



IMPACT STUDY ON CAPACITY BUILDING IN HIGHER EDUCATION PROJECTS FUNDED IN UKRAINE BY THE EU ERASMUS+ PROGRAMME IMPLEMENTED IN THE PERIOD OF 2015-2020



Kyiv – 2020

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With the support of the
Erasmus+ Programme
of the European Union

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INTRODUCTION

EU-Funded Programme Erasmus+ was launched in 2014 and Ukraine actively joined all Actions in the period 2014-2020. The interest to Capacity Building in the Field of Higher Education (CBHE) Action is high due to the current education reforms and EU-Ukraine Association Agreement implementation. From the very beginning, the CBHE projects have become the main systemic instrument to implement reforms in higher education in Ukraine.

By the end of 2020 the higher education landscape in Ukraine was composed by 281 Higher Education Institutions (HEIs – Universities, Institutes, Academies), 133 459 academic staff and 1 266 000 students, including 59 829 international students¹.

Overall, 646 CBHE applications involving Ukrainian organisations were submitted under the six CBHE Calls (2015-2020). Out of these applications, 48 projects were funded, as showed in the Table 1 below.

Tabl. 1. Erasmus+ CBHE projects in Ukraine

Calls / implementation period	CBHE 2015/ 2015-2018		CBHE 2016/ 2016-2019		CBHE 2017/ 2017-2020		CBHE 2018/ 2018-2021		CBHE 2019/ 2019-2023		CBHE 2020/ 2020-2024	
	Applied/ Selected/ (as applicant)											
Applied/ Selected/ (as applicant)	91 (5)	10	130 (4)	6	134 (4)	8 (1)	109 (12)	6	91 (14)	8	91 (20)	10 (3)

If we analyse the type of projects in which Ukrainian beneficiaries participated, we can observe that HEIs built their capacities in 39 Joint and 9 Structural Projects within 19 national and 29 multi-country partnerships with 28 Programme Countries (out of 34) and 19 Partner Countries. The total EU-grant allocated to the projects amounts up to 43 million euro approx. (see Tabl. 2).

Tabl. 2. Types of the Erasmus+ CBHE projects in Ukraine

Type selected	Joint	Structural	Joint	Structural	Joint	Structural	Joint	Structural	Joint	Structural	Joint	Structural
Projects	9	1	3	3	7	1	5	1	6	2	9	1
Geography selected	National	Multi country	National	Multi country	National	Multi country	National	Multi country	National	Regional	National	Multi country
Projects	2	8	3	3	2	6	3	3	5	3	4	6

With reference to the participation of the different Ukrainian beneficiaries, we can note that 271 partners were involved in CBHE projects consortia in particular: 106 HEIs (38 % out of 281), and 12 Research Institutions (in Educational, Medical, Agrarian Sciences), 94 public organisations (Ministry of Education and Science of Ukraine, Ministry of Ecology and Natural Resources, Ministry of Digital Transformation, National Agency for Higher Education Quality Assurance (Ukraine), Ukrainian State Center for International Education, National Antarctic Scientific Center, Scientific and Methodical

¹ Source: State Statistics Service of Ukraine <http://www.ukrstat.gov.ua>

Center for Higher and Vocational Pre-tertiary Education, Ukrainian Students Union, Union of Rectors of Higher Education Institutions of Ukraine, Federation of Employers, etc.).

Aim and Methodology

The aim of this Study is to identify the long-term impact that Ukraine's participation in the CBHE Action has achieved on individuals, institutions and the higher education system in Ukraine.

The Study has been carried out by the National Erasmus+ Office – Ukraine (NEO – Ukraine) using the data from 24 CBHE projects with 74 Ukrainian HEIs in the partnership that have been already finalised (projects selected under the 2015 and 2016 calls) or are at their final stage (projects selected under the 2017 Call). In some cases, references to previous Tempus projects are provided, in particular, when CBHE projects are the follow up of a Tempus project. The Study does not cover the CBHE projects that started after 2017 and will be finalised between 2021 and 2024. The detailed description of all CBHE projects, including their outcomes are described in the InfoBox № 11 (in English and Ukrainian languages), published at the NEO – Ukraine website, click [here to download](#). All Erasmus+ projects results are published on the EU Platform with [the open access here](#).

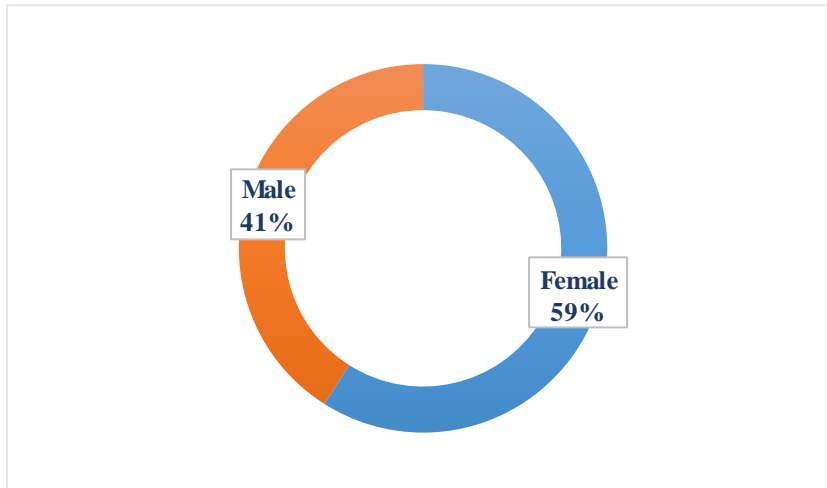
As a result of the Study, the identified impact of the CBHE projects at the individual, institutional and national levels in Ukraine contributes to formulate conclusions on achievements and challenges in higher education, and, in addition, to provide recommendations for further developments of the higher education reforms in Ukraine.

The Impact Study used the following sources to obtain data:

- Review of the websites of HEIs participating in the projects. These analyses were performed with the purpose of identifying the project outcomes, visibility, exploitation and sustainability after the end of the projects.
- Internet survey completed by the CBHE projects teams, in order to determine the projects impact at individual, institutional and national levels.
- Collecting the information from the HEIs on the project results' innovative character and research outcomes by sending emails to the HEIs participated in the EU-funded Programmes in higher education.
- Questionnaire targeting representatives of the national authorities involved in CBHE projects (Ministry of Education and Sciences of Ukraine, the National Agency for Higher Education Quality Assurance (Ukraine), the Scientific and Methodical Center for Higher and Vocational Pre-Tertiary Education) to collect information on system impact achieved by CBHE projects.
- Outcomes from the Cluster Meetings and from the HEREs activities to identify the impact of the project at different levels, depending on the focus of the event.

- Analysis of the Field Monitoring, Interim and Final Reports to identify the impact achieved by the projects as well as the synergies with the previous Tempus programme and with funding received from other international organisations.
- Interviews with the Higher Education Reform Experts (HEREs) involved in projects to understand in particular the main obstacles faced related to impact achievement.

Overall, 45 HEIs partners in 24 CBHE projects provided feedback on the impact achieved by the projects they were involved in. This represents 42 % of 106 HEIs participating in the CBHE projects.



195 respondents (incl. 115 female, 80 male) participated in the survey on projects impact at individual level. Among them, there are 125 academic staff, 24 Heads of Departments, 10 Deans, 11 Heads of International Units, 7 administrative staff, 2 accountants, 3 Vice Rectors and 13 students.

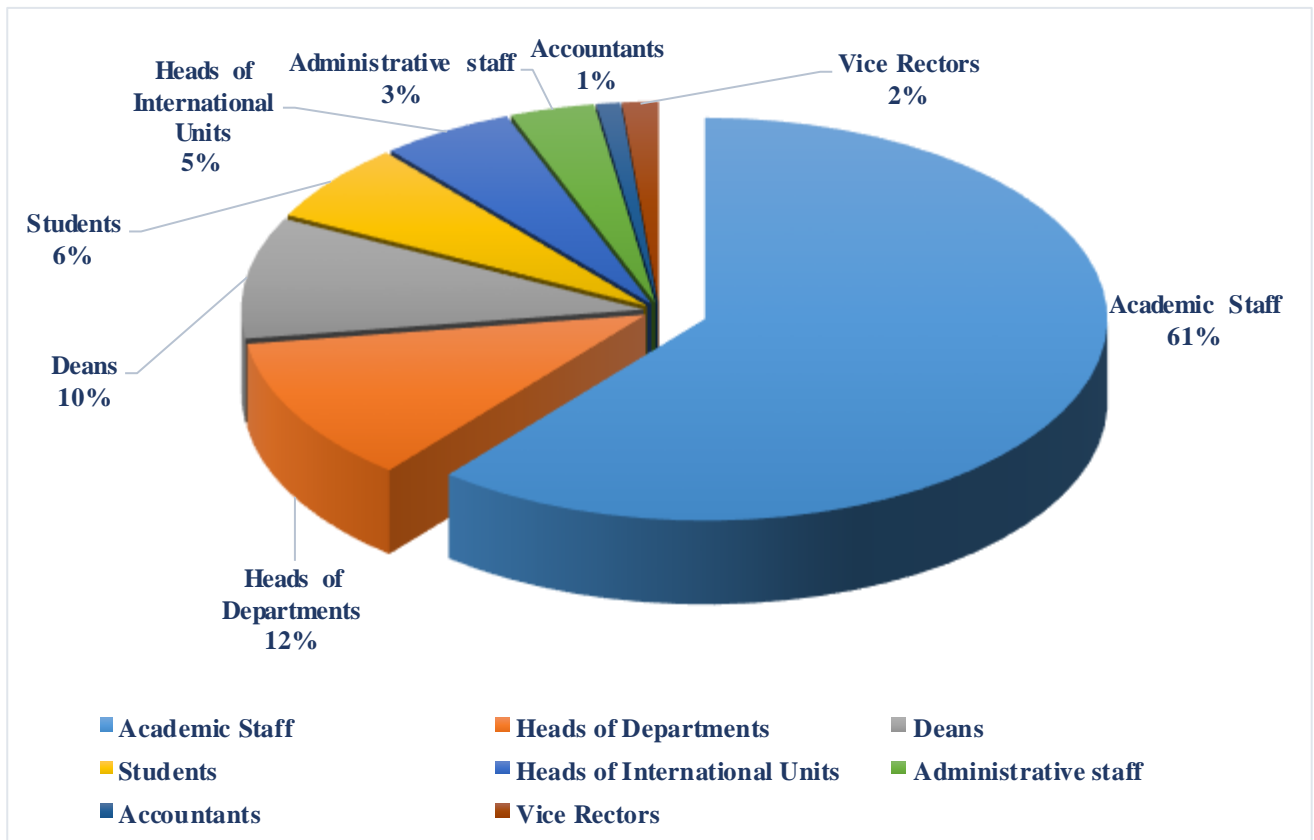


Fig. 1. Distribution of the survey’ respondents by gender and categories.

Policy Framework of Higher Education in Ukraine

All stakeholders and beneficiaries commonly agreed that the development and internationalisation of the national higher education in Ukraine and its integration into the European Higher Education Area would be difficult to implement without the support of the EU-funded Programmes and their international partners.

Since 1993, Ukraine has actively cooperated with the European Union in the field of higher education under Tempus, Erasmus Mundus and Jean Monnet programmes. The capacities built through this cooperation enabled Ukrainian HEIs to join the Erasmus+ Programme in 2014 smoothly.

Since then, and thanks to the results achieved by the first generations of the Capacity Building in Higher Education (CBHE) projects, Ukraine has consistently advanced in reforming national higher education in line with the Bologna Process developments and in its integrating into the European Higher Education Area. [More details are available here.](#)

Ukraine's higher education policy has been improved recently in accordance with the EU – Ukraine Association Agreement and with the Bologna Provisions. The HEREs, the NEO – Ukraine and the teams involved in CBHE projects actively participated in national higher education legislation improvement via different working groups. Their international experience, knowledge of the national specifics and the capacities developed during their participation in the Erasmus+ programme were instrumental for this task. They delivered relevant input to the modernisation of the higher education system, contributed to the Bologna tools, to the External and Internal Quality Assurance (QA) implementation and to the recognition of international mobility learning outcomes.



In 2014, the Law of Ukraine “On Higher Education” was adopted. This Law includes key provisions in line with the Bologna Process that provides CBHE projects to achieve results more effectively.

- Three cycle system approach to Higher Education (Junior Bachelor (*short cycle*), Bachelor – Master – PhD).
- Correlation and aligning between educational levels (Junior Bachelor/short cycle – Bachelor – Master – PhD) and levels of National Qualification Framework (NQF) that correspond to the European Qualification Framework for Lifelong Learning (EQF LLL).
- ECTS and Diploma Supplement have become an obligatory and integral part of the Graduation Document.
- Student workload is 30 hours per 1 ECTS credit.
- The job place/study place, salary / scholarship during students and staff Academic Mobility period is to be preserved according to the Cabinet of Ministers of Ukraine Regulation on academic mobility right.
- Establishment and operation of the National Agency for Higher Education Quality Assurance (NAQA) in the capacity of a public institution in line with ESG 2015.
- Introducing University’ autonomy and academic freedom.

However, the University' finance autonomy remains limited, the HEIs are not allowed to manage their own revenues (non-governmental funding, incl. international grants), they still remain under the competence of the State Treasury.

Later on, the Law with amendments to the Law of Ukraine “On Higher Education” for the improvement of educational process in higher education was adopted by the Parliament in 2020 with the following key provisions:

- HEIs are allowed to issue a higher education document (Diploma/Degree) under an accredited study programme only. This provision somewhat limits University autonomy, as any higher education documents issued under a non-accredited programme will not be accounted in the National Unified Education e-Database and recognised by the State.
- License requirements for conducting educational activities in higher education institutions are supplemented by the requirement to create appropriate conditions for individuals with special educational needs.
- The List of Fields of Study and Program Subject Areas (specialties) in Higher Education is developed on the base of the International Standard Classification of Education (ISCED) and approved by the Cabinet of Ministers of Ukraine.
- Introducing dual higher education as full-time education.
- The HEI has the right to decide on the number and the list of or all courses to be taught in the English language, provided that all students have relevant English language skills.

The Law of Ukraine “On Education” has become a further breakthrough to accomplish the integration of Ukrainian education into the European Education Area due to the following provisions:

- Presenting formal, non-formal and informal education as a tool for the life-long learning.
- Introducing Qualifications Centres for Learning Outcomes and Qualifications Recognition (including for informal and nonformal education) in line with Lisbon and Bologna processes.
- Establishing the National Qualifications Agency with the purpose to implement the NQF among other objective.
- Widen University Autonomy via introducing different legal statuses for HEIs, particularly state-funding institution (present status for state HEIs); non-commercial education institution; commercial education institution.
- Establishing compulsory correlation between Education Standards and NQF.
- Introducing Academic Integrity and Institutional Accreditation, assessment of educational activity quality, as new criteria within QA system.
- The State provides support to advanced training of state-funded HEIs academic staff via additional funding from the State Budget that amount at not less than 2 % of the academic staff' salary fund.

The relevant higher education policy and improved legal framework provide more effective and efficient international cooperation within Erasmus+ programme and smoother implementation of the Erasmus+ projects in Ukraine.

CBHE PROJECTS IMPACT

Impact at the individual level

The most significant impact of the CBHE projects on individuals occurred within the following areas: internationalisation, knowledge triangle, distance learning, quality assurance, lifelong learning and employability.

According to the survey results, 137 academic staff and 118 students from Ukrainian HEIs got opportunities to take part in short-term international mobility including “Special Mobility Scheme”. They have met their counterparts from different countries, established contacts, learnt new cultures.

Such experience helps staff and students to enhance their foreign languages skills, intercultural communication, other soft skills and key lifelong learning competences. They were practising their teaching and learning and professional skills at the modern, well-equipped laboratories and spaces, performing group and project exercises together with colleagues from all over the world. Thus, along with the people to people contacts, they advanced their ability to work in the multinational environment. It contributes to the staff professional enhancement and improved students’ readiness for better employability that offers global labour market.

According to the universities’ staff feedback, the relevance of the integration of international dimension into university governance, teaching, learning and research activities, enhanced the quality of their performance. Among the competencies acquired during teaching, trainings, seminars and mobility under the CBHE projects, about 50 % of individual respondents mention the foreign language proficiency and professional skills.

Students noted more practice-oriented curricula, the usage of new approached to the lectures, methodologies and technologies introduced by the teaching staff who benefited from the projects.

Important condition for the academic staff personal growth is the opportunity to integrate educational activity, research and innovations as knowledge triangle constituents. Academic staff considers publications in international journals (46 %), joint publications with EU partners (26 %), participation in the design and implementation of a joint study programmes with EU partners (22 %), development and teaching of courses in foreign languages (21 %) as their personal achievement thanks to the participation in the CBHE projects.



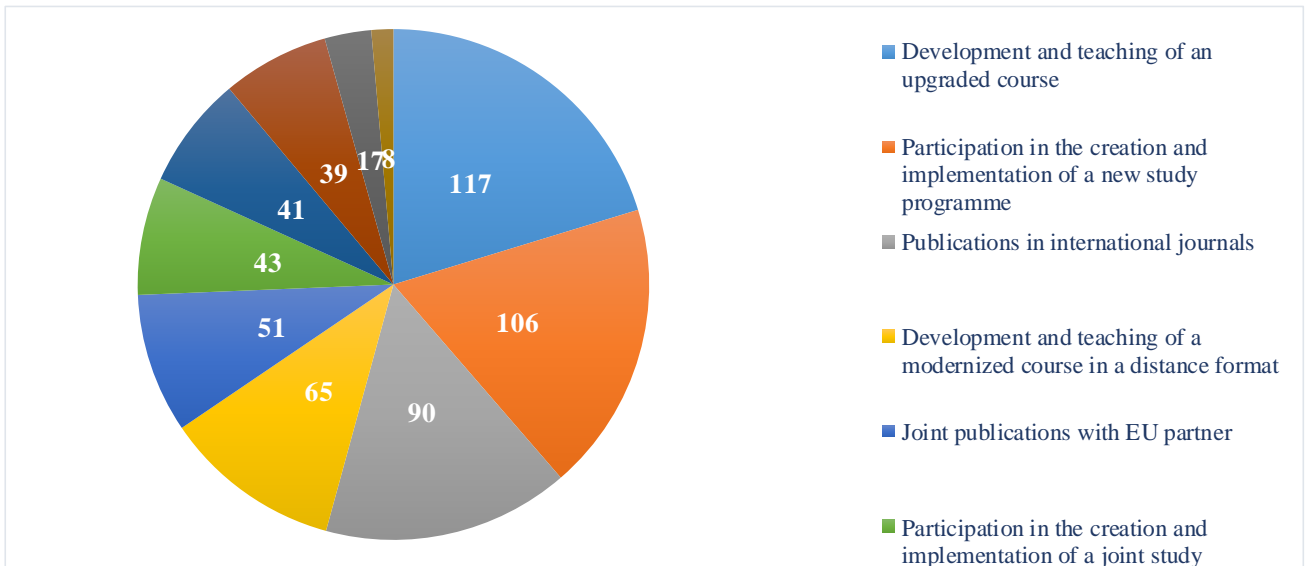


Fig. 2. Individual achievements through participation in the projects.

Moreover, the students and staff confirmed that they achieved success in professional / career development (20 % of respondents) and prepared or defended Master, PhD, Doctoral Thesis (9 %).

According to the survey, the universities’ staff declared about gained competences as results of the projects lifelong learning events – specific competences in fields of knowledge (76 % of respondents), soft skills (67 %) and research competences (53 %). 67 % of the respondents took part in the trainings focused on the modernisation of the curricula, 48 % – on Internal QA.

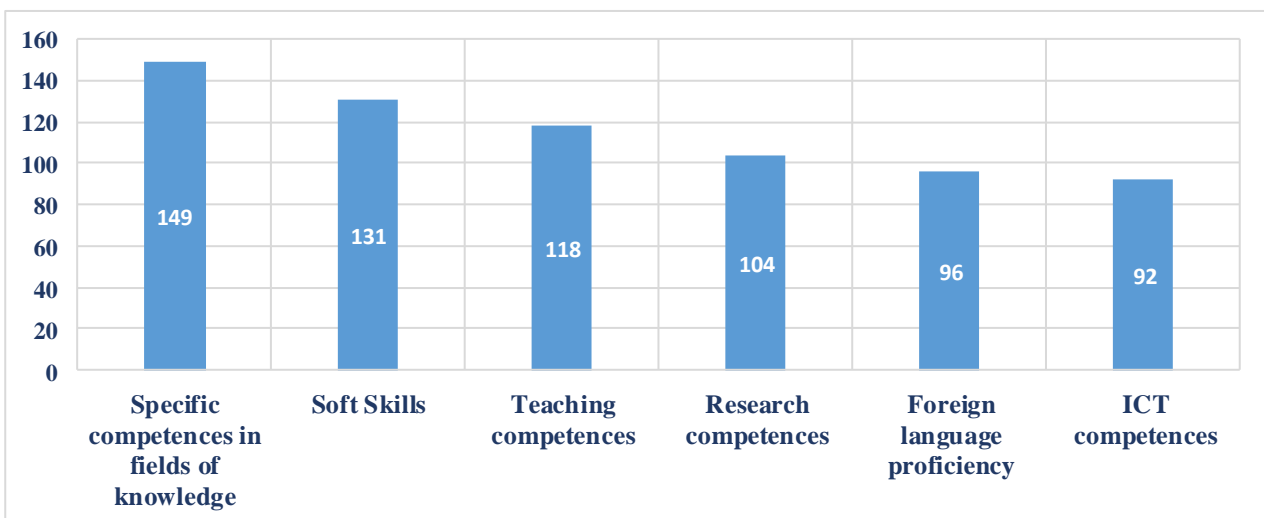


Fig. 3. Competencies obtained by the project participants during the project trainings/seminars.

University staff and students highlighted that participation in the projects helped them to integrate distance / blended approaches into the teaching and learning processes during the COVID19 pandemic period effectively. They benefited from the methodologies, resources and technologies developed and purchased within the projects. According to the survey, 60 % of respondents confirmed that syllabus and teaching materials were created for blended learning approach. Distance learning and teaching was

successfully delivered via using electronic manuals, textbooks, monographs, guidelines developed by the CBHE projects teams (62 % of respondents), applying new methods and technologies of distance teaching and learning (55 %), implementing modern e-courses (48 %).

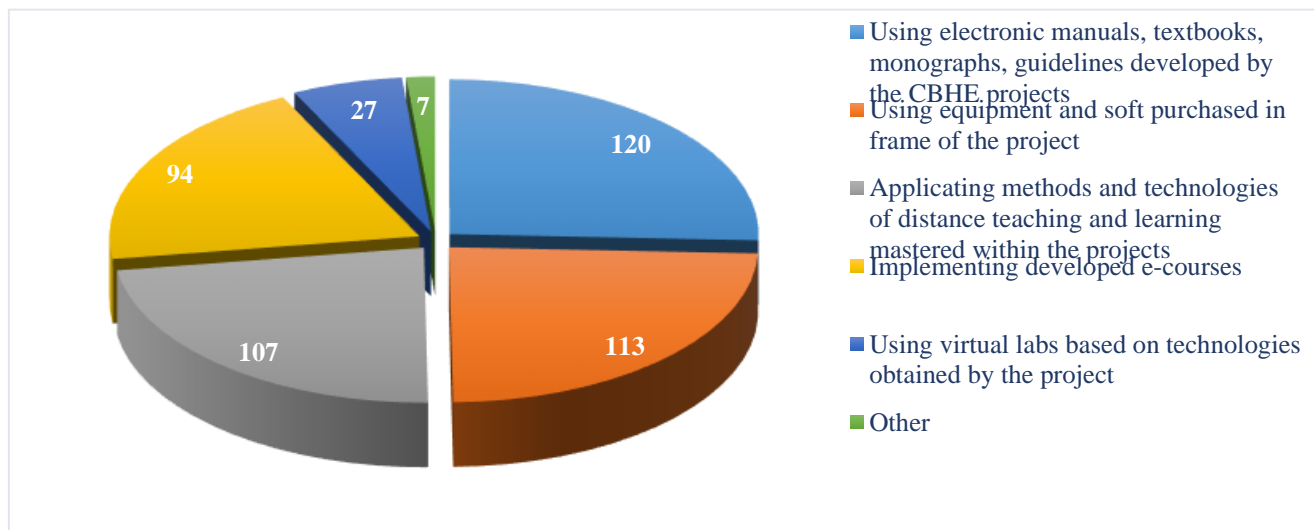
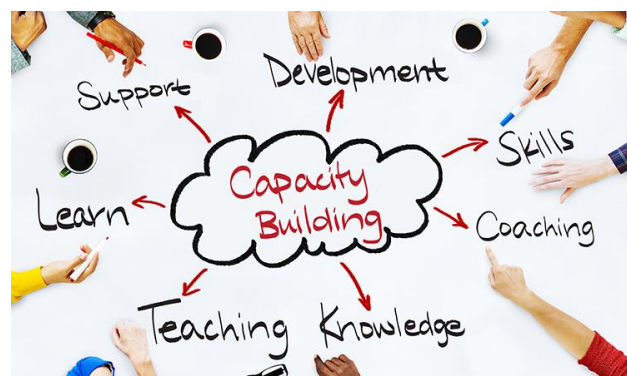


Fig. 4. Effective implementation of distance/blended teaching and learning during a pandemic through project participation experience.

Summing up the above, the project activities and outcomes improved staff and students’ capability to use and integrate the international best practices in their study programmes for teaching and learning. As a result, such experience enhanced the quality of the curricula and competitiveness of students at the global labour market.

Impact at the institutional level

Since 1994, the EU-funded projects have contributed to the internationalisation of Ukraine’s higher education, its openness and closer connection with the world. The interest of Ukrainian HEIs in the CBHE Action is huge due to the fact that it is the only action, which has a systemic approach to the capacity building of higher education institution to strengthen their competitiveness. It supports further implementation of the Bologna Process tools and performing reforms in line with European Higher Education Area provisions.



During the monitoring missions to the institutions and at clusters events, the evidences of the projects’ outcomes which showed impact on the building of HEIs and other stakeholders’ capability to implement their strategies and reforms were provided. The valuable expertise learnt from the Programme Countries partners contributed to transfer of knowledge and innovations into the teaching and learning processes of the Ukrainian HEIs.

The universities relocated from Donetsk and Lugansk Regions always stated that they have received substantial intellectual, technical and partnership support, when at the new places they have to start

from the scratch. The CBHE projects input to their human and infrastructure capacity building and helped them to improve the education quality.

The Programme contributed significantly to development of human capital education and establishment of well-equipped infrastructures for teaching and learning excellence to meet the labour market demands and society challenges. About 30 % of the projects grant amount covers the modern equipment purchase and innovative units' establishment.

During the consultation in 2015 and in 2017 between European Commission and the EU Delegation to Ukraine with the Ministry of Education and Science of Ukraine, the National Erasmus+ CBHE Priorities of six calls for proposals were identified in cooperation with the NEO – Ukraine, HERE and HEIs. 8 priorities had remained relevant during 2015-2020. They were in line with long-term reforms in education, modern requirements of the national labour market, situation in the Eastern Ukraine and temporary occupation of the Crimea (see Annex, Tabl. 1):

- ✓ Subject Areas for Curriculum Development Projects: Education / Teachers` Training and Education Science, Engineering and Engineering Trades, Health, Transport Services, Security Services.
- ✓ Improving Management and Operation of HEIs: Governance, strategic planning and management of HEIs, Quality assurance / Quality assurance processes and mechanisms.
- ✓ Developing the Higher Education Sector within Society at large: Qualification frameworks / Recognition of qualifications and Qualification frameworks.

According to the feedback of the HEIs teams, these priorities were particularly relevant to their institutional development strategies implementation.

Curricula Reform. It was highlighted by the administrative and teaching staff, that Bachelor, Master and PhD study programmes as well as training courses were updated and improved according to the Bologna principles and EHEA provisions based on the Programme Countries best practices. All HEIs agreed that along with the human resources development, modern methodologies (e.g. problem, simulation and project based learning, etc.) and innovative technologies (e.g. FabLabs; smart logistics, IT and engineering software, 3D mapping, etc.) enhanced the relevance of the study programmes to the labour market needs. The students, employers and other stakeholders' organisations started playing more active roles and became more dynamically involved into the curricula modernisation. It resulted into more systemic integration of the transversal skills and labour market needs into the study programmes. The Subject Areas covered by the CBHE Projects are described in the Annex, Tabl. 2.

Since 2020, accreditation of study programmes in line with ESG-2015 has started in Ukraine. The National Agency for Higher Education Quality Assurance team mentioned that the study programmes that were designed within CBHE projects, had taken into account Programme Countries partners' approaches to the quality assurance and were more ready to pass the accreditation process successfully.

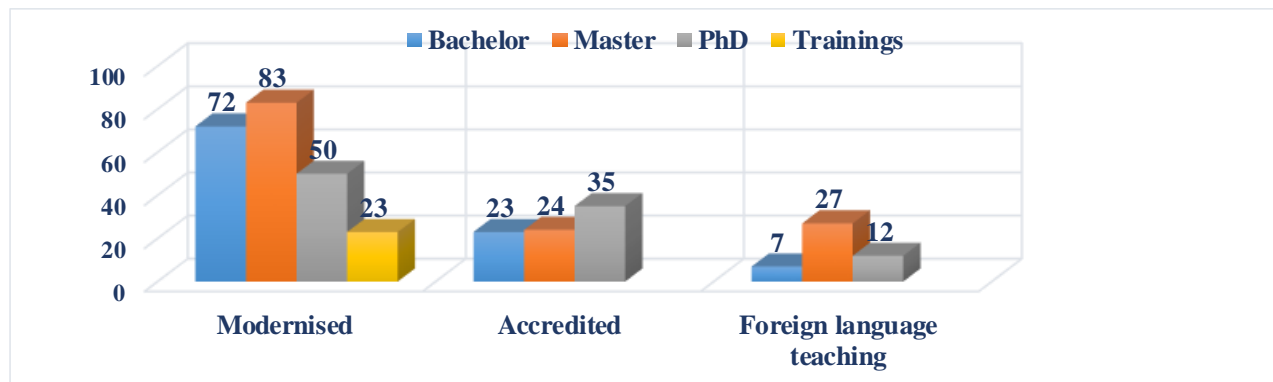


Fig. 5. Modernisation of the study programmes by the projects teams.

ECTS tools integration into the curricula provided good background for further recognition of the international credit mobility. International relation officers highlighted that the recognition of the students’ international mobility results of KA1 went smoothly by the faculties, which participated in the CBHE projects.

- **MASTIS** – Establishing Modern Master-level Studies in Information Systems: new competence- and experience-oriented curricula including ECTS based on Tuning methodology was developed, implemented and accredited;
- **StudyBBSR** – Rethinking Regional Studies: The Baltic-Black Sea Connection: introduced a new Master’s level curriculum in regional studies that will equip students with knowledge and skills to pursue research-oriented career;
- **BIOART** – Innovative Multidisciplinary Curriculum in Artificial Implants for Bio-Engineering BSc/MSc Degrees.

Distance learning. Development and implementation of distance/blended learning system, blended/hybrid approach to education and mobilities, e-tools and e-platforms have become an essential part of the CBHE projects activities and turned into the significant helping hands to the Ukrainian HEIs to meet COVID-19 pandemic challenges.

The HEIs stated that Tempus projects contributed significantly to the capacity building of the Ukrainian HEIs on distance education, when it was at its very birth stage. Preparation of the teaching and learning e-resources, e-learning platforms, learning management systems, other virtual environment, e-centers, using the online interactive websites and wiki were initiated in Tempus projects. Furthermore, the CBHE projects teams have included the distance learning system tools and methods compulsory as vital projects activities to build the relevant environment to meet the COVID-19 pandemic and other challenges.

Since 2020, the global pandemic COVID-19 has affected a usual way of life in Ukraine as well as in other countries over the world. Ukrainian HEIs were advised to decide independently how to organise the educational process, and on the technologies to be used. The main task was to ensure that each student should complete 2019-2020 academic year successfully. The HEIs proceeded their teaching and learning by implementing distance education or blended learning technologies where appropriate based on their own experience. They strive to help their students to accomplish their education goals, however, the types and quality of the distance or blended learning vary greatly across Ukraine. The HEIs confirmed that CBHE projects had enormously contributed to the smooth transfer to the

distance/blended learning mode by the well-equipped staff, open educational recourses, innovative methodologies and technologies. Furthermore, the project teams promoted such experience widely within and out of the partnership.

- **WaterH** – Harmonising water related graduate education;
- **DocHub** – Structuring cooperation in doctoral research, transferrable skills training, and academic writing instruction in Ukraines regions.

The HEIs with experience in CBHE projects make active use of the projects' outcomes on innovative teaching and learning methods, e-tools and e-resources, utilise modern equipment and software purchased with support of the European Union. Representatives of the HEIs mentioned importance of the developed courses (60 %), purchasing equipment (50 %) and software for distance learning (15 %) in frame of the CBHE projects. It all helped them to cope with pandemic challenges more successfully than other HEIs in Ukraine.

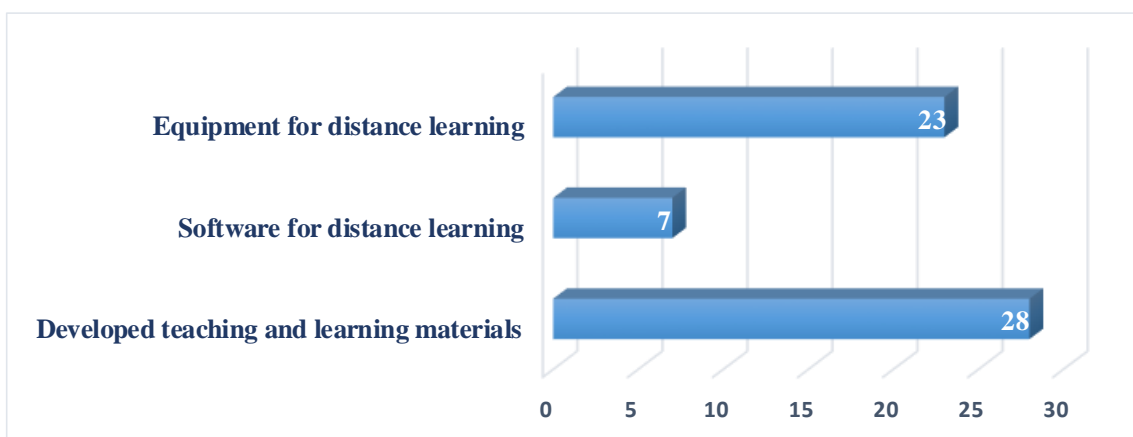


Fig. 6. Distance learning and teaching using developed e-recourses, equipment and software purchased within CBHE projects.

Academic staff and students communicated that during the pandemic period, they participated in distance/blended teaching and learning while using equipment and software (58 %), worked in virtual laboratories based on technologies purchased within the projects (14 %), which helped to face and handle some unexpected challenges of COVID-19 pandemic smoothly.

Internationalisation. An important condition for quality assurance, successful international cooperation and integration into the European Higher Education Area is ensured by the internationalisation, by all its mechanisms and dimensions. The role of CBHE and other Erasmus+ projects and former Tempus, Erasmus Mundus and Jean Monnet is difficult to overestimate. As a result, the project teams have become the main drivers of internationalisation. The Ukrainian HEIs established or improved international relation units’ capacity, developed institutional strategies on internationalisation, implemented learning mobility, designed joint programmes, performed joint research with the Programme Countries colleagues. The HEIs specified that their International Relation Offices were modernised and equipped with best practices of the Programme Countries universities and started introducing the Erasmus+ Staff week for Ukrainian and International partners, perform more in-service trainings for teaching and research staff on the international cooperation opportunities. They helped to invite project partners from Programme Countries as visiting professors

and included international case studies and students received modern knowledge. Thus, they incorporated the internationalisation at “home” by integrating international dimension in teaching, learning and research activities.

Being partners in the CBHE projects, HEIs enhanced their capability to manage the international projects at the institutional level (as partners), at the national level (as national coordinators), at international level (as grant holders). Based on the Programme Countries experience they learnt how to use the grant funds efficiently. Boosting trust of the European Commission and their foreign partners resulted in the increased number of the Erasmus+ projects and cooperation with other international organisations.

The practical guides on internationalisation strategies development, indicators and other practical tools for internationalisation were created within the Tempus IV projects. It provided possibilities for further inter-project cooperation, synergy and available resources for other HEIs to be better prepared to the new opportunities provided for Ukraine after the launch of the Erasmus+ in 2014.

According to the survey respondents, 72 % of the HEIs revised or developed internationalisation strategy during CBHE projects delivery. Currently, HEIs offer the study programmes modernised under the projects in English or other foreign languages: Master programmes – about 60 % of HEIs, PhD programmes – 26 %, Bachelor programmes – 15 %.

The Ukrainian HEIs expanded their cooperation with 28 Programme and 19 Partner Countries and actively exchange their experience to learn and adopt best practices and build their capacities to implement institutional strategies.

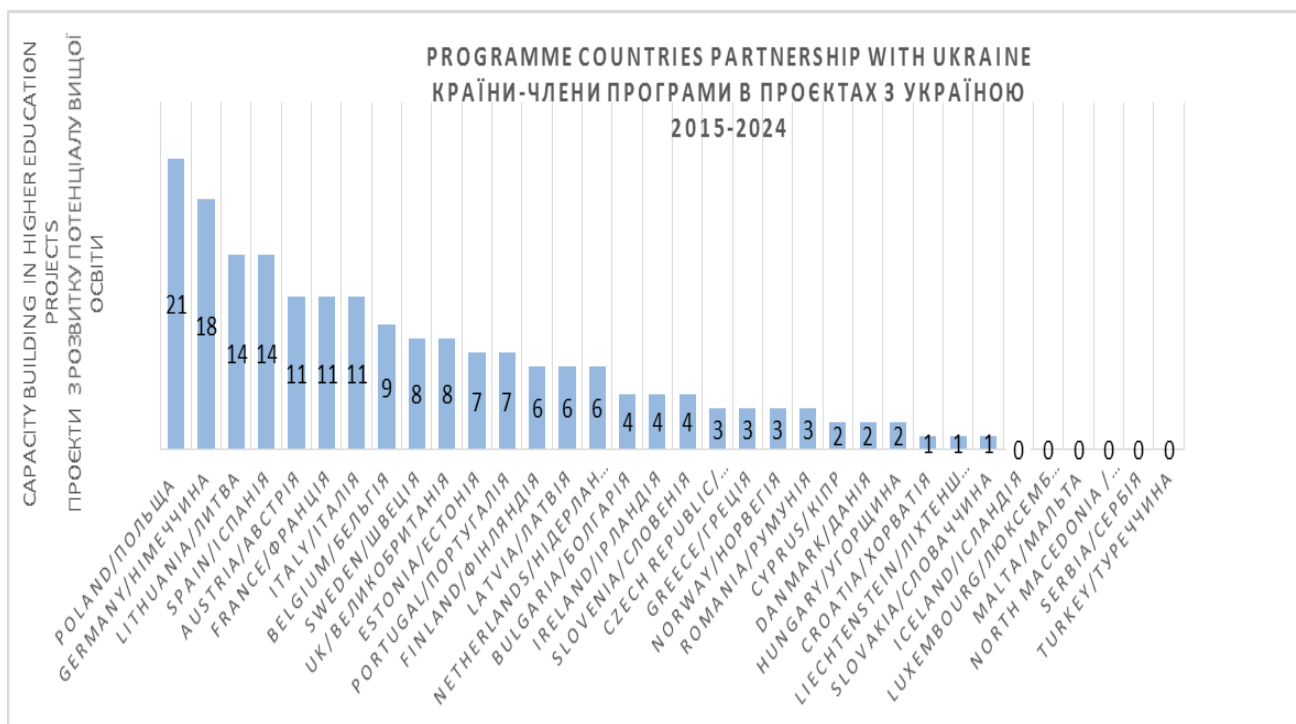


Fig. 7. Programme Countries Partnership with Ukraine.

According to the HEIs, the cross-regional cooperation with other Partner Countries were mostly focused on the countries within the Eastern Partnership Region and other Post-Soviet Countries. The

reason was grounded on the common historical and educational heritage. Due the fact that Partners Countries stayed at different levels of their education reforms, the Ukrainian HEIs were able both to learn from their colleagues’ challenges and to share their experience. In addition, Ukrainian HEIs mentioned that the valuable knowledge and practical guides on how to manage the project consortium as grant-holder/coordinator, they received not only from Programme Countries but from other Partner Countries, e.g. Armenia, Georgia and Kazakhstan. As a result, more Ukrainian HEIs applied as grantholders and 4 of them (from Ivano-Frankivsk, Lviv and Zaporizhzhya) succeeded by 2020.

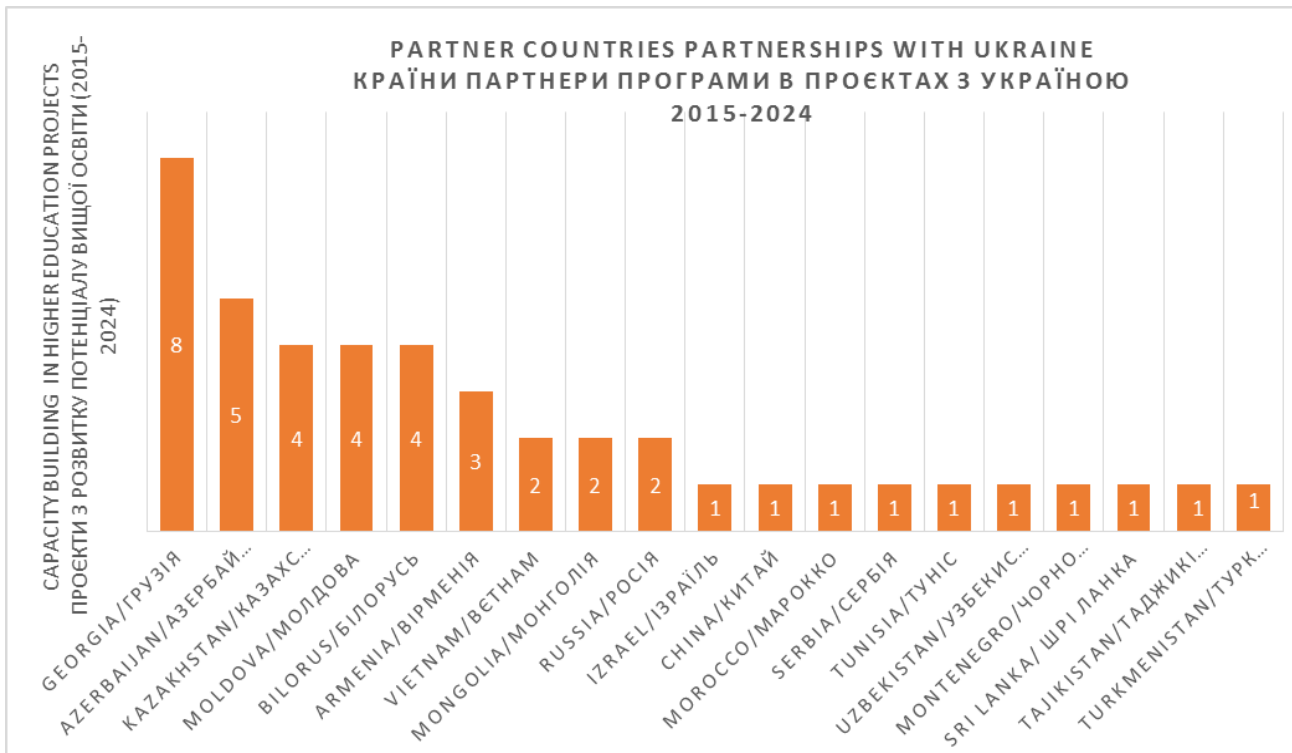


Fig. 8. Partner Countries Partnership with Ukraine.

The HEIs stated that based on the Programme Countries universities experience, the horizontal cooperation between administrative staff, including rectors, international relation officers, accountants, project teams, teaching staff and students were strengthened and it provided an energetic impact at the project successful operation, wider dissemination and further sustainability of the results.

The HEIs have stressed that experience and expertise obtained in the CBHE projects helped them to build capacities to apply to and to reinforce interaction and cooperation with other international programmes and projects of the European Union, House of Europe, British Council, French Institute, DAAD, IRF, USA Embassy and others. It provides more multiplication of the CBHE projects outcomes and ensures synergy.

Mobility. The international relation officers claimed that international mobility plays the key role in internationalisation of HEIs. Majority of CBHE projects include a short-term international mobility of academic and administrative staff for training of trainers, study visits and students’ exchanges. The participants of the mobility brought the European culture of the educational process design, new experience of communication with students and other stakeholders, different approaches to the soft skills teaching and learning and enriched the quality assurance culture at their HEIs. The practical guides on mobility in the period of quarantine developed within the projects became extremely relevant under the COVID-19 pandemic challenges. The students mobilities periods and results were

recognised by their home universities based on the ECTS tools applied in the modernised curricula. The International Relation Officers confirmed that the recognition mechanisms worked better after the participation in the CBHE projects.

- The Structural project **MILETUS** – Students' Mobility Capacity Building in Higher Education in Ukraine and Serbia, developed “Guidelines for the virtual/blended mobility programmes”, “Selection criteria for virtual/blended student’s mobility programmes”, “Assessment scale and value of completed work for virtual/blended student’s mobility programmes”. The virtual/blended mobility implementation within the project benefited from cooperation and partnership with experienced Universities of Germany, Italy and Denmark.

Student support services. A necessary condition for effective educational activities is the development of a student support system, promotion of student successful learning, employability and further professional growth. Thus, Tempus projects that established and promoted student support services, networks, center of excellence for young researchers, start-up centers, centres of partnership with businesses in HEIs have created a basis for building student governance, alumni associations, and strong cooperation with major employers in Ukraine. This successful story has been followed by CBHE projects to ensure the synergy and enhancement of the students’ scientific, technical and creative capacity, support of youth innovation entrepreneurship via Fablab centers. Such centers has been successfully working under pandemic conditions using e-resources and tools. Later on such Student's Ombudsman Offices in the Ukrainian HEIs for the student rights protection and advocacy at the institutional level complimented to the national education reforms.

- **FABLAB project** – Development of a network infrastructure for youth innovation entrepreneurship support on fablab platforms: partner Universities purchased the equipment and created the FabLabs to become the platform for students innovations development and promotion.
- **AESOP project** – Advocacy Establishment for Students through Ombudsman Position: cooperates with the Education Ombudsman in Ukraine on further student governance progress in Ukrainian HEIs.
- **HRLaw project** – European Human Rights Law for Universities of Ukraine and Moldova: continue establishing Offices of Student Ombudsman covering other HEIs and regions of Ukraine to unite the national and international network.

Knowledge triangle. An integral part of the modern higher education is innovation-based research as it was communicated by all HEIs. Starting from the Tempus projects, which were focused on knowledge triangle, they provided recommendations on the legislation changes for commercialisation of HEI’s innovations, designed a model of research and business University, created a network of innovation, units for knowledge transfer. Moreover, the CBHE projects were performed by synergizing and bringing more value added to the higher education quality improvement based on research and innovation. According to the responses received from 69 HEIs, projects teams produced research papers, monographs and teaching manuals based on innovative outcomes of the CBHE projects. Such research outcomes had served as a basis for modernisation and creation of the curricula and syllabus.

Lifelong learning (LLL) is an essential part of the majority of the CBHE projects. 24 CBHE projects (2015-2020) developed the LLL courses as additional benefit and opportunity for training, retraining and in-service training of students, academic staff, QA experts, school and VET teachers, and other professionals and target groups (for non-academic labour market, including Veterans of the Antiterrorist Operation) in different areas: IT, Engineering, Social Sciences, Law, Health, Medicine, Agrarian Studies, Ecology, Transport, etc.

- Education – school and VET teachers: **ITE-VET** – Improving teacher education for applied learning in the field of vocational education; **MOPED** – Modernisation of Pedagogical Higher Education by Innovative Teaching Instruments;
- IT: **FABLAB** – Development of a network infrastructure for youth innovation entrepreneurship support on fablab platforms; **MASTIS** – Establishing Modern Master-level Studies in Information Systems; **GameHub** – University-enterprises cooperation in game industry in Ukraine; **ALIOT** – Internet of Things: Emerging Curriculum for Industry and Human Applications;
- Engineering: **BIOART** – Innovative Multidisciplinary Curriculum in Artificial Implants for Bio-Engineering BSc/MSc Degrees;
- Social Sciences: **GeSt** – Gender Studies Curriculum: A Step for Democracy and Peace in EU-neighbouring countries with different traditions;
- Law: **HRLaw** – European Human Rights Law for Universities of Ukraine and Moldova;
- Health: **BIHSENA** – Bridging Innovations, Health and Societies: Educational capacity building in the Eastern European Neighbouring Areas;
- Medicine: **TAME** – Training Against Medical Error;
- Agrarian Studies: **TOPAS** – From Theoretically-Oriented to Practical education in Agrarian Studies; **Ag-Lab** – Improving skills in laboratory practice for agro-food specialists in Eastern Europe;
- Ecology: **WaterH** – Harmonising water related graduate education; **ECOIMPACT** – Adaptive learning environment for competence in economic and societal impacts of local weather, air quality and climate;
- Transport: **SMALOG** – Master in Smart Transport and Logistics for Cities.

Quality Assurance development is vital for the Ukrainian HEIs in order to pass the accreditation successfully in line with ESG-2015. High number of the Universities-partners got unique experience in quality assessment, e.g. HEIs hosted advisory visits of EU partners' experts and site visits organised in international accreditation procedure format with participation of regular accreditation experts from different accreditation agencies, like ASIIN Germany, Quality Agency for Higher Education Latvia, ANQA Armenia, SKVC Lithuania, and ACQUIN Germany. Such experience allowed the HEIs to be more prepared for obligatory accreditation. Besides, the administrative and academic staff enhanced their knowledge, enriched resources on the methodologies on quality assurance and together with the Quality Assurance units established within the CBHE projects contributed to the establishment or enhancement of the quality assurance system at the institutional level.

PhD education. The HEIs specified that they developed courses for PhD programmes in different subject areas, such as Ecology, Climate change, IT, Law, Transport, etc. They contributed to the Ukrainian PhD education convergence with the best practices of the Programme Countries universities experience. The modernised/developed PhD programmes have introduced a learning component and were prepared for the accreditation.

- Ecology: **INTENSE** – Integrated Doctoral Program for Environmental Policy, Management and Technology with particularities of these subject areas;
- Climate change: **ECOIMPACT** – Adaptive learning environment for competence in economic and societal impacts of local weather, air quality and climate;
- IT: **ALIOT** – Internet of Things: Emerging Curriculum for Industry and Human Applications;
- Law: **HRLaw** – European Human Rights Law for Universities of Ukraine and Moldova;
- Transport: **SMALOG**-Master in Smart Transport and Logistics for Cities.

School Teachers` Education. Modern Educational ecosystem for school teachers` education by using innovative instruments was created within CBHE project at 6 Ukrainian HEIs. The Innovative Classroom Concept, Guide on building the digital competence teacher profile and proposed standard of digital competences for a school teacher and University teacher with the list of requirements for each competence component were developed and provided in the open access to be further use by other HEIs and schools. The ecosystem created within the project had become the center of excellency network for the school teachers` education, training and in-service training.

- **MOPED** – Modernisation of Pedagogical Higher Education by Innovative Teaching Instruments: created and equipped the Innovative Classrooms (ICR) at 6 UA HEI as a 21st-Century learning space based on the best European practices of innovative teaching. Such learning space included training zones for students` activities: STEAM-Lab; IT space; Mobile Learning space; Presentation space; Reflection & Teacher`s spaces. A number of school and university teachers have obtained new competences on STEAM education via MOPED trainings (online and face-to-face format) that became popular among the HEIs students and secondary schools teachers all over Ukraine.

Medical Education. According to the HEIs, the CBHE projects provided them an opportunity to contribute to the modernisation of Medical Education through innovative and interdisciplinary approaches. In particular, the academic staff of the HEIs were trained to adapt new teaching methods focusing on patients` safety, training against medical errors. The modernised curricula created the safe environment, where making mistakes without any harm to patients, had become the learning experience for students and enriched their clinical reasoning skills focusing on the future practices.

- **TAME** – Training Against Medical Error: HEIs translated, adopted and incorporated into the curricula 6 Pediatric D-Problem-Based Learning Virtual Patient error cases provided by St.George`s University of London, created 6 new cases in Medicine (GP; Surgery; Infectious Diseases), determined by the local priorities. The TAME project has shared its outputs with the WAVES network that aims to widen the access to Scenario Based Learning (SBL). A toolkit has produced, which can be used by different organisations to create scenarios. TAME disseminated how the scenarios were used to train against medical errors at the WAVES multiplier event, leading to intensive discussions on the area and potential new collaborations. The TAME is also associated with the MEFANET network and the past ePBLnet consortium (previous Tempus project). All these networks share best practice on SBL. In addition, since 2018 BSMU has become a pilot institution of the UA-Swiss Project “Development of medical education in Ukraine”, one of the objectives of this project is problem-based education of medical students and nurses.

- **BIHSENA** – Bridging Innovations, Health and Societies: Educational capacity building in the Eastern European Neighbouring Areas. 11 new courses were developed and opportunities for exchange and collaboration between representatives of different disciplines and professional fields in health, innovations and society are provided.

Technologies. The modern well-equipped infrastructure of the HEIs built under CBHE projects is presented by new or modernised institutional units: for quality assurance (32 % of the respondents), international affairs (12 %), and digital education, fablabs, gamehubs, dochubs, students’ ombudsman offices (22 %) etc. Modern equipment, software, resources and subscriptions to the international professional periodic purchased by the project were used a tool to achieve learning objective of the modernised curricula, equipped students with relevant technologies and contributed to the overall projects objectives success. (see Fig. 9).

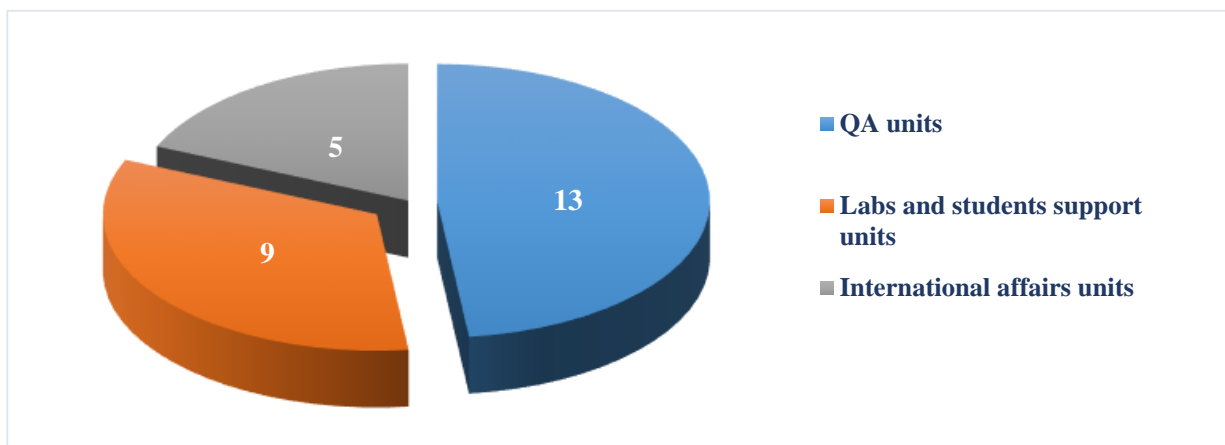


Fig. 9. Established units under the projects.

It should be mentioned that the impact of the CBHE projects on the institutional transformations has brought value added to the human capital development, modern curricula, teaching and learning resources, innovative methods and technologies with modern infrastructure. Moreover, such impact leads to the quality assurance culture building at the Ukrainian HEIs based on the EU best practices. As a result, it helps the Universities benefited from the EU Programmes to become the centers of excellence in their sectors (Annex, Tabl. 2) and communities and made them attractive to the foreign students and international partners as well as enhanced trust from the society.

Impact at the system level

The Ministry of Education and Science of Ukraine (the Ministry) is the key beneficiary of Erasmus+ Programme according to the national legislation. During the projects meetings and working groups, the Ministry highlighted the importance and relevance of the Erasmus+ Programme to reforms. Their team had been participating in partnerships of 16 projects, including 9 Structural Projects. Structural projects have focus on the national and systemic changes. The Ministry’s staff feedback stated that they understood their role as particularly important to ensure that the results were relevant to the reforms’ priorities and used at the national level.

The wide dissemination and support to the outcomes sustainability was another aspect of the Ministries contribution to the success of the Programme, while synergy with other international programmes and

projects, e.g. European Union, British Council, House of Europe, French Institute, DAAD provided even more value added to the educational reforms implementation.

The CBHE projects are officially registered in Ukraine as an international technical assistance in cooperation with the EU Delegation to Ukraine and Secretariat of the Cabinet of Ministers of Ukraine. Via such instrument the EU support is recognised and visible at the national level by the Government. The Ministry of the Education and Science of Ukraine is informed about the projects activities and achieved results by the year monitoring, which takes place every half a year. The registration card with Procurement Plan allows the HEIs and other organisations to apply exemptions from the income tax, VAT, custom and other fees.

In 2015 and 2017, during the consultations period for the six calls the Ministry provided the list of the national priorities recommended to the European Commission for the CBHE projects (2015-2020). The priorities were chosen based on consultations with HEIs, NEO – Ukraine, HEREs and in line with the national education policy and needs of academic, social and economic stakeholders (see Annex, Tabl. 1).

It was noted that the compliance of the CBHE projects National and Regional Priorities with the relevance of the Ukrainian educational reforms had been increasing consequently to meet new circumstances and challenges that Ukraine was facing in the period of 2015-2020.

The Ministry staff highlighted that their participation in the study visits and training of trainers contributed to the application of the international experience into their professional activities.

They were equipped with the modern higher education trends and best practices of their international colleagues working on the higher education reforms.

Thus, the Ministry's staff applied recommendations and other documents prepared by the project teams into the state policy development and improvement of the regulatory legal framework. As a result, the legislation was converged with the Bologna Process recommendations based on the Programme Countries expertise.

For instance, the Ministry applied projects experience into the update of the Regulation on Academic Mobility Right adopted by the Cabinet of Ministers of Ukraine in 2015. It is expected that the improved regulation considers the new reality of the mobility restrictions and help HEIs to meet the Erasmus Charter for Higher Education principles, moreover, to apply and recognise the blended mobility. Another example, CBHE projects experience with the innovative idea to create the Student's Ombudsman Offices for students` rights protection and advocacy contributed to the modernisation of the Law of Ukraine "On Education" (2017). The institution of the Education Ombudsman in Ukraine was introduced (established by the Resolution of the Cabinet, 2018), which acts at the national level.

- **MILETUS** project outcomes were used to modernise the Regulation on Academic Mobility Right adopted by the Cabinet of Ministers of Ukraine in 2015 in accordance with new challenges of COVID-19 pandemic.
- **AESOP project** – Advocacy Establishment for Students through Ombudsman Position: cooperates with the Education Ombudsman in Ukraine on further student governance progress.

- **HRLaw project** – European Human Rights Law for Universities of Ukraine and Moldova: continue establishing Offices of Student Ombudsman covering other HEIs and regions of Ukraine to unite the national and international networks.

The **key reforms in education** of Ukraine were determined by the Laws of Ukraine “On Education”, “On Higher Education”, “On Research and Scientific and Technical Activities” and EU – Ukraine Association Agreement as well as relevant decisions of the Ukrainian Government: Higher Education Quality Assurance System Building, Third Cycle (PhD) Development, Teacher Education Modernisation and Medical Education Improvement. The Ministry highlighted that the CBHE projects outcomes contributed to educational reforms by close interaction of different stakeholders and experts’ communities and also impact the quality enhancement and cultivation of the higher education quality culture. Among the stakeholders and beneficiaries, the most active include the Parliamentary Committee on Education, Research and Innovation, National Authorities, National Agencies for Higher Education Quality Assurance, National Agency of Qualifications, National Academy of Educational Science of Ukraine, Students and Employers Unions, civil society organisations etc.



Experts pool. The Ministry and CBHE projects mentioned close and efficient cooperation with NEO – Ukraine and HERE team in the context of the Bologna tools implementation and compliance with the national legal framework. HEREs play important role in modernisation of the legislation in line with the Bologna Process and EU-UA Association Agreement. Together with the project teams, they took active part in preparation of the Law of Ukraine “On Higher Education” (2014) and Law of Ukraine “On Education” (2017), Regulation on Academic Mobility (2015), National Concept “New Ukrainian School” (2016) including Teacher Education reforms. HERE representatives provide their expertise of the national Higher Education Standards that are used for accreditation. Additionally, the former and current HERE team members obtain official positions in education policy-making. Among them, there are Minister of Education and Science of Ukraine, Deputy Ministers, Parliament’ Members, Parliament’s Committee Secretariat. Also, 2 HEREs have become the NQAA members and promote EHEA values in higher education reforms in line with the Bologna principles utilising CBHE projects outcomes, in particular. The HEREs’ external expertise recommendations to the curricula developed by projects contributed to the higher education quality improvement.

Furthermore, the large cohort of experts to implement reforms and enhance higher education quality at the national level was formed based on the CBHE projects teams, NEO – Ukraine, HEREs and in cooperation with other international projects of the European Union, British Council, International Renaissance Foundation, French Institute, DAAD, Government of Poland, Czech International Development Agency, USA Embassy and others.

The CBHE projects outcomes impact the national policy development in QA and other specific areas. 73 % of the 41 HEIs – survey feedback confirmed that CBHE projects teams’ representatives were involved in various working / expert groups on modernisation of legislation, strategies, concepts, standards of higher education, accreditation procedures, etc. The expertise applied was obtained based on the Programme Countries partners experience of the reforms.

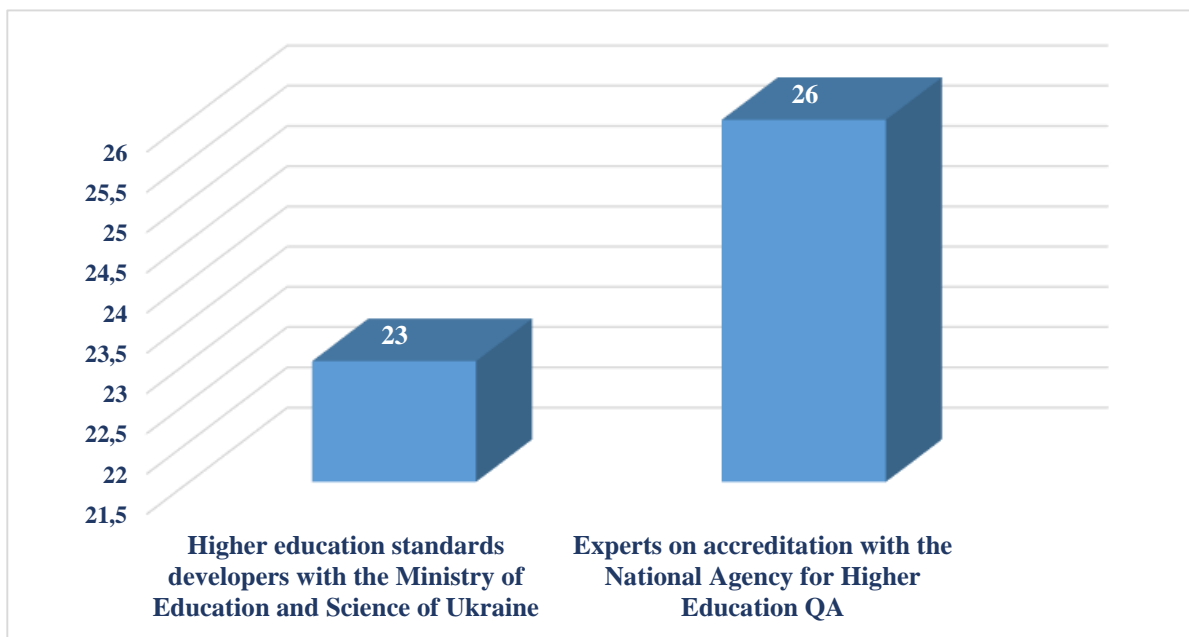


Fig. 10. Representatives of project teams as QA experts.

The Ministry representatives stated the national wider impact of the CBHE Structural projects which demonstrated the correlation with key national reforms in Ukraine, in particular, improvement of PhD education and QA system of higher education.

Interviews with the representatives of the Ministry and NAQA demonstrated their interest in CBHE project support for reforming education in Ukraine based on European practices and experience. According to their observations, thanks to the EU funding support, the CBHE projects’ have contributed to the progress of the education reforms in Ukraine. However, they are convinced that the most significant and large-scale impact of CBHE projects is particularly observed in the development of PhD education and QA system.

Impact on Higher Education Quality Assurance System Building. Among the CBHE projects outcomes: recommendations and operating procedures on QA according to the ENQA documents; methodological guides on educational standards; guidelines for effective use of comprehensive integrated information system in University management as a part QA system. Tempus projects have provided a profound background for the smooth transformation of Ukraine’s accreditation system from bureaucratic format to the ESG 2015 regulations.

The Law of Ukraine “On Higher Education” (2014) had incorporated EHEA approaches to quality in higher education based on the experience obtained by the Tempus projects teams. However, novelties of the Law on QA instruments were required to be implemented at national and institutional level adopting new regulations, guidelines, procedures, etc. Quality Assurance in Higher Education in line with the ESG was an absolute innovation for Ukraine, so it was impossible to improve the national QA system effectively and fast without the experience of European partners and support of the CBHE projects.

CBHE projects created opportunities to achieve real results in QA System building from its start and in line with ESG 2015. Thanks to the synergy and complementarity provided by Structural Projects from

year to year, Ukraine has made a significant progress in creating and improving of the national QA system during 2015-2020.

Guidelines on policies and procedures for External and Internal QA systems were developed and presented in the analytical reports – “Quality Assurance in Higher Education – manual for stakeholders”, “System of Quality Assurance for Ukrainian HEIs based on ESG 2015”, “Accreditation of study programme” and “Experience of Taras Shevchenko National University of Kyiv on board of QUAERE consortium”. The EQA and IQA policies and procedures as well as recommendations on the organisational structure, functionality, procedures of the Internal Quality Assurance system were piloted for the further use by HEIs in and out of the partnership.

The Ministry of Education and Science of Ukraine, National Agency for Higher Education Quality Assurance (NAQA) and Ukrainian Students Union in cooperation with CBHE projects elaborated appropriate tools for External QA in Ukraine in accordance with the ESG and for further use by the NAQA. Representatives of Ukrainian HEIs and NAQA prepared a description of the model of Internal Quality Assurance system for Ukrainian HEIs and the model of External Assessment.

Structural CBHE projects initiated and educated a quality assurance experts pool in Ukraine based on the cohort of the experienced in piloting accreditation project partners, representing by the teaching, research staff, students, employers’ organisations and other stakeholders. Later on, they provided a multiplying effect and disseminated their expertise to HEIs out of the partnerships. A number of project participants became experts of NAQA or developers of higher education standards under the Ministry selected by the open competition. Additionally, the detailed Training Kit for training QA experts is used both at national and institutional levels.

According to the NEO – Ukraine survey, 12 % of the respondents are QA experts of NAQA, about 14 % – higher education standards developers of the Ministry working group.

In 2018, four participants of CBHE projects were selected as members of the NAQA from the HEIs and Ukrainian Students Union, other representatives of the CBHE Structural projects participated in the Ministry’s working group on preparation of draft documents for reformed NAQA using resources and experience obtained in frame of the projects. As a result, the NAQA created regulations on accreditation in line with ESG 2015 based on CBHE project outcomes and started accreditation in 2019.

Important CBHE project contribution into the QA system building in Ukraine is PhD programmes quality evaluation and internationalisation. The project’s recommendations for evaluation of PhD programmes in Ukraine include guidelines on development of External QA standards and procedures, Internal QA policy for 3rd cycle programmes, self-assessment reports for PhD programme, site-visits reports. These important C3QA deliverables were linked to the current reforms in QA and PhD education process in Ukraine. Piloted cases of 3rd cycle programme accreditation of Ukrainian Universities by the European Agency, methodological and advisory documents produced by the Ukrainian partners had been adopted by the NAQA.

The case of Ukrainian Universities demonstrates the full cycle process to obtain the PhD programme accreditation from the European Agency Haut Conseil de l'évaluation de la recherche et de l'ES (HCÉRES, France) under CBHE project. The full cycle of the accreditation process is presented on its

website for wide usage by HEIs. The NAQA recognises accreditation by the HCÉRES that is included into the List of QAAs, decisions of which are recognised by Ukraine according to the Cabinet's Regulation. The HEIs – CBHE project partners are the first ones accredited by the international QAA in line with ESG in Ukraine.

The NAQA used the recommendations and experience in international accreditation of CBHE project for formation of Criteria 10 concerning PhD programmes accreditation with participation of the Ministry of Education and Science of Ukraine (Regulation on accreditation, 2019) as well as for developing Guidelines for QA experts on accreditation procedure. Thus, the NAQA and HEIs managed to prepare for the PhD programmes accreditation, which started in 2020 smoothly.

The NAQA has prepared the Guidelines for QA experts on accreditation using CBHE project recommendations for establishing an Internal QA system, for involvement of students and employers into the accreditation process as well as study programmes design and review.

Among other contributions of the project to the QA system building in Ukraine is the development of a QA experts' network via cooperation of Universities-Business-State, improving set of standards, guidelines for Internal Quality Assurance in higher education.

- **QUAERE** – Quality assurance system in Ukraine: development on the base of ENQA standards and guidelines;
- **C3QA** – Promoting internationalisation of research through establishment of Cycle 3 QA System in line with the European Agenda;
- **EDUQAS** – Implementation of Education Quality Assurance system via cooperation of University-Business-Government in HEIs).

Impact on Third Cycle (PhD) Development. The best-practice Model of Doctoral schools as well as a three-cycle system within Social Work, Engineering, Green Computing and Communications sectors had been developed with support of Tempus projects. It had built the background for the Ukrainian legislation on three-cycle system starting from 2014. This process was followed and facilitated by 2 Structural projects DocHub and C3QA.

- **DocHub** – Structuring cooperation in doctoral research, transferrable skills training, and academic writing instruction in Ukraines regions;
- **C3QA** – Promoting internationalisation of research through establishment of Cycle 3 QA System in line with the European Agenda.

New type of institutional culture allowing horizontal networking by thematic research groups and regional accumulation of resources was represented by the Structural projects. The project teams developed proposals for national policy on PhD education modernisation, regulatory frameworks on inter-institutional cooperation and recognition in PhD education, licensing and accreditation of joint PhD programmes in close cooperation with the Ministry and NAQA.

The project's recommendations for accreditation of inter-institutional PhD programmes were adopted by NAQA. Current licensing regulations of the Ministry allow only one HEI to open a PhD programme and it is impossible to get license for two and more HEIs involved in delivery of a joint

PhD programme. The new regulations (section on PhD licensing agreed with DocHub partners) are expected to be approved by the Cabinet of Ministers of Ukraine in 2021. These new regulations will allow joint licensing with transferring credits ECTS. The Draft Order on PhD thesis defence procedures in line with the EHEA approaches was developed in cooperation with the NAQA and is under consideration in the Ministry of Education and Science of Ukraine.

Additionally, the Doctoral Schools in 5 regional Universities were established as National Centers of Excellence in PhD education – DocHub based on a new organisation structure for providing 3rd cycle higher education covering all regions of Ukraine. CBHE project raised awareness of training in methodologies as well as the importance of transferable skills training at the 3rd level of education (based on the recommendations of EUA Doctoral Council EURODOC, VITAE project, EURAXESS skills evaluation tools) in the context of future employment and Open Science practices.

The important CBHE project deliverables linked to the current reforms in PhD education process in Ukraine – development and establishment of effective Internal and External QA for 3rd Cycle, piloted cases of PhD programme accreditation of Ukrainian Universities by the European Agency, methodological and advisory documents produced by the Ukrainian partners to obtain an external accreditation according to the EU recommendations.



Innovative organisational approach to virtual and blended mobility for PhD students based on European practices was developed within the CBHE project. It considered the needs of inclusive target audience. At the same time, the Cabinet's Regulation on academic mobility (adopted in 2015) did not reflect the third cycle specifics, thus limited the opportunity for virtual and blended mobility. The project outcomes on PhD mobility

issues helped to find the best way for improvement of academic mobility procedures and to launch mobility programmes to PhD students with disabilities. The project provided an additional evidence of the need and relevance of virtual and blended mobility to the Ministry and society, it had been especially timely in the pandemic period. Thus, modernisation of the Regulation on academic mobility and introduction of virtual and blended mobility are planned to be adjusted in 2021.

Impact on Teachers' Education Modernisation. The CBHE projects outcomes as well as Tempus project developments were used for formulation of ideas to reform school education and teachers' training in accordance with the Law of Ukraine "On Education" (2017): guidelines and courses on pedagogical innovations in inclusive education for school teachers' training, centers of excellence in educational management, centers of excellence for teachers education and training on effective work with heterogeneous groups of children and young people, models of teacher language education. Modern Educational ecosystem for school teachers' education developed under CBHE project is additional education resource in frame of the National Conception Principles of Secondary Education Reform "New Ukrainian School".



The Ministry had examined the project outcomes for further application as a national education resource to be recommended to the HEIs as a case study to implement such approach for the school teachers` education in accordance with the “New Ukrainian School”.

Impact on Medical Education Improvement. Reforming Health sphere and Medical education, in particular, in Ukraine became extremely relevant during the COVID-19 pandemic challenges. Some elements of Health sphere transformation were introduced by the Tempus projects and continued by the CBHE projects – network of national centers on medical education for implementation of methodologies on virtual patient; advanced courses with problem and scenario based approaches and IT in Medical education; interdisciplinary innovation centers with using the virtual medical microbiology laboratory, etc.

CBHE projects input into the Health system reform discourse promotion is reinforced by building bridges between the medical scholars and managers, establishing opportunities for their communication and engagement in various Health-related fields, introducing inter-disciplinary and innovative approaches for solution of emerging Health-related issues in Ukraine. The cooperation between Ukrainian medical HEIs and Ministry of Health of Ukraine got a new impulse due to the CBHE projects and partner Universities` joint work on several strategic documents. The projects created the “critical cohort” to introduce the educational culture based on patients` safety. Thus, the contribution of CBHE projects and its European partners to the development of innovative approaches in Ukrainian medical education is valuable for the Health system reforms.

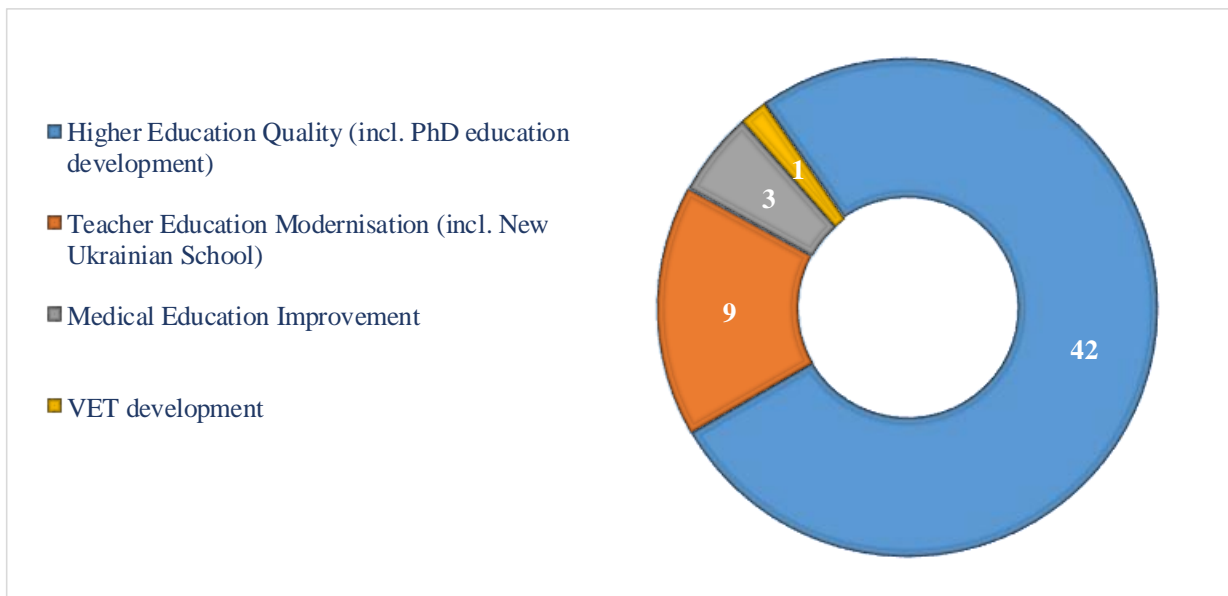


Fig. 11. Reforming HE in Ukraine with support of CBHE projects.

As a top up, the CBHE projects cover all Ukrainian regions which provide wider impact on the multiplier effect to disseminate the international experience and expertise gained in cooperation with the EU partners to HEIs out of the projects partnerships.

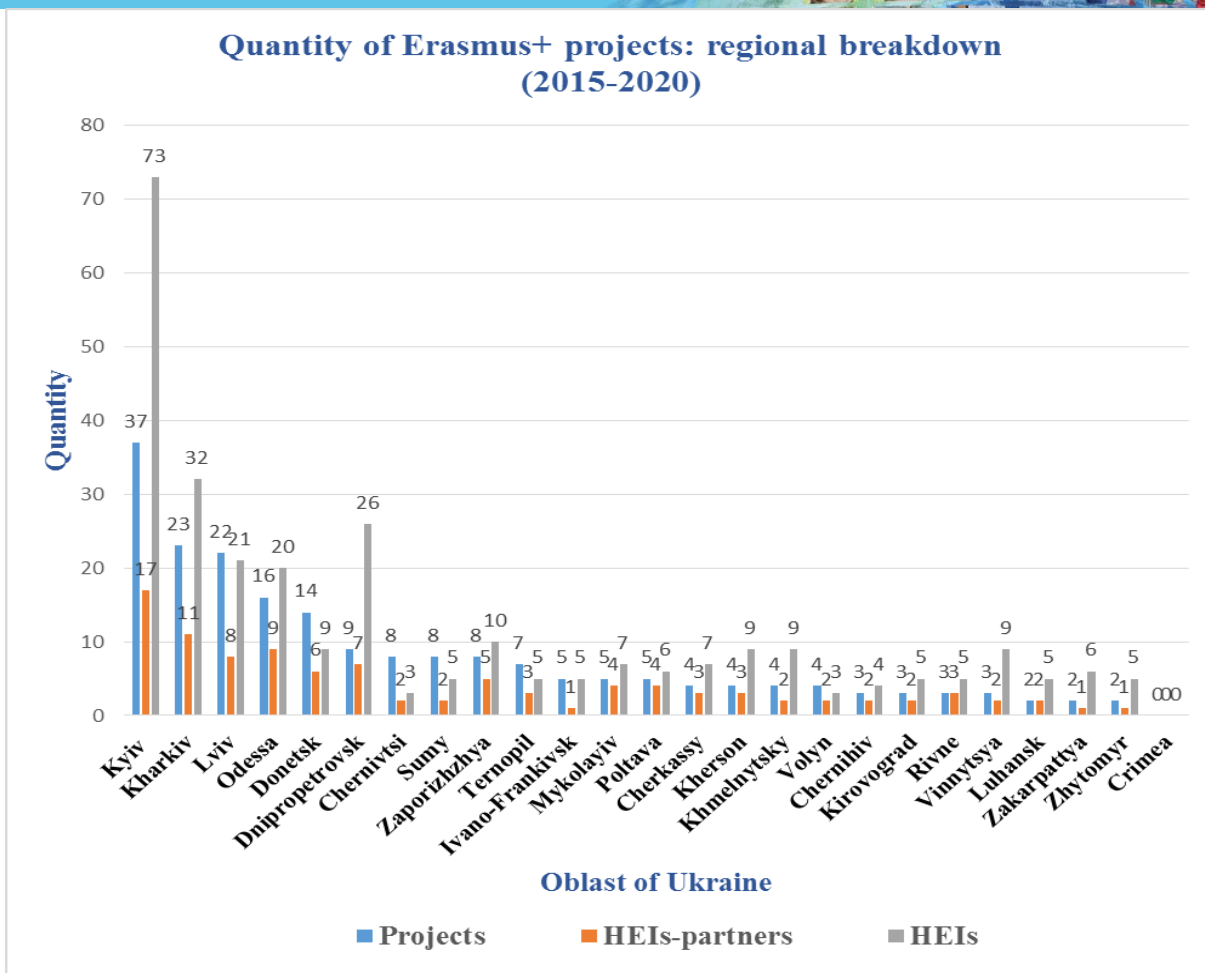


Fig. 12. Quantitative breakdown of HEIs, Erasmus+ projects and Ukrainian HEIs – project participants by regions of Ukraine

CONCLUSIONS & RECOMMENDATIONS

Over the 7-year history of Erasmus+ Programme CBHE Action in Ukraine, new HEIs got involved in the EU-funded projects every year. Overall, 106 HEIs from all regions of Ukraine have formed a community of the agents of changes, that being 38 % of the total number of Ukrainian Universities, institutes, and academies. Besides, 12 research institutions, which offer PhD programmes, have been involved in CBHE projects as active partners.

Conclusions

Review of the websites of the CBHE projects (2015-2020) and analysis of the reports, surveys and interviews with students, academic and administrative staff of HEIs, Ministry of Education and Science of Ukraine, National Agency for Higher Education Quality Assurance (Ukraine), students and employers' organisations during NEO – Ukraine activities provided the background for the following conclusions.

The long-term results of the CBHE projects demonstrated the impact on the creation of the QA system in line with ESG, development of the PhD education, the internationalisation of higher education. The established partnerships between Ukrainian and Programme Countries HEIs had transformed into the joint research, projects and publications, guests lecturing, academic and credit mobility projects, mutual usage of equipment etc. Furthermore, the projects promoted communication and collaboration between HEIs and Ministry of Education and Science of Ukraine, National Agency for Higher Education Quality Assurance (Ukraine), between academic staff and university leadership, between employers and university teachers and students across Ukraine.

Cooperation with European counterparts has enabled the university staff to acquire new competences in various subject areas, including QA, IT for distance learning, implement new online teaching methods, which eventually improved education quality and strengthened competitiveness of the HEIs projects partners, especially during the pandemic period.

Students' involvement in innovative learning methods and concepts as well as awareness of European Universities culture promoted improvement of their communicative and IT skills, intercultural dialogue, perfection of foreign language skills, and development of a more self-dependent approach to on-line learning.

The Ukrainian HEIs have successfully started developing their Internal QA system and study programmes accreditation, modernising their curricula and educational process according to the EHEA provisions. The achieved progress they associated with the benefits received from the CBHE projects.

The Erasmus+ Programme provides a valuable opportunity for Ukrainian HEIs to purchase modern equipment and software for arrangement of innovative classes, creative zones, special education and research laboratories, fablabs, dochubs, centers of excellence, etc. Such well-equipped infrastructures provided better opportunities to transfer into the distance/blended learning and mobility to provide more practice-based teaching and learning and improved the quality of education activities.

It is important to highlight that universities, leaders in the Erasmus+ Programme are included into 2 world rankings: THE and QS: Taras Shevchenko National University of Kyiv, V.N. Karazin Kharkiv National University, National Technical University “Kharkiv Polytechnic Institute”, Lviv Polytechnic National University and the Sumy State University. They have demonstrated substantial achievements in their internationalisation and associate this success with Erasmus+ projects outcomes impact on the institutional growth.

The majority of the CBHE projects developed lifelong learning courses in different subject areas for professional development and for the whole society and implemented them in distance/blended learning mode.

Significant impact on QA system development is provided by a number of CBHE projects participants and involved representatives of HEIs: project partners as experts for accreditation (selected by NAQA) and as higher education standards developers (selected by the Ministry of Education and Science of Ukraine) etc.

CBHE Structure Projects have had relevant impact on key education reforms in Ukraine: QA System Building in Ukraine – prepared guidelines for QA, trained QA experts for helping NQAA to start activity on accreditation; Third Cycle (PhD) Development – prepared proposals for national policy on PhD education modernisation, regulatory frameworks on inter-institutional cooperation and recognition, accreditation of joint PhD programmes.



The interproject cooperation, complementarity and synergy of the CBHE projects contribute tremendously to the education reforms.

At the same time, along with benefits identified in the process of the impact study, certain challenges have been found. They confronted the projects to disseminate and

sustain the projects outcomes in a more effective and efficient way.

The following *challenges* on the process of implementing CBHE project results can be pointed out.

Modern information and communication technologies provided opportunities to promote study programmes via the Internet resources, however the HEIs often fail to make the full use of this tool. Most Universities provide limited information on their study programmes, courses, Internal QA system, research outcomes, other materials developed by the projects teams.

Ukrainian higher education legislation’s inconsistency with the current European integration requirements, the Bologna Process and the EHEA provisions comes out as a factor, which hinder implementation of project results. In particular, PhD education (Aspirantura) is formally (Law of Ukraine “On Higher Education”) a component of higher education or a third cycle, it does not fully comply with the EHEA approaches yet. Hence, several CBHE projects aimed at developing modern doctoral schools and joint PhD programmes actually have to operate under the outdated organisational and financial requirements to PhD education.



The regulation on the mobility right has not been updated with the new reality requirements, which delays the recognition of the virtual mobility, payment of the salary and stipendium by the home institution during mobility periods.

Complication and restriction on usage of the Universities' own revenues: special fund resources (Erasmus+ grants are referred to it, according to the legislation, Budget Code of Ukraine in particular). This situation aggravates risks for Universities' efficient compliance with their obligations concerning the use of Erasmus+ grant funds and makes it actually challenging to perform the grant holder and project coordinator roles.

The purchase of the equipment is still challenging based on the requirements to make a centralised purchase of the similar equipment type for all partners to get better price offer. The VAT exempt procedure does not work for the equipment suppliers if they purchase and deliver the equipment from abroad.

The Tax and Customs Codes, other laws of Ukraine, and relevant bylaws are required to be updated to regulate and take into account the international projects specifics.

Cooperation with the Ministry of Education and Science of Ukraine is not systematic and continuous. It is connected with frequent changes in the Ministry's leadership and other staff and leads to delays in the projects outcomes application at the national level and weak institutional memory.

Recommendations

1. Strong cooperation and interaction of the stakeholders and beneficiaries working on the higher education reforms is vital to join efforts and synergize to provide systemic changes.

2. The Ministry in cooperation with other stakeholders should continue improvement of the regulatory legal framework according to the European Higher Education Area in order to achieve an impact at the system level. The CBHE projects outcomes in quality assurance, PhD programmes, virtual and blended mobility, distance learning, creation, realisation and accreditation of joint study programmes can be applied.

3. The Ministry staff should play more pro-active role as education policy experts to apply the projects results into reforms and promote them widely to ensure horizontal interaction in order to increase the national impact and institutional memory.

4. The Ministry in cooperation with other stakeholders should initiate the changes in the legislation on international assistance to regulate the effective and efficient use of the grant funds, including payment for the staff cost, travel and stay costs, purchase of equipment and services.

5. The Ministry in cooperation with other international organisations should regular update and use the matrix of the projects and achieved outcomes and fit them to the reforms' priorities and ensure synergy. Such tool is already available at the Ministry's website but needs to be updated. NEO – Ukraine database and Erasmus+ Projects Outcomes Platform can be used as a relevant resource.

6. The Ministry in cooperation with other international organisations should update the pool of experts with the international experience in the higher education reform by priorities/clusters/subject



area or other relevant expertise. Such pool will help to bring modern international and national expertise into the relevant working groups of the Ministries, NAQA or other stakeholders. Such tool is already available at the Ministry's website but needs to be updated. NEO – Ukraine database of the EU-funded projects can be used as a useful resource.

7. The HEIs in cooperation with the NEO – Ukraine should organise regular promotional and cluster events to disseminate the CBHE projects outcomes, exchange the experience, provide best practice cases and open resources to the wider target audience.

8. The project teams should monitor the state of play of higher education reforms and contribute to them with the CBHE project outcomes in order to strengthen the system impact.

9. The CBHE project promoters should involve HEREs, alumni, students, young researchers and employers into the study programmes development, piloting and assessment as external quality evaluators in order to increase the institutional and individual impact of the results.

10. In order to reach a wider target audience with the lifelong learning courses, which were developed by the CBHE projects teams, HEIs should promote them in various ways, in particular through the HEI's website, professional networks, specific events and activities for different groups in cooperation with authorities, business, NGOs.

11. CBHE project teams should promote to the international educational market joint Master and PhD programmes developed within the CBHE projects in order to engage more international students. It can increase capacities to apply to the new Erasmus Mundus Actions.

12. HEIs should develop doctoral schools for PhD education based on the CBHE projects models which proved to be best practice cases.

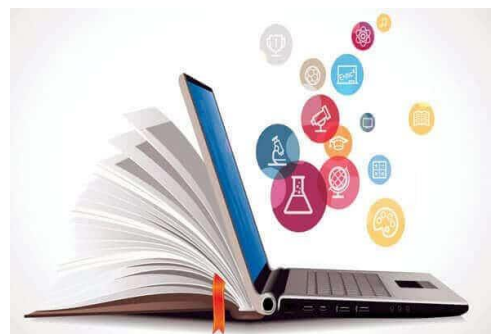
13. In order to increase the national, institutional and individual impact and sustainability of the results, HEIs should create/ sustain the websites/pages of the units established under the CBHE projects and promote their services, activities for target groups, other stakeholders and beneficiaries.

14. The HEIs should disseminate widely, coordinate interprojects cooperation and synergise of CBHE projects with other international projects and link their outcomes to implement the institutional development strategies.

15. The CBHE projects results should be published on the HEIs' websites in English or other EU languages to increase the institutional impact. Thus, they will attract more international partners and students for study, joint projects and research and other activities.

EXECUTIVE SUMMARY

In the period between 2015 and 2020, Ukraine has achieved significant results in reforming national higher education in the context of the Bologna process and integration of Ukraine into the EHEA. The Erasmus+ CBHE projects have played an important role in the modernisation of the Ukrainian higher education system and have contributed in particular to the development of the Bologna tools and to the implementation of external and internal quality assurance systems.



The most profound impact of the CBHE projects is demonstrated at individual and institutional levels.

Academic and administrative staff involved in CBHE projects reported professional development, improved competence in foreign languages and increased ability to work in international environment. Academic staff declared also obtaining competences in quality assurance, research in their specific areas and study programme modernisation. Finally, they reported the introduction of international dimension into their teaching and research activities (for instance, publications in international journals, joint publications with EU partners) and the increased use of distance learning during the pandemic period (creating e-courses, using e-tools, e-platforms).

For students, CBHE projects contributed to building their scientific, technical and creative capacity, support of youth innovative entrepreneurship and to provide online education under the COVID-19 pandemic restrictions. Benefiting from the CBHE projects outcomes, like students-centered and practice-oriented study programmes, creative learning methods and innovative technologies, the students become well-equipped with relevant competences to compete at the global labour market.

Thanks to their participation in CBHE projects, Ukrainian HEIs and other organisations have developed their capacities to implement institutional reforms based on the EU best practices. Universities have modernised existing curricula and created new study programmes, have boosted their internal governance, established new students support services and enhanced cooperation with the labour market and the whole society. Implementation of distance learning, blended approaches, e-tools and e-platforms as a part of the CBHE projects have become essential tools to meet the pandemic and other challenges. The Study demonstrates that HEIs participating in CBHE projects use innovative teaching and learning methods and tools, e-courses for distance learning, related hardware and software much more successfully than other HEIs in Ukraine.

Among the services established by the HEIs, Quality Assurance units can be highlighted. Training on quality assurance provided to the staff in frame of the projects was a great opportunity for HEIs to become more prepared for accreditation according to new national legislation and ESG. The capacity of the international affairs units, encompassed by the created or modernised institutional strategies on internationalisation, was also improved due to participation in CBHE projects. Capacities of the HEIs of Ukraine to manage the international projects for the benefit of their own institution and for the benefit of the national reforms are demonstrated by the increased number of Ukrainian project coordinators selected under the last Call for proposals.

Structural Projects have nation-wide impact on the system of higher education and contribute to the national reforms in Ukraine, such as quality assurance and PhD education. CBHE projects created opportunities to achieve good results in quality assurance system building from its start according to ESG 2015. Thanks to the synergy and complementarity provided by Structural Projects from year to year, Ukraine has made a significant progress in creating and developing national quality assurance system during 2015-2020. Model of Internal quality assurance, quality assurance expert pool, guidelines on accreditation were prepared under the projects and used by the National Agency for Quality Assurance (Ukraine).

As regards the accreditation of PhD programmes, it has started to run smoothly in 2020. Such achievements are associated with the adopted of CBHE project's recommendations for accreditation of PhD programmes by the National Agency for Higher Education Quality Assurance (Ukraine) and the Ministry of Education and Science of Ukraine.

Other national priorities for higher education, such as lifelong learning opportunities and modernisation of School Teacher Education, have been covered by CBHE projects. In the context of the COVID19 pandemic, the reform of Health sphere and Medical Education became extremely relevant in Ukraine. CBHE projects gave Ukrainian HEIs opportunity to make contribution into modernisation of Medical Education through innovative and interdisciplinary approach. The cooperation between Ukrainian medical HEIs and the Ministry of Health of Ukraine got a new impulse due to the CBHE projects and partner HEIs involvement into joint work on strategic documents.

The system impact of CBHE projects is reached thanks to the close cooperation between the national authorities and the project teams. In this view, full participation and commitment of the Ministry of Education and Science of Ukraine to the Action has proven to be crucial. Ministry's representatives take part in information, communication and training activities during the projects implementation, ensure updating of standards for curricula created or modernised within the projects, act as consultants and experts in formulation of recommendations and other documents on the national policy as well as in improvement of the regulatory legal framework. At the same time, CBHE projects participants ensure close cooperation with the Ministry and other national authorities to align the project activities and results to the Bologna commitments and ensure coherence and compliance with the national legislation and EU – Ukraine Association Agreement. An example of this cooperation is the engagement of CBHE projects participants as experts in various working groups in charge of national policy development.

Nevertheless, Ukraine has still a lot of homework to be done and strengthen the capability to implement higher education reforms and EU – Ukraine Association Agreement obligations and to join European Education Area successfully. A special window for Ukraine within Erasmus+ Programme to increase the number of the CBHE projects would contribute to the growth of critical cohort of agents of change to implement such reforms.

ANNEXES

Tabl. 1. National Erasmus+ CBHE Priorities

2015	2017
<u>CATEGORY A – SUBJECT AREAS (FOR CURRICULUM DEVELOPMENT PROJECTS)</u>	
Teacher Training and Education Science Social and Behavioural Science Life Sciences Physical Sciences Computing Engineering and Engineering Trades Architecture and Building Health Transport Services Security Services	Education Journalism and Information Biological and Related Sciences Engineering and Engineering Trades Manufacturing and Processing Agriculture, Forestry, Fishery and Veterinary Health Welfare Transport Services Security Services
<u>CATEGORY B – IMPROVING QUALITY OF EDUCATION AND TEACHING</u>	
Support to:	
- Learning and teaching tools, methodologies and pedagogical approaches including learning outcomes and ICT-based practices (<i>inter alia, flexible learning paths, blended courses, virtual and real mobility, practical placements, etc.</i>) - Multidisciplinary / Interdisciplinary	
<u>CATEGORY C – IMPROVING MANAGEMENT AND OPERATION OF HEIs</u>	
Support to:	
- Governance, strategic planning and management of HEIs (<i>including human resource and financial management</i>) - Quality assurance processes and mechanisms - Development of research and innovative capacities (<i>excluding research activities</i>)	- Governance, strategic planning and management of HEIs (<i>Such as human resource and financial management, etc.</i>) - University services (<i>Academic affairs, libraries etc.</i>) - Internationalisation of Higher Education Institutions (<i>Recognition mechanisms and mobility</i>). - Quality assurance processes and mechanisms (<i>Such as the development of mechanisms and benchmarks for quality assurance in different segments of HE (academic content and services)</i>) - Equity, access to and democratisation of higher education (<i>including the disadvantaged groups of people and regions</i>)
<u>CATEGORY D – DEVELOPING THE HIGHER EDUCATION SECTOR WITHIN SOCIETY AT LARGE</u>	
Support to:	
- University-enterprise cooperation, employability of graduates - Qualification frameworks - Knowledge triangle, innovation (<i>reinforcing links between education, research and business</i>)	- Development of school and vocational education at post-secondary non-tertiary education level (<i>Such as reforming in-service training for teachers and reforms to the teaching profession</i>) - Recognition of qualifications and Qualification frameworks - Definition, implementation and monitoring of the reform policies (<i>Including evidence-based policies, financing of education, governance, quality assurance of public and provide HE sector, introduction of transparency tools and standards and guidelines</i>)

Tabl. 2. Modernised Curricula in frame of the Erasmus+ CBHE Action projects

Fields of Study, ISCED-F	Erasmus+ CBHE projects on Curriculum Development, other category projects incl. CD (2015-2020 calls)
PRIORITIES ERASMUS+ CBHE ACTION	
2015 – Teacher Training and Education Science 2017 – Education	
1. Education	1. VET teacher education (ITE-VET) 2. STEAM Courses (Science, Technology, Engineering, Art and Mathematics) – Teacher Education (MOPED) 3. Foreign Languages Teacher Education (MultiEd)
2. Culture and Arts	
3. Humanities	
4. Theology	
PRIORITIES ERASMUS+ CBHE ACTION	
2015 – Social and Behavioural Science	
5. Social and Behavioural Sciences	1. Gender Studies in Social and Behavioural Sciences (GEST)
PRIORITIES ERASMUS+ CBHE ACTION	
2017 – Journalism and Information	
6. Journalism	
7. Management and Administration	1. Environmental Policy Management and Technology (INTENSE)
8. Law	1. Human Rights (HRLAW)
PRIORITIES ERASMUS+ CBHE ACTION	
2015 – Life Sciences 2017 – Biological and Related Sciences	
9. Biology	
PRIORITIES ERASMUS+ CBHE ACTION	
2015 – Life Sciences Physical Sciences	
10. Natural Sciences	1. Environmental Policy, Management and Technology (INTENSE) 2. Climate Management (CLIMAN) 3. <i>Climate Management (ECOIMPACT)</i>
11. Mathematics and Statistics	
PRIORITIES ERASMUS+ CBHE ACTION	
2015 – Computing 2015, 2017 – Engineering and Engineering Trades	
12. Information and Communication Technologies	1. Information Systems (MASTIS) 2. Internet of Things (ALIOT) 3. Innovative modelling and simulation of Cyber-Physical System (CybPhys) 4. <i>ICT (FabLab)</i> 5. <i>ICT (GameHub)</i>
PRIORITIES ERASMUS+ CBHE ACTION	
2015, 2017 – Engineering and Engineering Trades	

Fields of Study, ISCED-F	Erasmus+ CBHE projects on Curriculum Development, other category projects incl. CD (2015-2020 calls)
13. Mechanical Engineering	
14. Electrical Engineering	
15. Automation and Instrumentation	
16. Chemical and Bioengineering	1. Artificial Implants for Bio-Engineering (BIOART) 2. Water Related Courses (WaterH)
17. Electronics and Telecommunication	
PRIORITIES ERASMUS+ CBHE ACTION	
<i>2017 – Manufacturing and Processing</i>	
18. Manufacturing and Technology	1. Laboratory Practice Courses in Agro-Food Sector (Food Technologies) (Ag-Lab)
PRIORITIES ERASMUS+ CBHE ACTION	
<i>2015 – Architecture and Building</i>	
19. Architecture and Construction	
PRIORITIES ERASMUS+ CBHE ACTION	
<i>2017 – Agriculture, Forestry, Fishery and Veterinary</i>	
20. Agricultural Science and Food	1. Laboratory Practice Courses in Agro-Food Sector (Agronomy, Animal Husbandry) (Ag-Lab) 2. Agrarian studies (TOPAS)
21. Veterinary Medicine	1. Laboratory Practice Courses in Agro-Food Sector (Veterinary Medicine) (Ag-Lab)
PRIORITIES ERASMUS+ CBHE ACTION	
<i>2015, 2017 – Health</i>	
22. Health	1. Medical error to fit Pediatric cases (TAME) 2. Courses "Health Management", "Health Systems", "Society and Health", "Interdisciplinary Epidemiology", "Innovation, Health and Society" (BIHSENA) 3. Physical Therapy (REHAB) 4. Occupational Therapy (UKROTHER)
PRIORITIES ERASMUS+ CBHE ACTION	
<i>2017 – Welfare</i>	
23. Social Work	
24. Personal Services (Hotel and catering, Travel and tourism, Sports and leisure)	
PRIORITIES ERASMUS+ CBHE ACTION	
<i>2015, 2017 – Security Services</i>	
25. Military Science, National Security, Security of the State Border	
26. Civil Security	
PRIORITIES ERASMUS+ CBHE ACTION	
<i>2015, 2017 – Transport Services</i>	
27. Transport	1. Smart Transport and Logistics for Cities (SMALOG) 2. Crisis and Risks Engineering for Transport Services (CRENG)

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National Erasmus+ Office & HERE team - Ukraine
Web-site: ERASMUSPLUS.ORG.UA
Webpage for CBHE beneficiaries:
In Ukrainian language – [at the link here](#)
In English language – [at the link here](#)
E-mail: office@erasmusplus.org.ua
Facebook: [NEOinUkraine](#) #ErasmusUA
Skype: erasmusplus_ua
Tel.: +380443322645, +380442866668
[YouTube channel](#)

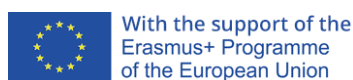
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This overview is the result of study carried out in 2020 by the National Erasmus+ Office – Ukraine (Svitlana Shytikova, Zhanna Talanova, Veronika Tkachenko, Ivanna Atamanchuk and Kateryna Zhdanova) based on the resources provided by the Ukrainian universities and other beneficiaries of CBHE projects, projects’ and partners’ websites, projects’ final reports and monitoring reports data available at the EACEA website and interviews, surveys.

Special thanks to all who contributed to the publication. References to the source are obligatory in case of usage.



The European Commission's support for the production of this publication does not constitute an endorsement of the contents, which reflect the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.