.Ualikhanov



**On the theme “Waste Management”
Automated System”:**

Team **«Dispose»**

Almaty Management System



**TOTAL PRIZE FUND OF
THE COMPETITION
CONSTITUTED MORE
THAN**

**15 000
US DOLLARS**

Competition Organizers represented by Karachaganak Petroleum Operating B.V. and KAZENERGY Association do hereby congratulate the winners and wish them further success in achieving goals and implementation of projects!

More details on Competition at: <https://kazenergy.com/ru/operation/educational-program/160/1770/>

5. FINALISTS SURVEY



In the period from October 30, 2022 to November 7, 2022, the Organizers conducted a survey of 7 teams of "StudentDigitalFest" which participated in the Final Stage in Almaty.

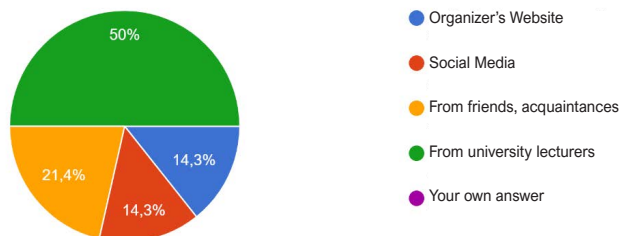
The survey was performed anonymously and was composed of questions that include such directions like: informing on competition, role of organizers, relevance of the prize fund, difficulties during the competition and etc.

The main aim of the survey is to receive feedback to improve the way of conducting competition.

1. HOW DID YOU FIND OUT ABOUT "StudentDigitalFest"?



50% of 7 (seven) teams were informed by university lecturers, 21.4% of them were notified by own friends, acquaintances, and etc., 14.3% participants found out about competition via social media (Facebook and Instagram), exactly the same number of respondents got informed visiting the website of KAZENERGY.





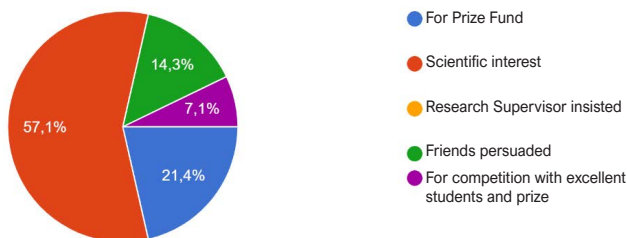
2. WHEN THE PARTICIPANTS WERE ASKED ABOUT HOW THEY UNDERSTAND KPO'S ROLE AND PARTICIPATION IN THE COMPETITION,

55% noted a deep understanding of KPO's participation as a partner and sponsor of the Competition thanks to which this event is held annually. For 21% of those surveyed, KPO's participation consists in support in the development of technical specifications. 7% of respondents noted that KPO sponsoring this competition sets certain tasks for which students need to find a solution. The remaining 17% of participants did not respond.



3. OTHER 57.1% OF STUDENTS TO THE QUESTION: "WHY DID YOU DECIDE TO PARTICIPATE IN COMPETITION?"

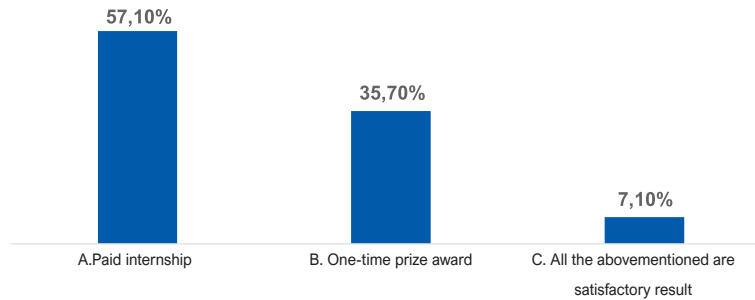
» noted scientific interest; 21.4% for Prize Fund; 14.3% of respondents were pursued by friends and 7.1% of participants gave own answer.



4. THE MOST ATTRACTIVE PRIZE FUND OF THE COMPETITION FOR STUDENTS IS A PAID INTERNSHIP ACCORDING TO 57.1% OF RESPONDENTS.

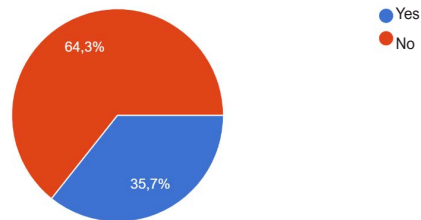
A paid internship gives a chance not only to cover the living expenses, but also the opportunity to grow as a professional in the future.

35.7% chose the answer - a one-time prize reward. A one-time student prize, not only an attractive prize, but also a convenient one. Students noted the coverage of basic expenses, as well as the opportunity to have their own capital. The remaining 7.1% of respondents considered all of the above answers to be attractive for the prize pool.



5. DID THE TEAM HAVE ANY DIFFICULTIES WITH ITS FORMATION?

More than half of students, namely 64.3% of respondents noted that they had no difficulties. However, 35.7% of respondents answer that they faced with some problems.



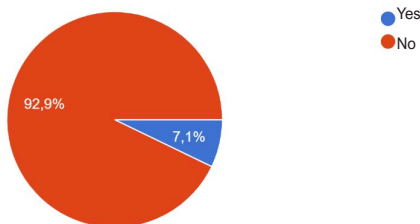
The main reason why there were difficulties in the team is the lack of time due to study, as noted by 57.1% of respondents out of 35.7% who previously answered question 5. Low motivation also created difficulties for 28.6% of respondents. The remaining 14.3% of students did not answer the question.





6. DID THE TEAM FACE ANY DIFFICULTIES IN FILLING OUT ELECTRONIC APPLICATION FORM FOR REGISTRATION IN THE COMPETITION?

Almost all respondents easily registered the teams (92.9%) and only 7.1% of participants still faced difficulties. Option "Tick" was not active on the consent for collecting and processing personal data.



7. HOW IMPORTANT IS IT TO INVOLVE KPO EXPERTS IN THE DEVELOPMENT OF TECHNICAL TASKS?

71.4% of students noted that involvement of a KPO expert is mandatory, because their experience helps in the development of the project passport. 28,6% of the respondents independently coped with the development of the draft passport without expert's help.



8. WHICH STAGE OF THE COMPETITION WAS THE MOST COMPLICATED?

Students were provided with several answers.

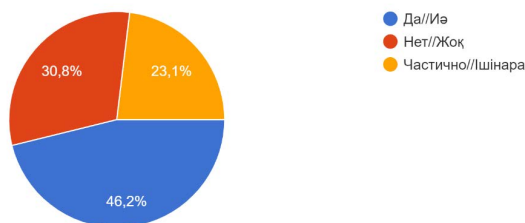
57.1% of respondents consider development of a solution on the theme of technical task is the most difficult stage in the Competition, 42.9% - defense of the team in the Final stage, including 14.3% noted difficulties during formation of the team, 7.1% - filling out electronic questionnaire.

Development of a solution on the theme of technical task is the most complicated stage according to respondents. This is due to the fact that technical tasks are given on certain topics, students note that this requires the study of additional material in the technical field.



9. HAVE YOU INVOLVED KPO EXPERT IN YOUR WORK?

According to the terms of the Competition, participants can take part in individual consultations with KPO experts on finding solutions for technical tasks. This year, 46.2% of students took advantage of this opportunity, 30.8% of respondents decided to work on the project independently and 23.1% of respondents partially involved an expert to their work.



10. WHAT CONTRIBUTION DID KPO EXPERTS MAKE TO THE TEAMS WHEN WORKING ON THE PROJECT?

Among those who involved the KPO expert, it was noted that he helped in guidance and motivation. Experts explained the work, answered questions, explained the task. Among those students who did not involve the KPO expert, according to the participants, there was enough information to develop a solution. Participants who partially involved an expert did not need additional assistance because they had a supervisor.

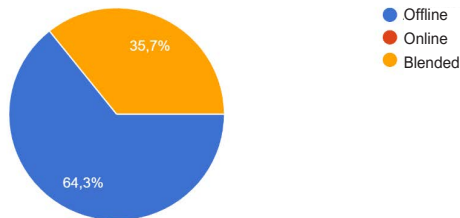


11. WHAT TOPICS IN THE FIELD OF DIGITALIZATION IN OIL AND GAS INDUSTRY ARE RELEVANT TODAY ACCORDING TO YOUR OPINION, AND WHICH OF THEM COULD BE INCLUDED IN THE LIST OF THE COMPETITION FOR NEXT YEAR 2023? PLEASE GIVE AN EXPAND ANSWER.

1. Automation, 2. Optimization of work, 3. Machine Learning, 4. Emission Reduction, 5. Digitalization, 6. Oil Addiction.



12. WHAT FORMAT IS THE MOST SUITABLE FOR CONDUCTING THE COMPETITION AND WHY?



64.3% of students chose offline format of the Competition because participants have the opportunity to see competing teams live, meet new people, communicate with the Organizers and Sponsor.

35.7% of respondents consider the blended format to be the most profitable because it does not create unnecessary movements.



13. WHICH STAGES OF THE COMPETITION (registration, consultations with experts, preparation of a video of the team in the Finals) should be shortened/prolonged/ excluded/supplemented in your opinion and why? Please write down your proposals.

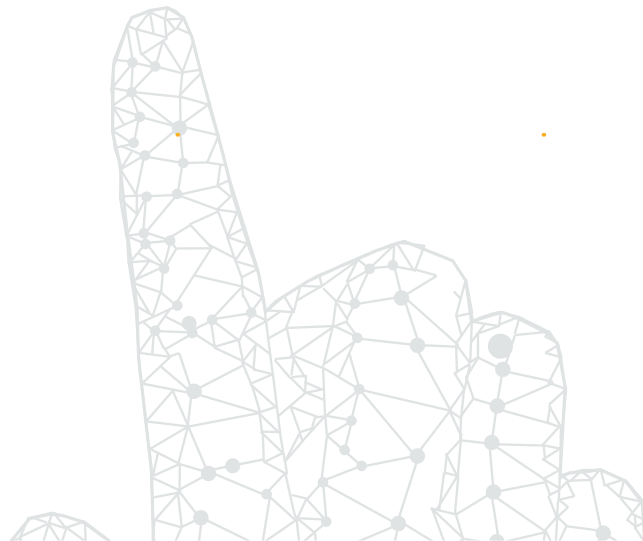
41% of respondents are satisfied with all stages of the competition.
The following comments were received:

- exclude preparation of video presentations;
- reduce the time for development of technical specifications to a month;
- prolong the time for defense to 25 minutes.



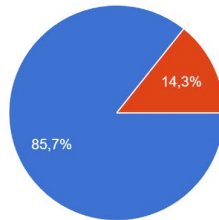
14. WHAT IS THE MOST IMPORTANT LESSON YOU HAVE LEARNED DURING YOUR TEAMWORK IN THE COMPETITION?

1. Take your time
2. Don't lose hope
3. Patience and work
4. Planning and discipline are the basis of any success
5. Good team
6. Motivating each other
7. One together and all for one
8. Ability to delegate tasks
9. You need to know the audience first
10. Teamwork





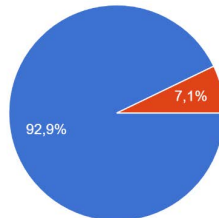
15. YOU ARE A UNIVERSITY STUDENT ENROLLED IN THE PROGRAM



● Bachelor Program
● Master Program



16. WILL YOU RECOMMEND “StudentDigitalFest” TO FRIENDS AND ACQUAINTANCES?



● Yes
● No (please indicate the reason)



17. ORGANIZERS OF THE COMPETITION ARE GRATEFUL FOR REPLIES AND WOULD APPRECIATE YOUR SUGGESTIONS FOR IMPROVING COMPETITION TERMS.

Respondents also thank the Organizers of the Competition for holding it, note that this is an invaluable experience for their team.

A few suggestions from students:

- more time for defense;
- exclude video presentations;
- involve more experts in ML topics;
- distribute information on the Competition also in telegram channels.

COMPETITION PHOTO GALLERY

FIRST COMPETITION DAY, SEPTEMBER 29, 2022, KBTU



Figure 1. Preparation of the hall for team defense



Figure 3 Award panel

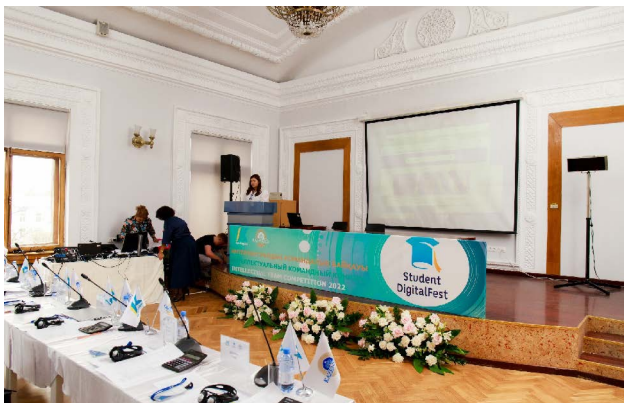


Figure 2. Preparation of the hall for team defense

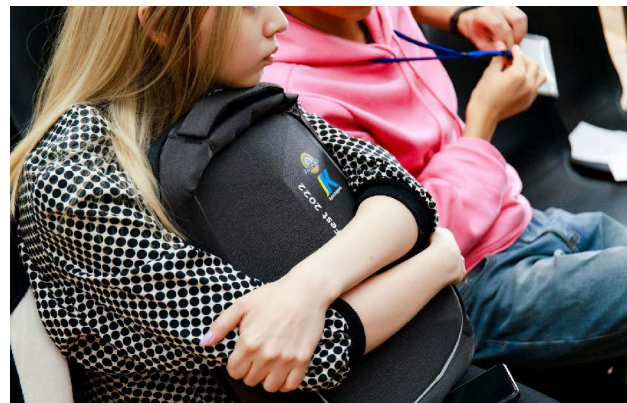


Figure 4. Participant's backpack

START OF A TEAM DEFENSE TO AWARD PANEL



Figure 5. Arrangement of SDF-2022 competition hall



Figure 8. Welcoming speech of K.Yurkavets, KPO



Figure 6. Welcoming speech of L.Akhmurzina, KAZENERGY



Figure 9. Questions of teams

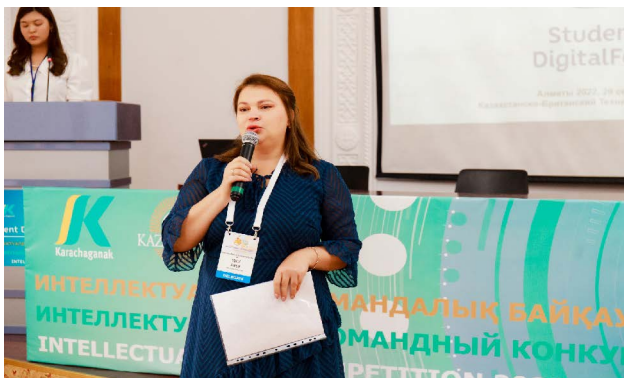


Figure 7. Welcoming speech of Yu.Piven, KPO



Figure 10. Questions to teams



Figure 11. Discussion of award panel



Figure 14 Team "Dispose" and their solution



Figure 12. Defense of "Amplified" Team



Figure 15 Questions of the Juror to teams



Figure 13. Defense of "Dispose" Team

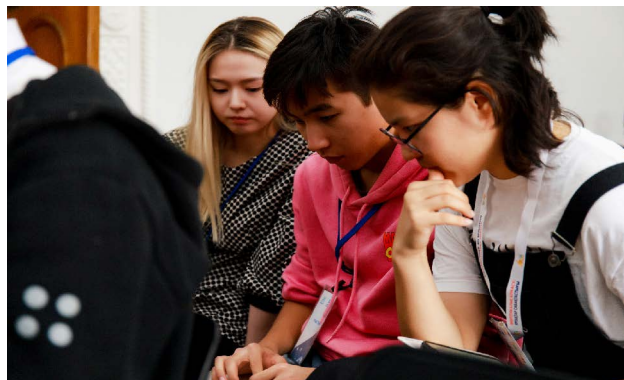


Figure 16 Preparation of a team for defense



Figure 17 Questions of the Juror to teams



Figure 20 "SiteLine" Team



Figure 18 Defense of "MAYDAI" Team



Figure 21 Questions of the jury member to teams



Figure 19 Questions of the Juror to teams



Figure 22 Defense of SiteLine Team



Figure 23 Defense of "DUUAI" Team



Figure 25 Applause for teams



Figure 24 Defense of "DUUAI" Team



FINALISTS AWARDING CEREMONY DATED SEPTEMBER 30, 2022



Figure 26 Abai Hall at KBTU



Figure 29 Ulan Burkotov, Head of KPO Digitalization Unit



Figure 27 KPO Employees



Figure 30 Xeniya Yurkovets, KPO



Figure 28 Awarding Ceremony



Figure 31 Dinara Aldamzharova, KPO



Figure 32. Zemfira Tulemissova, KPO



Figure 35. Amir Dospayev, KPO



Figure 33. Nurbek Jabashev, KPO



Figure 36. Lyazzat Akhmurzina, KAZENERGY



Figure 34. Nurdaulet Mukulbekov, KPO



Figure 37. Yuliya Piven, KPO



Figure 38 Team "BUSY" - Winners



Figure 39 Team "BUSY" - Winners



Figure 40 Team "DISPOSE" - Winners



Figure 41 Team "DISPOSE" - Winners



Figure 42 Team Shoqan -Winners



Figure 43 SDF Winning Teams



Figure 44 SDF Winning Teams



Figure 45 Competition Participants – 2022

StudentDigitalFest



Student
DigitalFest

Astana, 2022

**KAZENERGY Association and
Karachaganak Petroleum Operating B.V.
congratulate heartily the winning teams
of “StudentDigitalFest” and express own
gratitude to all participants! We wish
further success and professional growth!**

www.kazenergy.com

Educational activity
Team competitions



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