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Implementation of the dual system in Kazakhstan / KAZDUAL

MONITORING REPORT Y2

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1. INTRODUCTION

"KAZDUAL - Implementing dual system in Kazakhstan " is a three-year project co-financed by the Capacity building in HE (Erasmus +) program. As a structural project, based on a multi-stakeholder partnership between higher education institutions from the EU and Kazakhstan, the project started in January 2021 and will end in January 2024. The project's overall goal is to enhance the competencies of higher education graduates in Kazakhstan through pilot programs under the dual system following the needs of employers so that universities increase the employability of graduates' employability and improve cooperation with the private sector. Higher education institutions from 4 (four) countries participate as partners in the project: Kazakhstan, Germany, Estonia, and Austria; 2 VET organizations from Kazakhstan, 3 Accreditation Agencies and Network for QA from Kazakhstan, Germany and the Ministry of Education and Science of Kazakhstan. The specific target groups of the project are academic staff/teachers/HE, QA accreditation reviewers/technicians/curriculum developers and students.

The project aims to adapt the dual system in Kazakhstan, which will increase the competence of students following the needs of employers, increase the employability of graduates and strengthen cooperation with the private sector.

The main tasks of the project that need to be solved to achieve the overall goal:

1. Propose changes to the legislation/regulations for adapting dual education in Kazakhstan.
2. Provide students with the opportunity to acquire more up-to-date knowledge and skills by combining formal education with on-the-job training.
3. Develop a dual higher education system model that supports the different needs and interests of employers, higher education institutions and students in various industries, and provide recommendations to higher education institutions on the implementation of dual education.
4. Synchronize vocational college programs with post-secondary entry requirements.
5. To increase the motivation of students to study and the interest of universities and companies in supporting and implementing dual education, as well as to reduce student dropout.
6. Establish links and a research centre - the Observatory of Dual Education and Training.

The purpose of the present assessment is to offer a mid-term evaluation report of the KAZDUAL project, providing an independent, objective and systematic assessment of this ongoing project. It aims to determine the relevance and level of achievement of project objectives, development effectiveness and efficiency and impacts till date as well as a strategy for sustainability. The scope of the external evaluation is exclusively associated with the KAZDUAL project and affects all partners belonging to the project consortium and other stakeholders participating in the project. It covers only the organisational, administrative, and managerial aspects of the project. The external

evaluation is a tool of good practice to verify that the project is being addressed correctly in order to achieve the project objectives and deliverables planned.

The time frame of the external mid-term evaluation lasted for one month, starting with the sight visit to TTK, Tallin in August 2022. The full report provides a general introduction of the project aims, framework and work packages followed by specification of current status and progress of the project. In order to carry out the External Evaluation, the evaluator was given access to all relevant external and internal documents through Google drive at https://drive.google.com/drive/folders/1lxWVnPCYnZYqnfYVEYCZskETvHZ?usp=drive_link TO3F5

Feedback from project partners and from the co-ordinator is presented with comments on the development strategy. The report concludes with recommendations for streamlining the project delivery.

Institution	Status
SKSU- shyment + SKSU college	Yellow
OVGU - magdeburg	Green
TKK - Tallin	Green
PTH - innsbruck	Green
ACQUIN - Bayreuth	Green
CEENQA - düsseldorf	Green
KazNPU - Almaty	Green
KSU - karaganda	Green
SSSU - semey	Green
MERSK - nursultan	Red
IQAA - nursultan	Red
KHPC- Karaganda	Green
ECollege Semey	Green

2. REPORT FOR EACH PACKAGE OF WORK

WP1. Preparation of KAZDUAL

This analysis and assumptions are based on the project quality assessment methodology. The main bottlenecks were articulated: the density of the work schedule and poor communication between management and the consortium. Also, as possible threats, the project's success directly depended on the personal contribution of those responsible for the work packages. The restrictions associated with the Covid-19 pandemic also played an important role, which in turn was repeatedly highlighted by the project partners. Over time and since the active conduct of training and personal

meetings, the trend of communication issues and partners' involvement in project activities have positive trends. A pleasant and fruitful atmosphere has developed in the consortium, contributing to achieving the set goals and objectives.

In July 2021, a training programme was developed and completed by the Kazakh partners. Further refinement of the 2-week training programme in OVGU Magdeburg (Germany) and PHT Tirol (Innsbruck, Austria) was conducted until July 2022.

According to the defined programme, 5-6 teachers at each university and college took part in 2-week training courses in Germany and Austria (two weeks in Germany and two weeks in Austria). In total, 35 teachers from Kazakhstan were trained in Germany and Austria.

The main goal of the trainings is to train trainers who were familiarized with the preparation of curricula together with employers, got acquainted with the assessment of the quality of curricula. Excursions to educational institutions and enterprises where students do their internships are organized. The features of drawing up contracts with employers together with the Chamber of Industry are considered.

The training system being implemented in Kazakhstan differs from the model presented by the trainers from Germany and Austria. Since the beginning of the project, the following external problems have been identified within the Kazakh partners:

1. in the region there is no list of basic enterprises that are ready to become partners in the implementation of the dual model of education / the college selected enterprises that are ready to cooperate, conducted a survey, developed a working curriculum that involves the joint training of specialists necessary for production;
2. contracts with enterprises are concluded by educational institutions, and not by regional bodies (the Chamber of Entrepreneurs, industry communities) / coordination of actions by the Chamber of Entrepreneurs is necessary;
3. there are no developed requirements for enterprises that have the opportunity to introduce a dual training system / imperfect legal framework;
4. Poorly organized internships for teachers of special disciplines and masters of industrial training at enterprises, as well as advanced training courses for teachers of special disciplines / contracts concluded with enterprises include issues of conducting internships at the enterprise;
5. poor training of future teachers of vocational education on the organization and methods of teaching in dual education / seminars were held by members of the working group;
6. lack of a legislative framework regulating the issues of cooperation (interaction) between educational institutions and enterprises / it is necessary to introduce recommendations noted within the framework of the project into the legislative acts of the Republic of Kazakhstan.

Within the consortium, some of the risks identified for this WP are:

- Absence of physical preparatory meetings/workshops due to COVID-19 and political instability in Kazakhstan in the beginning of the project (Measures: organisation of meetings moved virtual environment; number of meetings organised in a virtual environment)
- Building project ownership (Measures: organization of meetings/trainings of the representatives of partner organisations, working on joint activities, networking),
- Not fully explored vision on the design of the pilot programmes (criteria, process, responsibilities, role of each partner), Measures: Coordination meetings with partner organisations, preparation of a more detailed work programme with the division of tasks and timeline,
- Not fully explored target groups for dissemination (Measures: Dissemination within the CEENQA network and its members, identification of target groups/HEIs interested in implementing dual education),
- Lack of communication among project partners in the beginning of the project (Measures: number of additional meetings organized in a virtual environment, physical partner meetings in Tallinn and Bayreuth, enhanced reporting and guidance on the specific tasks and expectations),
- Not fully explored qualitative indicators to monitor the quality of activities (Measures: organisation of partner meetings, gaining feedback from stakeholders).

Until now, not effective legislative framework regulated the issues of interaction between educational institutions and enterprises. However, the project KAZDUAL team prepared recommendations to the Ministry of Education to make clear, systematic, legislatively changes that will be noted in the legislative acts of the Republic of Kazakhstan.

Assessment of WP1 (1-low, 5-high)

WP1 indicator	1	2	3	4	5
An overview of EU best practices and experiences in a dual system.					X
Transfer of knowledge and skills from Germany and Austria.					X
Adaptability Report and Recommendations				X	

WP2 Develop and adapt learning materials for the classroom and workplace with appropriate training

From the point of view of the training organizations, it is possible to single out the theoretical content of the materials as a negative aspect. At the same time, the need for an applied and practical component was often articulated. It was also noted about the overlap of the topic in the training content. During the project activity, the training program was adapted to the partners' needs to highlight attractive issues in the accreditation and quality assessment processes, which is also evidenced by the high ratings the project partners gave on the relevance and importance of the training provided. A positive aspect is a timely received feedback, and the consolidated work carried out to bring the training programs to the project's needs.

Due to the organisation of two trainings (one in Magdeburg and another in Innsbruck) the contents had to be condensed - this made the program very intensive. Thereby, participants were required to create portfolios per each HEI/college, which were then evaluated by OVGU and PHT. Some of the contents in the portfolios was written in Russian.

In 2022, a third training took place at Tallinn University of Technology (Estonia). Members of the working group participated in trainings and seminars organized in Kazakhstan: in Karaganda and Semey.

September 21-23 in the training "Training for trainers" at the Karaganda University, academician E.A. Buketov, a presentation of the project of Kazakh partners KazDual was held, aspects of cooperation with companies within the framework of a dual training program, mentoring and advanced training of teachers at enterprises were considered. An excursion was organized for the project partners to the Qaz Techna passenger bus manufacturing enterprise, which cooperates with the college on a dual training system. The continuation of the training "Trainer of trainers" was held in the city of Semey.

In 2022 in Tallinn and in 2023 in Astana, meetings were held with representatives of independent accreditation agencies of Kazakhstan IQAA and Germany ACQUIN and CEENQA. Members of the working group participated in the seminar on the requirements of national accreditation, got acquainted with the main aspects of the European quality assurance system, with the standards applicable to KazdDual.

Representatives of the consortium attended the ACQUIN seminar on quality assurance and accreditation in Bayreuth (Germany). The seminar addressed the issues of the accreditation process of the ACQUIN program, the work plan for KazDual accreditation, and the preparation of a self-report.

Thanks to the organization of trainings, standards for pilot accreditation of training programs were developed jointly with the accreditation agencies of Germany and Kazakhstan.

Within the framework of the KAZDUAL project, together with Karaganda University named after E. A. Buketov, Karaganda EnergoCentre LLP, Karaganda Turbomechanical

Plant LLP and Karaganda Energoremont LLP, it was planned to develop an integrated working curriculum for the specialty "Heat power plants of thermal power plants", designed for training in college for 2 years with the assignment of 2 working qualifications "Machinist-crawler for boiler equipment" and "Machinist-crawler for turbine equipment" and subsequent training at the university for 2 years with the qualification "Bachelor of Thermal Power Engineering".

At Shakarim University of Semey, Semey branch of JSC "NC KTZ", Semey branch of the main network "Semey power supply distance", JSC "United Energy Service Company", SCP "Teplokommunenergo" developed an integrated curriculum for the specialty "Power supply" (by industry), designed for training in the college for 3 years with the assignment of the working qualification "Electrician (by industry)" and a specialist of the middle level "Electrician- technician".

Auezov South Kazakhstan University (Auezov SKU): the directions of development of dual education - energy and mechanical engineering are included in the Atameken register.

Partners of the university:

- 1) TOO "KARLSKRONA LC AB".
- 2) Asia Trafo LLP

Kazakh National Pedagogical University named after Abai (KazNPU named after Abai): directions of development of dual education – " Primary education Communication Technologies entered in the register of the Ministry of Education and Science of the Republic of Kazakhstan.

Partner of the university:

- 1) New Generation School

In 2022, within the framework of the Kazdual project, an experimental group on the basis of general secondary education (11 classes) was not recruited, due to the lack of a regulatory framework governing the process of transition of students from college to university, taking into account education on a budgetary basis, thus, as an experimental defined a group based on basic secondary education (9 grades).

Working Curriculum according to the dual system of education for the experimental group was developed on the basis of the State Compulsory Standard for Technical and Vocational Education (GOSO) of the Republic of Kazakhstan No. 348 of 08/03/2022, professional standard "Operation and repair of boiler-turbine equipment" Order No. 86 dated 05/02/2019, taking into account the recommendations of employers.

Working curriculum agreed with Karaganda Turbomechanical Plant LLP, Karagandaenergoremont JSC, Karaganda Energocenter LLP and approved by the Principal of the College. Working curriculum agreed with JSC "United Energy Service Company", Semey branch of JSC "NC KTZ", Semey branch of the main network "Semey power supply distance" and approved by the director of the college.

In the experimental working curriculum, the number of credits/hours allocated for metal work and welding practice has been doubled. Industrial training and professional practice makes up 60% of the total amount of hours, which corresponds to the norms of training time for dual training.

The final certification at the end of each course on the working qualification "Electrician (by branch)" is carried out in the form of a qualification exam.

Partner companies recommended to introduce specific practices with boilers, turbines and power supply tools in order to gain skills in managing modern equipment with software with collateral operated at thermal power plants.

Increased number of hours at laboratory practice classes, which are supposed to be held on modern equipment of classrooms located on the basis of enterprises.

KazDual project Consortium were concern about the prices of equipment on the initial list, as well as the vendors. Many software and hardware companies have had closed down due to the COVID restrictions. Some original products were not available. Within the KazDual project management meeting was a decision made by National project team because of the recommendation from stakeholders (partner companies) to change the equipment of the project also in the fact of needed equipment to the Dual education programs carried out at the HEIs.

A final examination at the end of each course for qualifications 3W07130301 - "Machinist-crawler for boiler equipment" and 3W07130302 - "Machinist-crawlerIC on turbine equipment" in the form qualifying exam.

Industrial training planned partly carried out in training workshops and at the college training ground, part of the training -at enterprises. This approach allows the future specialist to deeply and qualitatively master practical skills and abilities.by profession, quickly adapt to production conditions.

Professional practice will be carried out at the enterprises of social partners.

Some of the problems identified to achieve the outcomes of this WP are:

- HEIs in Kazakhstan have not sufficiently developed mechanisms for planning the teaching load of teachers participating in dual programs
- There are problems of coordinating the schedule of practical classes and their content with companies.
- There is a problem of limited number of places in companies to organize training in the workplace
- Employers have not been actively involved in trainings offered by EU partners, although training materials have been distributed to them.

For one coordinator, a challenge was posed by a rather complex (specific national and higher education context) and time-consuming preparation of training materials for experts and HEIs participating in curriculum development.

Assessment of WP2 (1-low, 5-high).

WP2 indicator	1	2	3	4	5
Development of educational materials for Kazakhstan partner universities				X	
Organization of trainings in Europe and Kazakhstan					X
Certification of the training program with staff and employers			X		

WP3 Piloting the KAZDUAL system with universities and enterprises.

The development of dual study programs is a fundamentally new task in the pedagogical education of Kazakhstan. The pilots are being built based on modular technology, which corresponds to the implementation of the requirements of the Bologna process to ensure the quality of higher education in accordance with the Dublin descriptors.

Social partnership agreements have been concluded with all enterprises, allowing students to practice at these enterprises and providing for employment if there are vacancies. What was found from interaction with different participants is that within the framework of the project, no complete piloting of the respectively developed or adopted dual program can be carried out, but only the components of the selected dual vocational training/study programs. Nevertheless, a thorough analysis of the piloting results with the recommendations for action will take place.

Trilateral agreements between students, college and enterprises were concluded by students of the experimental groups during the pilot project phase (e.g. Karaganda Turbomechanical Plant LLP, Karaganda Energocenter LLP, KaragandaEnergoremont JSC with KSU and the college. The contracts are registered in the register of the regional chamber of entrepreneurs "Atameken".

Not all HEIs/colleges have made the same progress towards piloting the programs for different reasons. However, those HEI/colleges that have already starting to successfully implement the pilot are very committed. The piloting runs are characterized by dynamic, constructive, reflection-rich processes where, in general, stakeholder important.

In Almaty, the pilot program is developed in accordance with the SCSE of higher education by the working group and experts, employers by Abai KazNPU and by the New Generation NGS school and other schools. Faculty and experts of the dual partner - NGS New Generation School formed modules in accordance with the goals and objectives of the disciplines with an indication of the module learning outcomes, volume and duration. The content of the disciplines is developed based on the needs of the partner enterprise, interdisciplinary links for the formation of the module and competencies are defined, coordinated with the industry standards, with the requirements of the labor market and employers to future specialists.

Under WP3 activity "D3.4 Piloting of accredited evaluations, study visits, etc)", ACQUIN de

guide for the pilot-accreditation procedures, that was commonly agreed with project Coordinator, CEENQA, IQAA and then shared with all partners. The guide is a planning tool that will cover the period December 2022-August 2023 of the project and includes: the scope of WP3 for the pilot accreditation procedures, the workplan with important milestones and breakdown of activities, allocation of roles among partners and methodological steps for preparing for the procedure. The guide is accompanied by Annexes with templates related to the applicable standards and preparation of self-evaluation reports for the pilot procedure. During the reporting period, the piloting procedure is going smoothly as planned with high commitment and involvement of all project partners. Astana workshop on 11-14 April 2023 enabled partners to present and discuss on:

- IQAA, ACQUIN, CEENQA presentations– Self Report analysis
- Group work to discuss the analysis of the Self-Report and prepare recommendations for changes in the NLA of Kazakhstan

Planned accreditations will be conducted as follows:

Pilot Nr.	Educational Institution	Study Program	Responsible agency	Dates
Pilot 1	M. Auezov South-Kazakhstan University	Electric Power Engineering	ACQUIN-IQAA	25 May, 2023
Pilot 2	Shakarim University of Semey	6B07103 Heat power engineering	CEENQA-IQAA	5 May, 2023
Pilot 3	Abai Kazakh National Pedagogical University	B01303 - Primary education with information and communication technologies	ACQUIN-IQAA	24 May, 2023
Pilot 4	Buketov Karagandy University	6B07103-Heat power engineering	CEENQA-IQAA	3 May, 2023
Pilot 5	Electrotechnical college	4S07130202 Technician-Electrician	ACQUIN-IQAA	5 May, 2023
Pilot 6	Karaganda Higher Polytechnic College	Thermal Power Plants of Thermal Power Plants (Boiler Equipment Operator or Turbine Equipment Machinist)	ACQUIN-IQAA	5 May, 2023

The next planned activities for the final year of the project include:

- Feedback discussions during May 2023 between ACQUIN-CEENQA-IQAA and each applicant HEI/college to provide preliminary of experts right after the pilot procedures.
- June-July 2023 full pilot accreditation reports compiled and sent to HEIs/colleges.

Some caveats within this work package

- A lot of documentation to review in the pilot evaluation process (Measures: division of tasks between staff and experts)
- Documentation (annexes, presentations) not available in English (Measures: translation of documentation)
- Language barriers at the evaluation visits (Action: translators involved, test meeting)

To analyze the satisfaction of students in the experimental group and employers with the quality of education and training in the dual system, it is planned to conduct a survey at the end of professional practices in the context of training courses, as well as open meetings of students and their parents with representatives of enterprises, mentors and teachers to discuss emerging problems, including after an internship.

Assessment of WP3

WP3 indicator	1	2	3	4	5
Pilot test plan for a specific KAZDUAL model.					
Procurement of material for specific pilot tests				X	
Conducting pilot tests within 2-3 years					

WP4. Quality Control

In the early stages of the project, the team responsible for this work package encountered several personnel difficulties, and the participants changed, with little progress issues. However, a strategy and process methodology for internal and external quality assessment has been developed. This methodology is flexible and has been applied repeatedly. Based on the results, a report and recommendations were prepared to optimize project activities. Also, these recommendations were presented to the project partners and actions were discussed to improve the quality indicators of the project. The applied methodology has proved to be a working tool and will be further applied to evaluate project performance indicators. Currently, two study surveys have been conducted; their data have been compared and analyzed, and the results of this analysis were presented to the project partners at training in Astana. Positive trends in terms of project quality are observed in the criteria of acknowledgement, shares, awareness and impact, communication, coordination, and information exchange between project partners (however, the language barrier is still an actual topic). It is also important to note the positive trends in the team management and conflict management criteria, which in turn testifies to the positive atmosphere mentioned earlier. Additional communication is required on these issues.

There are two particular challenges for this WP.

- Despite a quality plan is correctly addressed, qualitative and quantitative indicators to monitor the quality of activities at the beginning of the project have not been fully implemented. The measures the consortium should take is the organisation of partner

meetings to discuss the indicators and quality of deliverables, more comprehensive definition of the qualitative and quantitative indicator gaining feedback from stakeholders, physical meetings dedicated to present the feedback on the Quality control.

-Building the quality culture with the project partnership and broader. A contingency plan would be more involvement from IQAA and MERSK. It would be good if TTK, as WP leader, could organize meetings/trainings of the representatives of the consortium to provide quality control documents on time.

Assessment of WP4

WP4 indicator	1	2	3	4	5
Quality Plan				X	
Quality assurance system integration for teaching/learning and monitoring				X	
Delivery of the IQA and EQA project			X		

WP5 Dissemination

The Dissemination and Outreach work package (WP5) is one of three horizontal project work packages which are conducted through the whole project life cycle. Work package activities will take place over the 36 months project period and aim to grow the international profile of the project through outputs/findings to the target groups. The dissemination strategy and actions identified for this project have been selected because results and outputs are effectively disseminated to as extensive and comprehensive a range of target stakeholders in the field of dual education. The selected strategies aim to facilitate KAZDUAL partners to raise awareness about the project and its purposes and to promote the engagement and active involvement of key actors and main stakeholders during the lifetime of the project.

The following main channels for dissemination identified are:

<http://kazdual.kz/>

FACEBOOK: <https://www.facebook.com/kazdual.kz>

INSTAGRAM: <https://www.instagram.com/kazdual/>

Due to Covid-19 there was a problem to invite the stakeholders and to carry dissemination in 2021 and beginning of 2022.

The partners motivate the stakeholders with the advertisement of participation of EU partners at the events like online Conferences, Webinars. There were lot of events within the project with participation KZ and Central Asia, other countries that were not including as partners countries and institutions.

At institutional level, the activity of informing the public about the partners and the dual educational program is organized within the framework of the general information policy of the college and is aimed at constantly informing the public about educational programs, through:

- web-site of the colleges like <http://eko-edu.kz>;
- social networks e.g. https://www.instagram.com/eko_semey/,
<https://vk.com/ekokollege>, <https://www.youtube.com/channel/>;
- publications in mass media;
- publications in regional and city publications "Applicant", "Graduate", "Education";
- information stands and screen;
- published booklets, brochures;
- organization of socially significant events;
- charitable actions;
- organization of joint seminars, a festival in the profession "MyPRO", events with social partners;
- holding scientific and practical conferences with the participation of representatives of social partners;
- placement of information on television, billboards and banners;
- holding meetings with schoolchildren and applicants, their parents;
- Placing information in the mobile application "Wertafon", "Resurs.kz".

Specialists are constantly working to update the information on the site.

The local websites provide the official presentation of information about the partners on the Internet in order to promptly familiarize users with various aspects of the activities of the college and the engineering and teaching staff, improve the efficiency of interaction between the college departments and the target audience. A link between the official project website and the partner website is offered in most cases.

There was dissemination from the beginning of the project and during the pandemic time, we have had a lot of Conferences online as external and internal in each Kazakh partner institutions. However, presential dissemination activities started in 2022. In November 2022, one of the colleges held an employers' forum. It was attended by executives and leading specialists of the enterprises of the Electric Power Industry of Abay region, heads of colleges of the region, representatives of the Chamber of Entrepreneurs Atameken and college professors.

In Karaganda, the website of the college provides the official presentation of information about the college on the Internet in order to promptly familiarize users with various aspects of the activities of the college and the engineering and teaching staff, improve the efficiency of interaction between the college departments and the target audience.

The college has an account on social networks "Instagram" (@qjptk_krg), "Facebook" (<https://ru-ru.facebook.com/groups/KVPTK>) and its official website (<https://kvptk.edu.kz>), which provides complete information about the college, departments, teaching staff, specialties, etc. The site works in three languages (Kazakh, Russian, English).

The official website of the college has a special tab for dual education. <https://kvptk.edu.kz/ru/kazdual>

The news content of the site is constantly updated.

In the course of implementing the tasks of establishing contacts with employers, 4 joint meetings were held with social partners both at the college and at E. Buketov Karaganda University.

Members of the working group conducted training seminars for college teachers on the features of the introduction of a dual education system. The total coverage was 86 people.

The dialogue platform discussed issues of cooperation and features of curricula for training specialists in the mining and energy industries. The issue of training heat power engineers within the framework of this project is highlighted.

On the basis of the Karaganda Higher Polytechnic College with the organizational support of the University of Magdeburg named after Otto von Guericke (Germany) and KarU named after Academician E.A. Buketov held International scientific and practical conferences: in 2021 "Competence Center - new opportunities for the development of a system of technical and vocational, post-secondary education" and in 2022 "Dual education: best practices, trends and strategies",

Abai Kazakh National Pedagogical University organized on October 16, 2021 - online seminar within the framework of #ErasmusDays "Contemporary Trends in Higher and Professional Education: prospects of dual of enterprises.

One of the main deliverables within WP5 is the establishment of a KazDual Observatory. This was created and opened by Abai KazNPU and create an Agenda of Train the Trainers - the certified advanced training of the teaching staff of organizations of higher and (or) postgraduate education, colleges, mentors of partner organizations, partner schools, that would like to implement the educational dual programs on the topics:

"Dual education in the professional training of teachers", "Design and development of dual programs", "Interaction with stakeholders", "Innovative educational technologies".

Some of the challenges observed for WP5 are:

- Some technical difficulties in visibility and access of the project webpage due to a difference in the EU - Kazakh domain (Measures: organization of meeting with the persons responsible for the project website/project coordinator). One of the problems is that the domain KZ of Kazakhstan is often hacked and sometimes KazNPU had a problem with the website. To solve this recurring issue, KazNPU purchased a Platform with foreign server as it is the main visual reference providing basic information on KAZDUAL project from the onset website has been created and frequently updated. www.kazdual.kz

- Not fully explored target groups for dissemination within CEENQA. One of the measures proposed herein is the identification of target groups/HEIs interested in implementing dual education, presentation of project activities on CEENQA main events and board meeting.

- Dissemination measures are not fully exploited yet. In 2023 it is recommended to start collecting feedback from the target groups for the dissemination.

- It appears to be an unclear strategy for dissemination apart from the website and the establishment of the observatory. There should be an exchange of expectations on the appropriate dissemination tools and channels within the consortium. One proposal was the use of different online platforms to design the attractive dissemination tools, such as canvas.

Despite these issues and concerns, the methods and channels for dissemination should be sufficient to achieve the objectives of this work package. Partners repeatedly articulated their motivation to disseminate results. The information provided, the amount of publications and the activities carried out are sufficient in this context. These activities need to be intensified during 2023.

Assessment of WP5.

WP5 indicator	1	2	3	4	5
Project website and social networks					X
organization of information dissemination events and conferences to raise awareness (information days, annual conferences).			X		
Changes have been made to the accreditation procedures and the rules for cooperation between the enterprise and the university.			X		
Building an observatory for excellence and dissemination					X

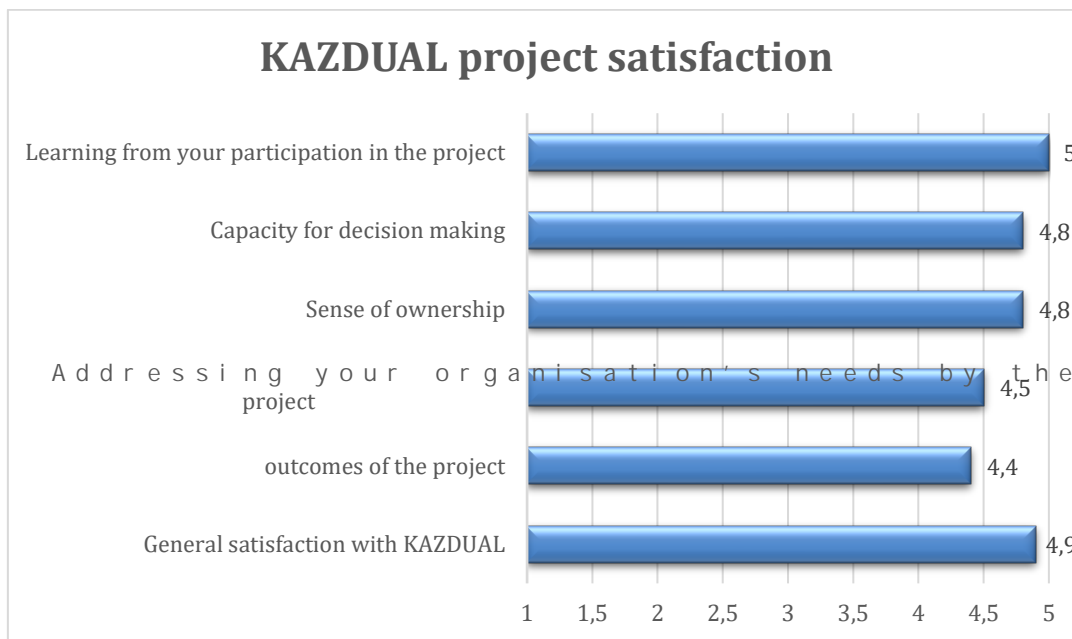
WP6 MANAGEMENT

When analyzing the coordination of the project, overall speaking, there was a very high degree of satisfaction among the consortium with the way the project was coordinated. The project experienced some internal management issues during the first half of the project due to Covid lockdowns which were subsequently corrected. It seems that the coordinating team and partner institutions have worked very well together, particularly in the second year of the project – once physical meetings took place again. There is also an overall satisfaction with the contribution of EU partners. It was noted that despite the disruption of the Pandemic partners could cooperate via Zoom and the use of google drive serve to share the work. It was also felt that not all Kazakh partners functioned at the same level - some being very slow to react - and there was some variability in their contributions and impact.

For some, rather than the coordinator itself it is the bureaucracy of the EACEA that was considered difficult and burdensome. For some coordinators sometimes it seemed that the work itself was less important and the main task is to fill in all the check lists in the

right way for Brussels. This applies to all Erasmus+ projects and is not a problem for this project alone.

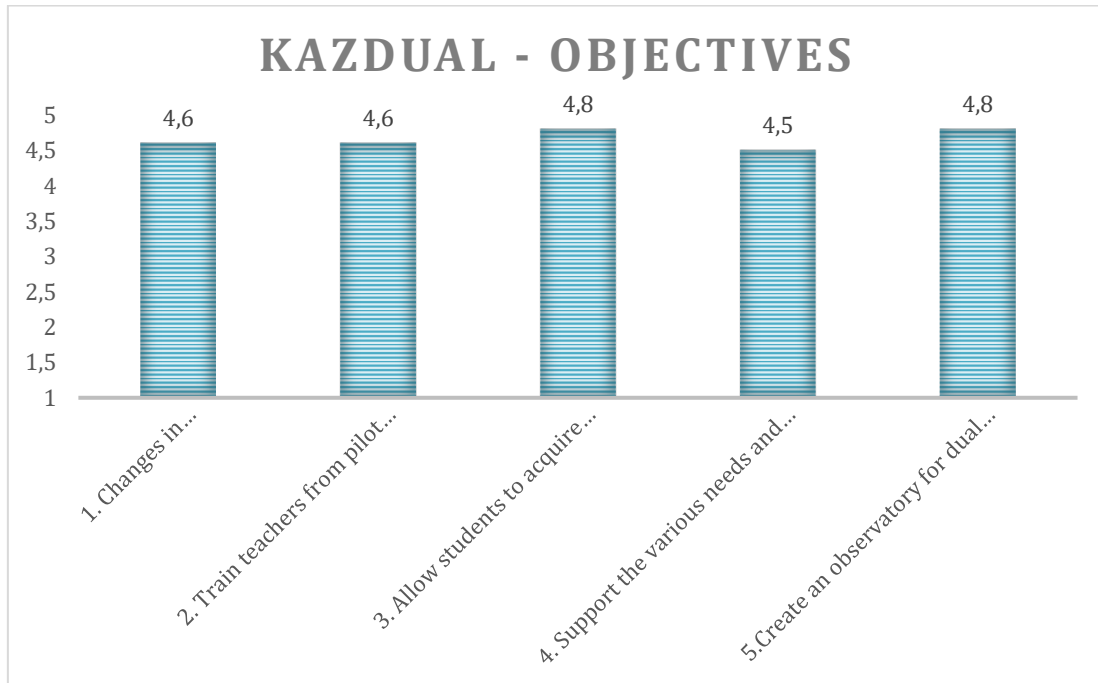
In summary, the relevance of the project KAZDUAL for the Erasmus+ program lies on the fact that the newly adapted Kazakh dual education system for HEIs and colleges promotes high-quality teacher preparation, practical experience, individualized support, reflective practice, and collaboration. The project is expected to contribute to the overall success of dual education system in Kazakhstan and can serve as a model for other Kazakh colleges and HEIs looking to improve teacher training and education outcomes.



ACHIEVEMENTS OF GOALS

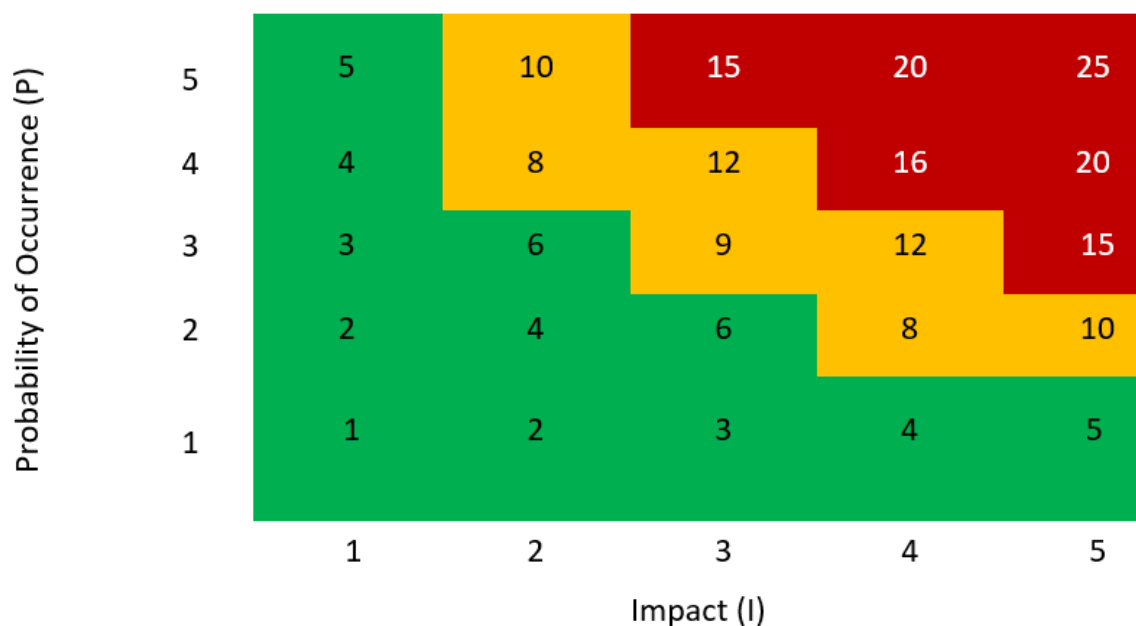
As part of the questionnaire with the consortium, we asked the partners to what extent the specific objectives have been achieved.

Within a quality assurance practice, the achievement of goals is usually referred to as effectiveness. Within this context, this is understood as the extent to which an activity attains its objectives. In evaluating the effectiveness of the project, it is useful to consider to what extent were the objectives achieved or what were the major factors influencing the achievement or non-achievement of the objectives. At management level, effectiveness assesses whether a project is achieving its intended outcomes. In project management, this criterion can be used to evaluate whether the project is meeting its goals and objectives. Project managers should monitor progress, collect data, and conduct evaluations to determine the effectiveness of the project's strategies and activities. Our natural departure point is the logical framework and the project objectives expected to be achieved. Therefore, we have concentrated in the 5 major objectives as described in the proposal. As seen in the graph below, all objectives are largely being achieved.



In order to assess how those objectives will be achieved, it is important at management level to conduct a risk evaluation and assessment. This risk evaluation will determine the quantitative and qualitative values of risk related to a concrete situation or a recognized hazard. Each partner should contribute to the risk assessment process by the definition and the identification of the different kind of risks and hazards that might be generated by a specific WP. The collection and classification of the risks needs specific description and formulation in a unique matrix for each subsystem/module in order to be feasible their systematic analysis as illustrated in the matrix below.

Example of assessment of the identified risk matrix (scale 5x5) according to its probability and impact level. A risk will be considered as low for 1-6 (green), medium for 8-12 (yellow) and high for 15-30 (red).



3. EXPECTED RISKS

Several risks are predicted to occur during the implementation of the project as result of a risk assessment exercise at the beginning of the project. For our case, we used a scale of 1 to 4 to assess the risks.

For each of the objectives mentioned above, we identified potential risks of their impact and the likelihood of their implementation. For impact and probability 1 is very low, 4 is very high.

Target	Risk	Impact (1 to 4)	Probability (from 1 to 4)	Risk score
Object 1	Lack of coordination between ministries, the Ministry of Education, the Ministry of Labor and related departments (employment, inclusion)	4	3	12
Object 1	The legal framework for dual education is imperfect: the existing order No. 50 of 2016 concerns only technical and vocational, post-secondary education and was signed by the Minister of Education of the Republic of Kazakhstan and has no legal force for the relevant ministries	3	4	12
Obj. 1	Development of recommendations will not produce results / will be rejected	3	2	6
Obj. 2	Insufficient motivation of mentors from enterprises	4	3	12
Obj. 2	There may be problems with access to production facilities, the lack of access for student groups to work with equipment for teachers	4	4	16
Obj. 2	Insufficient number of teachers with work experience in the industry	2	3	6
Obj. 2	Weak interest from the industrial sector	4	2	8
Obj. 3	The production process of the enterprise does not allow organizing practice and training in a combined mode	2	4	8

Obj. 3	Acquired skills do not meet the current requirements of the job market	3	1	3
Obj. 3	Mentors and teachers in the workplace in the context of socio-economic circumstances are poorly motivated to knowledge transfer	3	2	6
Obj. 4	Growth of expenses for motivational payments to mentors	2	2	4
Obj. 4	Theoretical knowledge and practical skills have a weak relationship (the principle of interdisciplinarity)	4	1	4
Obj. 4	Different teaching methods (school and work method) do not contribute to the effective acquisition of skills	3	2	6
Obj. 5	Lack of guarantees for student employment in an enterprise that invests during internship	2	1	2
Obj. 5	Theoretical knowledge and practical skills have a weak relationship (the principle of interdisciplinarity)	4	1	4
Obj. 5	Difficulties in predicting the professions of the future and the demand for this profession	3	3	9
Obj. 5	Different teaching methods (school and work method) do not contribute to the effective acquisition of skills	3	2	6

4. SWOT ANALYSIS

Key strenghts	Key risks and areas for improvement
MANAGEMENT AND COMMUNICATION	
Development of EP with the participation of social partners, coordination of schedules of the educational process, content of training programs	Improvement of legal acts in the field of dual education.
Effective management and communication from Project Coordinator	Insufficiency of regular, face-to-face meetings
A good variety of dissemination activities at national level (Kazakhstan)	Regular update of project website with news and activities and translation into national languages of important milestones and news
Result-oriented consortium, high team productivity	less flexible financing mode
COOPERATION	
Great commitment from HEIs/colleges during the pilot accreditation procedures	Continuous involvement of ministry of education and stakeholders
EU best practices on Dual education implementing in Kazakhstan	Lack of extension of the project to finish the project tasks
Partners' high motivation in achieving the project	Impossibility of complete piloting of the individually developed or adapted dual education and training programs
Good further cooperation with partners as a family and have more international and Erasmus+ project	Language barrier
Very good relationship established with partner enterprises.	The dual education program with that partner enterprise is not yet stable enough.

Both University and partner enterprises are good motivated in development of dual education program.	Students are not yet enough interested in being employed with the partner enterprise.
Close connection with employers and provision of internship bases for students in the pilot program	Limited understanding of concepts due to language barriers
Internationalization of educational ideas and cultural transfer between people	
KNOWLEDGE AND LEARNING	
Provision of college students with internship bases	A change in the approach to career guidance work on the part of enterprises (an applicant must come to the enterprise, and the enterprise recommends an educational institution).
Qualitative selection of students motivated to work in their field, having higher competitive advantages and the quality of knowledge and skills	Difficulties in predicting the professions of the future and the demand for this profession.
New legislative Acts and Dual standards in Dual System in Kazakhstan	Creation of a KAZDUAL model instead of several
Precise identification of the training content and constructive discussions	Try to find and guarantee a dual job for every single student
Teacher training, development and piloting of a dual program in thermal power engineering	Training mentors from companies to work with students, pedagogical activities
Development of procedures for the external system of quality assessment of educational programs	Promoting dual programs in higher education among all key stakeholders
The analysis of normative and legislative documents in the field of dual education and the identification of problems that require improvement	Development of an internal quality system for dual programs
Development of educational programs with the participation of social partners, coordination of schedules of practical training and industrial practice, the content of professional modules, joint development of learning outcomes	Making recommendations and proposals to the normative-legal acts in the field of dual education
Involvement of businesses and the chamber of entrepreneurs in vocational guidance work.	The obsolescence of training material and technical base compared to the pace of innovation in manufacturing enterprises.

5. CONCLUSIONS AND RECOMMENDATIONS

As suggested in previous pages of this evaluation Report, the last year of the project should focus on the dissemination activities and presentation of the pilot project results. A positive impact will be through the recognition of dual system certificates and dissemination of dual education models and project results. It is important to stress that the involvement of the MERSK from the outset of the project contributed greatly to the acceptance of the Erasmus+ contribution to delivering dual system in Kazakhstan. However, Kazakh partners felt that more involvement from IQAA would bring better results to the project.

It is suggested that the website be updated with all the final versions of project deliverables. Some are in editing format on Google Drive and others are clearly available on the website. They should appear uniformly on the site. Herein, the rearrangement and reorganisation of google drive is also recommended.

The project has the conditions to successfully fulfil all WPs. The dual programs are implemented following the original plan and a larger number of participants have been involved. The teams are dedicated, committed and enthusiastic. The amount and quality of knowledge exchange and learning is commendable. The materials that have been produced thus far can contribute greatly to mentoring training and professionalization of dual system programs. It is recommended that employers will be also involved in training programs.

In addition to project requirements for deliverables, the establishment of the Observatory can support shared projects and publications. Bigger role in the project should be given to KazNPU, also in terms of resources. Participants may form a devoted community of dual system experts and researchers who can collaborate in order to produce publications on the subject. Should the consortium decide for international publications too, a challenge would be to secure a publisher for an English version.

The project is highly relevant for the Erasmus+ program attaining very satisfactory level of effectiveness as well as the management of the project.