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Development of academic and scientific-technical cooperation between the European Union and Ukraine: results of the expert survey

Abstract

This article focuses on the integration of Ukraine into the research and educational space of the European Union. The aim of the article is to form and summarize the competent opinion of the scientific and educational expert community about the prospects and possibilities of deepening cooperation in education, science and technology between the EU member states and Ukraine, as well as to search for effective forms of such cooperation to expand the presence of Ukrainian academic institutions and universities in European programs and accelerate Ukraine's integration into the EU scientific and educational space. *Methodology*. The method of expert survey was used as a tool to identify the opinions of representatives of the Ukrainian scientific and educational expert community. Two expert questionnaires for representatives of academic science and higher education in Ukraine were developed to collect information. Respondents were asked key questions about their experience of working with educational and research institutions in EU member states, as well as their views on the opportunities and prospects for deepening professional ties and networks with European partners. *Results*. The expert survey covered 17 cities of all cultural and historical regions of Ukraine (Central, Eastern, Northern, Southern, and Western). Twenty-two higher educational institutions and five scientific institutions of Ukraine took part in the survey (32 experts in total). According to the results of the expert survey it was found that domestic higher education institutions and research institutes are interested, have successful experience and potential to deepen scientific, educational and scientific and technical cooperation with institutions of EU member states. It turned out that all higher education institutions and research institutions of Ukraine, which representatives participated in the survey, cooperate with European universities. The geography of cooperation is wide, mainly covering such countries as Germany, Poland, Latvia, Lithuania, Slovakia, Czech Republic and Hungary. Cooperation between partner institutions is carried out within the framework of Cooperation Agreements and is aimed at participation in such European programs as Horizon 2020, Erasmus + KA1, Erasmus + KA2, TEMPUS UNI4INNO "Universities for Innovation". *Practical implications*. It was found that most experts do not support the expediency of creating territorially separate structural subdivisions of foreign higher educational institutions in Ukraine. Instead, they consider it advisable for domestic universities and scientific institutions to create their own branches and representative offices at universities and scientific organizations of the EU. Experts see the following as the key purposes for creating such units: participation in international mobility programs, joint participation in European programs, joint research and development, exchange of students and faculty, joint participation in conferences, preparation of joint scientific publications. Experts consider such areas of implementation of joint educational programs and research projects as "green" economy, digital economy and society, implementation of modern transport technologies and systems, creative industries, research in humanities and social sciences. *Value/originality*. Proposals for intensification of academic and scientific-technical cooperation between the EU and Ukraine, which, in

Keywords

European Research Area, European Education Area, European Integration, Scientific and Educational Cooperation, Scientific and Technical Cooperation, Association Agreement between Ukraine and the European Union, European programs, expert survey

JEL: F55, O14, O38, O52

particular, concern: increasing the budget of European programs for EU associate members; launching special thematic competitions for such countries; simplifying bureaucratic procedures for preparation and implementation of European projects; strengthening competencies of Ukrainian scientists and educators in project management under special grants, which can be initiated by the National Research Foundation of Ukraine.

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1 Introduction

Ukraine's urgent need to new industrialization its economy requires the attraction of significant financial and intellectual resources, which Ukraine does not have. This necessitates a broad cooperation with other countries, especially with the member countries of the European Union (EU), which in the context of national and global challenges will contribute to the stabilization and effective development of the national economy, the growth of its scientific and innovation potential. This study is devoted to the integration of Ukraine into the European scientific and educational space.

The European Research Area (ERA) is the only research and innovation space open to the world, based on an internal market that allows the free circulation of researchers, scientific knowledge and technology (Liashenko, Pidorycheva & Antoniuk, 2020). Four strategic goals for the development of the ERA in the coming years have been defined (European Commission, 2021):

1) prioritizing research and innovation investments and reforms to support the transition to digital and green technologies and the reconstruction of Europe;

2) improving access to high-quality research and innovation for researchers across the EU;

3) market development of research and development results to ensure Europe's competitive leadership in technology;

4) making progress in the free circulation of knowledge, researchers and technology through closer cooperation with EU member states.

Involvement in discussion of the ways to achieve these goals and the future of Europe, familiarization in practice with the EU framework concepts and initiatives in science, technology and innovation, learning best practices and integration of Ukrainian researchers and entrepreneurs in the ERA will allow Ukraine to make a joint innovation leap with Europe innovation model of economic growth. There is still a chance to make such a leap, thanks to the "windows" of opportunity that always appear when technical and economic paradigms change (Peres, 2011).

For its part, the development of human capital, intelligence and education, the formation of modern competencies is a condition for sustainable innovative development and is of particular importance for developing countries, including Ukraine. In education it is especially important to ensure its high quality, continuity and the formation of knowledge and skills necessary in today's innovative economy, to make the education system resistant to the global challenges of our time. Thus, the President of the European Commission (EC) Ursula von der Leyen noted that education is important for the vitality of European society and economy. EU Ministers of Education and Finance agreed on a common vision that investing in education and modern competencies is a strategic priority of the European Union (European Commission, 2020).

Therefore, in September 2020, the EC issued a communiqué committing to create a European Education Area by 2025. This is intended to mitigate and eliminate the effects of the COVID-19 pandemic on the European education system. In the context of European integration, this should serve as a guide for Ukraine in implementing its own measures to support and develop its national education system.

2 Literature review and problem statement

Scientists from many countries around the world are studying international and European academic, technological and innovative cooperation. Many studies are devoted to this, including Ukrainian scholars, which consider the development of innovative entrepreneurship on the basis of public-private partnership (Drachuk, Rashchupkina & Trushkina, 2016) and the mechanism of venture financing (Drachuk, Stalinskay & Trushkina, 2016); intensification of Euro-regional ties, formation of Euro-regional innovation systems and cross-border clusters (Tsekhanovych, 2021; Laiko & Kovalenko, 2019; Laiko, Kovalenko & Bilousov, 2020); scenarios and strategic directions of development of Polish-Ukrainian academic and innovation spaces (Amosha, Liashenko & Pidorycheva, 2019; Kharazishvili, Kwilinski, Dzwigol & Liashenko, 2021); prospects for academic cooperation between Ukraine and Bulgaria (Zaloznova, Liashenko & Trushkina, 2021a), Ukraine and Germany (Zaloznova, Liashenko & Trushkina, 2021b), cross-border cooperation in academic and innovative activities as a strategic priority of the national economy of Ukraine (Zaloznova & Trushkina, 2021); the area of improving institutional support for Ukraine's integration into the EU research and

educational space (Matiushenko, Khaustova & Kniaziev, 2017; Antoniuk, 2021) and others.

At the same time, there is still a lack of systematic research that would focus on the introduction of effective tools and forms of scientific, educational and innovative cooperation between research institutes and higher education institutions of associated EU countries with research organizations and universities of EU member states, primarily the EU Framework Program for Research and Innovation, as well as the development of research and innovation networks. One of such forms of cooperation can be considered branches and representative offices of scientific institutions and educational institutions of EU-associated countries, established by research organizations and universities of the EU.

3 Research methodology and purpose of the article

As a tool to identify the opinions of representatives of the Ukrainian scientific and educational expert community on the creation of Ukrainian scientific institutions and higher educational institutions of such branches and representative offices at the relevant organizations of EU member states, the method of expert survey was used. To collect information, two expert questionnaires were developed for representatives of academic science and higher education in Ukraine, respectively. The questionnaires.. asked respondents key questions about their experience of cooperation with research organizations and universities of EU member states, as well as their views on opportunities and prospects for deepening existing and building new professional relationships and networks with European partners, including by creating the above-mentioned branches and representative offices.

Given the above, the **purpose of the article** is to form and summarize the competent opinion of the scientific and educational expert community about the prospects and possibilities of intensifying cooperation in education, science and technology between the EU Member States and Ukraine, to search effective forms of such cooperation to expand the presence of Ukrainian academic scientific institutions and universities in European programs and accelerate the integration of Ukraine into the EU scientific and educational space.

4 Empirical results and discussion

In 2021 a survey of the scientific and teaching staff of 22 higher educational institutions and leading scientists of 5 scientific institutions of Ukraine was conducted. A total of 32 specialists were interviewed, including 27 (84.4%) from higher educational institutions and 5 (15.6%) from research institutions.

The type of expert survey was a standardized questionnaire. However, some questions were open-ended with the possibility for the respondent to express his/her own opinion. The survey was conducted via e-mail.

Representatives of universities and research institutions from such cities as Kyiv, Lviv, Dubliany, Drohobych (Lviv region), Ternopil, Kharkiv, Odessa, Mykolaiv, Sumy, Irpin, Cherkasy, Poltava, Vinnytsia, Kropyvnytskyi, Sloviansk, Kramatorsk, Sievierodonetsk (Table 1).

The study showed that all higher education institutions and research institutions of Ukraine cooperate with European universities. At the same time, universities cooperate mainly with universities in Poland, Lithuania, Germany, Slovakia, Latvia and the Czech Republic (Table 2).

Scientific institutions tend to strengthen cooperation with organizations from Germany, Poland, Latvia, Hungary (Table 3).

It was found that all surveyed higher education institutions and research institutions enter into agreements on cooperation in the field of education, research in science and technology with universities of EU member states. Table 4 and 5 presents a list of European universities that are partners of Ukrainian higher education institutions and research institutions.

At the same time, domestic universities implement with European universities such educational and research projects within European programs, including Horizon 2020, Erasmus +, Erasmus + KA1 – "Educational mobility of individual students and teachers between member and partner countries", Erasmus + KA2, TEMPUS UNI4INNO "Universities for Innovation":

- Project Tempus GreenCo;
- Project Tempus FKTBUM;
- Project Tempus SEREIN;
- EU project “Reinventing displaced universities: enhancing competitiveness, serving communities” (REDU) (2020–2023 years);
- Project "Improving the competitiveness of enterprises through the optimal use of digital platforms for the promotion of industrial products" (Belgium);
- Project "Regulating youth behavior in cyberspace and building digital literacy skills among young people" (Belgium);
- Project “The EU policy towards small and medium-sized enterprises: Prospects and Challenges for Ukraine” (Belgium);
- Project "Carbon-free economy: best practices for Ukraine" (Belgium);
- Project "Academic Response to Hybrid Threats" (610133-EPP-1-2019-1-FI-EPPKA2-CBHE-JP);
- Project "Crisis and Risks Engineering for Transport Services" (598218-EPP-1-2018-1-PL-EPPKA2-CBHE-JP);

TABLE 1 Name and location of scientific institutions and institutions of higher education

Name of institution	City	Number of experts
State Organization “Institute of the Economy and Forecasting of the National Academy of Sciences of Ukraine”	Kyiv	1
State Institution “G.M. Dobrov Institute for Scientific and Technological Potential and Science History Studies”		1
Kyiv National University of Technology and Design		1
State University of Infrastructure and Technology		1
Private higher education institution "International European University"		1
Research Centre for Industrial Development Problems of the NAS of Ukraine	Kharkiv	1
V.N. Karazin Kharkiv National University		1
Ukrainian Engineering Pedagogics Academy		1
Lviv Polytechnic National University	Lviv	1
Institute of Market Problems and Economic and Ecological Research National Academy of Science	Odessa	1
Black Sea Research Institute of Economics and Innovation		1
Odesa I.I. Mechnikov National University		1
Petro Mohyla Black Sea National University	Mykolaiv	1
Lviv National Agrarian University	Dubliany	3
Drohobych Ivan Franko State Pedagogical University	Drohobych	1
West Ukrainian National University	Ternopil	1
Sumy Makarenko State Pedagogical University	Sumy	1
Sumy State University		1
Central Ukrainian National Technical University	Kropyvnytskyi	1
University of State Fiscal Service of Ukraine	Irpin	2
Cherkasy state business-college	Cherkasy	1
Higher Educational Establishment of Ukoopspilka "Poltava University of Economics and Trade"	Poltava	2
Vasyl' Stus Donetsk National University	Vinnytsia	1
State Higher Educational Institution "Donbas State Pedagogical University"	Sloviansk	1
Donbas state engineering academy	Kramatorsk	1
Volodymyr Dahl East Ukrainian National University	Sievierodonetsk	1
State Institution "Luhansk Taras Shevchenko National University"		1

Source: Compiled by the authors based on the results of the survey

– The grant under the program of the European Commission Erasmus + Jean Monnet module "Europeanization of doctoral programs in the field of education on the basis of interdisciplinary and inclusive approaches";
– International innovative online educational training program for masters in entrepreneurship developed by a consortium of five higher education institutions of the European Union: Advenio eAcademy (Malta), University of Ioannina (Greece), St. Stephen's University (Hungary), University of Bari Aldo Moro (Italy), University of Žilina (Slovakia) and Poltava University of Economics and Trade (Ukraine);
– The newly created program, certified by the National Commission of Postgraduate and Higher Education Fr. Malta (NCFHE), meets international educational standards, supported by the European Union in the field of Erasmus + KA2: Strategic Partnerships and will be recognized by the global educational community (Erasmus + MHEI-ME (2017-1-MT01-KA203-026960) "Master's Program in Entrepreneurship" (coordinator – Advenio eAcademy (Malta), funding – European Union).

Experts from Ukrainian scientific institutions noted that together with European universities and research institutes they implement the following scientific projects:

Erasmus+/KA 2 Master in Smart Transport and Logistics for Cities (SmaLog);

"Stimulation of interregional cooperation in the field of scientific, technical and innovative development between the EU and the Black Sea region" in accordance with the EU Framework Program for Research and Innovation (2014–2020) "Horizon 2020";

TABLE 2 Cooperation of higher educational institutions of Ukraine with the European Union member states

Countries	Number of experts, persons	Share of experts, %
Poland	26	96.3
Lithuania	21	77.8
Germany	20	74.1
Slovakia	19	70.4
Czech Republic	18	66.7
Latvia	17	63.0
Hungary	12	44.4
Spain	9	33.3
Estonia	8	29.6
Italy	7	25.9
Bulgaria	5	18.5
Portugal	5	18.5
Austria	4	14.8
France	4	14.8
Romania	3	11.1
Greece	2	7.4
Sweden	1	3.7
Belgium	1	3.7
Slovenia	1	3.7
Croatia	1	3.7
Finland	1	3.7
Denmark	1	3.7
Netherlands	1	3.7

Note: experts indicated several countries, so the share of respondents in the amount exceeds 100%.
Source: Compiled by the authors based on the results of the survey

TABLE 3 Cooperation of scientific institutions of Ukraine with the member states of the European Union

Countries	Number of experts, persons	Share of experts, %
Germany	5	100.0
Poland	4	80.0
Latvia	3	60.0
Hungary	3	60.0
Lithuania	2	40.0
France	2	40.0
Romania	2	40.0
Greece	2	40.0
Italy	1	20.0
Bulgaria	1	20.0
Portugal	1	20.0
Austria	1	20.0
Sweden	1	20.0
Denmark	1	20.0
Netherlands	1	20.0

Note: experts indicated several countries, so the share of respondents in the amount exceeds 100%.
Source: Compiled by the authors based on the results of the survey

LINK (OOH – USA) (over 20 years) of the United Nations Economic Commission for Europe (Geneva) in the section "Cooperation and Integration" (subgroup "Innovation");

UN and WTO International Trade Center (Geneva, Switzerland) Research Project "SME Competitiveness Review";

International project Eastern Europe Consensus Forecast, London, United Kingdom (monitoring and preparation of annual macro-forecasts of Ukraine's economic development in the format of monthly adjustment);

International project Erasmus+ CBHE action «Structuring Cooperationin Doctoral Research, Transferrable Skills Training, and Academic Writing instruction in Ukraine's regions/DocHub/» according to the Partnership Agreement with Vilnius University (Vilniaus Universitetas, Lithuania), Grant Agreement number – 2016–3092/001-001;

"Influence of interaction of research institutes, universities and industrial enterprises on the development of innovation systems in Latvia and Ukraine" in the framework of the agreement with the Academy of Technology (Latvia);

"Transfer of innovative technologies and development of international cooperation in modern conditions" within the framework of the Agreement with the International Academy of Management and Technology (Germany);

"Functioning of national innovation systems of Hungary and Ukraine, theory and mechanisms" under the Agreement with Kodolányi János University (Hungary).

In addition, the Black Sea Research Institute of Economy and Innovation (Odessa) organizes Research and Teaching Internships at universities in France, Germany, Latvia, Lithuania, Portugal and Poland.

It should be noted that the Ministry of Education and Science of Ukraine actively promotes the further integration of higher educational institutions into the European educational space. Currently, Ukrainian universities implement the best international practices in the field of higher education. In this regard, in Ukraine (except for the cities of Kiev, Kharkiv, Lviv, Dnipro and Odessa) there is a possibility to form territorially separate structural subdivisions of foreign higher education institutions. This corresponds to the "Regulations on the peculiarities of the formation, reorganization and liquidation of geographically separate structural units of higher educational institutions", which was prepared in pursuance of Paragraph 6 of Clause 9 of Article 33 of the Law of

TABLE 4 European partner universities of higher educational institutions in Ukraine

Country	Name
Belgium	The Vrije Universiteit Brussel (VUB)
Germany	TU Dresden Erfurt University of Applied Sciences All-day high school in Osterburken Goethe-Institute Schleswig-Holstein Academy of Economics RWTH Aachen University Hof University of Applied Sciences
Italy	University of Pisa University of Messina Polytechnic University of Milan Link Campus University
Austria	Pedagogical Academy of Vienna
Czech Republic	Czech University of Agriculture in Prague Prague University of Economics and Business (PUEB) Tomas Bata University in Zlín
France	Université Toulouse III – Paul Sabatier
Poland	Institute for the Development of International Cooperation Silesian University of Technology Warsaw University of Technology Warsaw School of Information Technology University of the Third Age in Hromadka Agricultural University of Szczecin School of Agriculture in Warsaw Wrocław University of Environmental and Life Sciences Jan Dlugosz University in Czestochowa Kazimierz Pulaski University of Technology and Humanities in Radom Katowice School of Technology University of Ecology and Management Warsaw Higher School of Management and Administration University of Lodz Warsaw University of Life Sciences Higher School of Engineering and Economics AGH University of Science and Technology Poznan University of Economics and Business
Portugal	University of Minho University of Porto
Slovakia	European University of Continuing Education University of Economics in Bratislava University of Prešov Technical University of Košice
Estonia	University of Tartu Tallinn Technical University Estonian Entrepreneurship University of Applied Sciences
Latvia	BSA University of Applied Sciences ISMA University of Applied Sciences Riga Technical University Latvia University of Life Sciences and Technologies Higher School of Social Technologies
Lithuania	Vilnius University Vytautas the Great University Mykolas Romeris University Lithuania Business University of Applied Sciences Klaipeda university European Humanities University
Hungary	University of Miskolc Central European University

(End of Table 4)

Country	Name
Romania	Ovidius University of Constanta
Slovenia	University of Ljubljana
Bulgaria	University of National and World Economy "Angel Kanchev" University of Ruse St. Cyril and St. Methodius University of Veliko Tarnovo Varna Free University "Chernorizets Hrabar" Dimitar A. Tsenov Academy of Economics
Greece	University of Western Macedonia Aristotle University of Thessaloniki

Source: Compiled by the authors based on the results of the survey

TABLE 5 European research institutions and partner universities of Ukrainian scientific institutions

Country	Name
Poland	Institute of Rural and Agricultural Development, Polish Academy of Sciences Warsaw University of Technology University of Lodz Silesian University of Technology Białystok School of Economics State Higher Educational Institution Technological and Economic School named after B. Markevich Jan Kochanowski University in Kielce (JKU)
Germany	University named after Friedrich-Alexander in Erlangen and Nuremberg Martin Luther University of Halle-Wittenberg Leipzig University Leibniz Institute of Agricultural Development in Transition Economies (IAMO) International Academy of Management and Technology
Lithuania	Lithuanian Institute of Agrarian Economics Vytautas Magnus University
Latvia	Rezekne Academy of Technologies Baltic Research Institute of Transformation Economic Area
Italy	University of Florence Tor Vergata University of Rome
Austria	International Institute of Applied Systems Analysis
France	Center for Economic and Social Research of Agriculture and Rural Areas University of Le Mans
Hungary	Institute of Economics of the Hungarian Academy of Sciences (IEHAS) Centre for Economic and Regional Studies of the Hungarian Academy of Sciences Kodolányi János University
Sweden	Kristianstad University
Netherlands	Amsterdam Centre for World Food Studies Education
Greece	Center For Renewable Energy Sources (CRES)
Romania	Institute of Agricultural Economy of the Romanian Academy
Portugal	NOVA School of Business & Economics

Source: Compiled by the authors based on the results of the survey

Ukraine "On Higher Education" and approved by the Cabinet of Ministers of Ukraine № 304 of 24.03.2021.

Therefore, in the survey of experts of higher educational institutions of Ukraine there was a question about the possibility of forming territorially separate structural units of European higher educational institutions. The survey revealed that 12 (44.4%) respondents consider inexpedient the formation of such a structure on the basis of domestic universities, 11 (40.7%) argue for the possibility of its creation. And 4 (14.8%) of the interviewed experts stressed that it was difficult for them to answer this question, since it had not yet been discussed or considered at their institutions.

To the question "Do you think it is advisable to establish a branch/representative office of your scientific institution at the educational and scientific institutions of EU member states?" all scientists

TABLE 6 Expert responses on the feasibility of establishing a branch/representative office of a higher education institution in EU member states' educational institutions

Answers	Share of experts, %
Yes	74.1
No	22.2
It is difficult to answer	3.7

Source: Compiled and calculated by the authors based on the results of the questionnaire

answered "Yes." At the same time, one of the experts stressed the need for mutual interest on both sides.

Experts from higher education institutions answered as follows: "Yes" – 20 respondents; "No" – 6; "It is difficult to answer" – 1 (Table 6).

Among the main obstacles that may complicate the process of creating a branch / representative office of a higher educational institution in the EU member states, experts have identified the following:

– the COVID-19 pandemic;
– instability of the economic and political situation in Ukraine due to military actions in Donbass;
– financial risks;
– linguistic, i.e., insufficient knowledge of the official languages of the EU;
– a different mentality;
– low level of competitiveness of the Ukrainian market of educational services;
– inconsistency of the legal framework;
– a rather expensive entrance to the European educational market;
– dependence on the terms of financing;
– unclear status and powers of such a structure, the cost of its maintenance.

Some experts noted that:

"At the international level, the practice of dual degrees and parallel learning is actively developing, which makes it impractical to create a branch/ representative office of a higher education institution at the educational institutions of EU member states";

"For European universities, we are of interest in terms of attracting our applicants and students to study in the EU, not the other way around";

"Impossibility for a higher educational institution in Ukraine to create a branch abroad without the participation of third parties (legal aspects, including accreditation, financial and accounting issues".

It has been established that the priority goals of establishing a branch/representative office of a higher education institution in the educational institutions of the EU member states usually include: participation in international mobility programs (Erasmus + / Higher Education Capacity Development / International Credit Mobility / Visegrad Fund, etc.) – 77.8% of experts; joint participation in the preparation of requests and implementation of projects of European programs – 74.1%; exchange of students, graduate students and faculty – 74.1%; organization of internships for students, graduate students and teachers on the basis of European universities – 74.1%; joint participation in scientific and practical conferences, seminars, forums, symposiums – 70.4%; preparation of joint scientific publications (monographs, articles, etc.) – 70.4%; preparation of joint educational materials (manuals, textbooks, methodical materials, electronic courses, etc.) – 70.4%; implementation of the best European practices in the field of higher education – 70.4%; development and implementation of joint master's programs – 66.7% (Table 7).

One of the experts stressed that "it is difficult to answer the question about the goal... All of the above (almost everything except "obtaining additional income from the establishment of a branch") can be accomplished without creating a branch. As for "obtaining additional income from the establishment of a branch", this is possible only for higher education institutions and research and teaching staff teams that have a level of competitiveness higher or the same as among EU member states. The goal should provide new opportunities, so it could be, for example, expanding the prospects for participation in grant programs to include programs available only to EU member states. Or something like that".

It is worth noting that the answers of experts from scientific institutions differ from the answers of educators. This is due to the specifics of scientific activity and the functioning of scientific institutions. Thus, the key goal of creating a branch / representative office is considered by scientists, first of all, to strengthen Ukraine's integration into the European Research Area (100% of respondents); deepening cooperation in science and scientific and technological progress, joint research and development (80%); joint participation in the preparation of requests and implementation of projects of European programs (80%); joint participation in scientific and practical conferences, forums, symposiums (80%); preparation of joint scientific publications (monographs, articles, etc.) (80%); organization of internships for graduate students, doctoral students, researchers on the basis of European universities and research institutions (80%); exchange of graduate students, teachers and researchers (80%) (Table 8).

It turned out that, in the opinion of experts of universities, it is mainly necessary to implement joint educational programs for students and research projects in such areas as "green" economy (92.6% of

TABLE 7 Answers to the question "What do you think might be the purpose of establishing a branch/ representative office of your higher education institution at EU member state educational institutions?"

Goal	Number of experts, persons
Participation in international mobility programs (Erasmus + / Higher Education Capacity Development / International Credit Mobility / Visegrad Fund, etc.)	21
Joint participation in the preparation of requests and implementation of projects of European programs	20
Exchange of students, graduate students and faculty	20
Organization of internships for students, graduate students and teachers on the basis of European universities	20
Joint participation in scientific and practical conferences, seminars, forums, symposia	19
Preparation of joint scientific publications (monographs, articles, etc.)	19
Preparation of joint educational materials (manuals, textbooks, methodical materials, electronic courses, etc.)	19
Implementation of the best European practices in the field of higher education	19
Development and implementation of joint master's programs	18
Strengthening Ukraine's integration into the European Research Area and the European Education Area	17
Strengthening cooperation in science and scientific and technological progress, joint research and development	17
Increase the level of foreign language skills	17
Development of joint educational programs that meet European standards	16
Activation of the development of promising areas of cross-border cooperation in the educational and scientific spheres	14
Teaching students in accordance with European standards	14
Implementation of educational programs within the framework of the Eastern Partnership	14
Obtaining additional income from the establishment of the branch	13
Other (please specify)	
entering a new market	1
Bachelor's and Master's degree training in joint dual-degree programs accredited by the relevant national authorities	1

Source: Compiled by the authors based on the results of the survey

TABLE 8 Answers to the question "What, in your opinion, could be the purpose of creating a branch/representative office of your scientific institution in educational and scientific institutions of EU member states?"

Goal	Number of experts, persons
Strengthening Ukraine's integration into the European Research Area	5
Deepening cooperation in science and scientific and technological progress, joint research and development	4
Joint participation in the preparation of applications and implementation of projects of European programs	4
Joint participation in scientific and practical conferences, forums, symposiums	4
Preparation of joint scientific publications (monographs, articles, etc.)	4
Organization of internships for graduate students, doctoral students, researchers on the basis of European universities and research institutions	4
Exchange of graduate students, teachers and researchers	4
Participation in international mobility programs (Erasmus + / Higher Education Capacity Development / International Credit Mobility / Visegrad Fund, etc.)	4
Intensification of development of perspective directions of cross-border cooperation in the scientific and scientific-technical sphere	3
Increase the level of foreign language skills	1
Obtaining additional income from the establishment of the branch	1

Source: Compiled by the authors based on the results of the survey

TABLE 9 Priority areas of implementation of joint educational training programs for students and research projects

Directions	Number of experts, persons
"Green" economy	25
Digital Economy and Society	24
Creative industries	22
Biotechnology, nanotechnology in healthcare and pharmacology, agriculture, food and other industries	21
Research in the Humanities and Social Sciences	20
Life sciences, medical and biological sciences (biomedicine), genomic research	20
Environmental and climate research, efficient use of natural resources	20
Modern information and communication technologies	19
Logistics	19
Modern transportation technologies and systems	18
Nuclear power, renewable energy and energy efficiency	17
Material science, new substances and materials	16
Rocket-and-Space Industry	15
Aviation research and aircraft construction	15
Other	
International Economics	1
Economic and Humanities Studies of the Anglo-Saxon Legal Family	1
Sinology (Chinese Studies)	1
Indian Economic and Humanities Studies	1

Source: Compiled by the authors based on the results of the survey

respondents); digital economy and society (88.9%); creative industries (81.5%) (Table 9).

However, some experts argue that the directions of joint educational programs can be all of the above, provided that they correspond to the profile of the higher education institution. A number of experts noted that all directions are possible if the scientific and pedagogical potential of the respective direction is available. Or it can be increased in a short time in accordance with modern needs, if created or can be created conditions for the implementation of relevant projects by administrations of higher education institutions (logistics, educational and methodical support and the organization of the educational process, services, including psychological, coaching, technical support).

TABLE 10 Priority areas for the implementation of joint research projects

Directions	Number of experts, persons
"Green" economy	5
Digital economy and society	5
Modern transport technologies and systems	5
Research in the Humanities and Social Sciences	5
Logistics	4
Environmental and climate research, efficient use of natural resources	4
Nuclear power, renewable energy and energy efficiency	3
Creative industries	3
Aviation research and aircraft construction	2
Modern information and communication technologies	1
Biotechnology, nanotechnology in healthcare and pharmacology, agriculture, food and other industries	1
Life sciences, medical and biological sciences (biomedicine), genomic research	1
Rocket-and-Space Industry	1
Material science, new substances and materials	1

Source: Compiled by the authors based on the results of the survey

Scientists believe that joint research projects should be implemented, primarily on the problems of "green" economy (100% of experts); digital economy and society (100%); introduction of modern transport technologies and systems (100%); research in the humanities and social sciences (100%); logistics (80%); research of the environment and climate, efficient use of natural resources (80%) (Table 10). One expert stressed that joint research projects can be carried out on the basis of cooperation agreements, without the creation of a branch.

5 Conclusions

The analysis of the given results of the expert survey allows to draw a number of conclusions about the state and prospects of academic and scientific-technical cooperation between the EU and Ukraine.

First, the specialists of all Ukrainian universities and research institutions that participated in the survey noted the cooperation with European universities. The geography of cooperation is quite diverse and is mainly represented by such countries as Germany, Poland, Latvia, Lithuania, Slovakia, Hungary, and the Czech Republic.

Second, the partnership between scientific and educational institutions of Ukraine and the EU is institutionalized and implemented through the conclusion of agreements on cooperation in education, science and scientific-technical activity. The main European programs, within the framework of which cooperation is carried out, are Horizon 2020, Erasmus + KA1, Erasmus + KA2, TEMPUS UNI4INNO "Universities for Innovation".

Third, experts' opinions on expediency of creation of territorially separate structural subdivisions of foreign higher education institutions in Ukraine have been revealed. The possibility of forming such subdivisions is stipulated by the Decree of the Cabinet of Ministers of Ukraine No. 304 of 24.03.2021. The survey showed that the majority of experts (44.4%) believe that the creation of such a structure on the basis of domestic universities is inexpedient. This opinion of Ukrainian experts is quite justified, because the uncontrolled attraction to Ukraine of foreign universities of improper quality in all possible specialties may have undesirable consequences for the system of higher education, the economy and society of Ukraine as a whole.

Fourth, the experts' opinion on the expediency of creating branches and representative offices of EU universities and scientific organizations by domestic universities and scientific institutions is radically opposite, this idea was supported by all experts of scientific institutions and 74.1% of experts of universities. Among the main barriers that may hinder this process, the respondents noted the pandemic COVID-19, macroeconomic and political instability in Ukraine because of the hostilities in Donbas, financial risks, lack of knowledge of official languages of the EU, and also quite expensive entrance to the European educational market and others.

Among the priority objectives of the creation of branches and representative offices of domestic universities in the EU educational institutions, the experts considered the following: participation in international mobility programs (77.8%); joint participation in the implementation of European programs, exchange of students, graduate students and faculty, organization of internships for students and teachers on the basis of European universities (74.1%); joint participation in conferences, preparation of joint scientific publications and educational materials, involvement of the best European practices in the field of higher education (70.4%). Specialists of scientific institutions, for their part, consider the key objective of the creation of such branches/representative offices to strengthen the integration of Ukraine in the European Research Area (100% of respondents) and no less important, in their opinion (80%), is joint participation in European projects, preparation of joint scientific publications, joint research and development, participation in conferences.

Fifth, the vast majority of experts in the field of higher education consider the most promising areas of joint educational programs for students and research projects such as "green" economy (92.6%), digital economy and society (88.9%), and creative industries (81.5%). In turn, specialists of scientific institutions see such areas as: "green" economy, digital economy and society, implementation of modern transport technologies and systems, research in the humanities and social sciences (100% of respondents).

Thus, based on the empirical study it can be concluded that domestic universities and research institutions are interested, have successful experience and potential to expand educational, scientific and technical cooperation with universities and research organizations of EU member states. To intensify such cooperation, it is advisable for the EU to increase the budget of European programs for associate members of the EU; reduce the bureaucratization of the implementation of these programs; launch special thematic competitions for such countries; on the part of Ukraine, it is advisable to create professional state consulting structures to expand the participation of Ukrainian applicants in competitions for European programs; to strengthen the competencies of scientists and teachers in project management under special grants that may be initiated by the National Research Foundation of Ukraine. Further research of the authors will be devoted to the development of detailed proposals for increasing the level of involvement of Ukrainian scientific and educational institutions in the research and educational space of the EU.

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