

## INTERNATIONAL ECONOMICS AND INTERNATIONAL RELATIONS

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### UKRAINE ON THE WAY OF INTEGRATION INTO THE EUROPEAN EDUCATIONAL AND SCIENTIFIC ENVIRONMENT: ACHIEVEMENTS AND PROBLEMS

***Abstract.** The development of integration processes in the scientific and educational environment of the European Union, legal and organizational mechanisms of formation of the European educational and research environment are investigated. The stages of development of legal bases of European integration of research and educational system of Ukraine for the period of its independence have been analyzed. The analysis of main trends and forms of cooperation in research and education, the results of participation of Ukrainian research organizations and universities in the programs "EUREKA", "Horizon 2020", EU Erasmus+ were analysed. Certain achievements, weaknesses of cooperation and conditions for more effective cooperation have been defined.*

**Keywords:** *international cooperation, European integration, European educational environment, European research environment, science, higher education, university.*

**Introduction.** Today, the development of international cooperation to address global issues such as achieving peace, overcoming poverty and preserving the environment, overcoming epidemics and the effects of natural disasters, ensuring environmental, food and energy security in the world is extremely important. Solving these exacerbated problems requires the development of knowledge and technology. Experts from the Organization for Economic Cooperation and Development (OECD) note that the amount of global scientific knowledge and resources needed to meet global challenges is unprecedented. But their application requires deeper and more effective international cooperation in education, science and technology by combining financial resources, strengthening international research infrastructure, intensification of academic mobility, creation of competitive regional, national, interstate and transboundary innovation ecosystems [1]. In the second half of the twentieth century, the European countries began to actively join their efforts to solve both intra-European and global problems. It was important to form a single European educational and research environment. Ukraine, having chosen the European integration vector of development, is gradually joining these processes. The aim of the article is to analyze Ukraine's participation in the European educational and scientific environment, identify achievements and problems, and determine the conditions for further integration.

**Integration processes in Europe.** In Europe, the need for joint efforts and cooperation in the field of education and culture to achieve social progress was realized in the middle of the twentieth century. *The European Cultural Convention of the Council of Europe* (1954) was proclaimed in the early 1950s. It launched a major transformation in the field of culture and education aimed at forming common European identity and new European society ready for productive interaction. Strengthening cooperation in various spheres of economic activity required solving the problem of professional training, for which in 1975 the *European Centre for the Development of Vocational Training* (Cedefop) was established (Center Européen

pour le Développement de la Formation Professionnelle), and in 1980 – *the European Educational Information Network* (Eurydice) was found. It provides collection and comparison of statistics, innovative ideas and successful practices of different countries and is an information basis for policy development in the field of education and training in the European community.

To strengthen the cooperation in the field of science, education and training in Europe, a number of different programmes in the field of education have been launched since 1985: EUROTECNET (1985), COMETT (1986), ERASMUS (1987), PETRA (1987), Youth For Europe (1988), LINGUA (1989), FORCE (1990), TEMPUS (1990), SOCRATES (1994) [2, p. 166]. The COST Programme (European Cooperation in Science and Technology) has been operating in the research field since 1971, and in 1985 EUREKA was launched, an international European innovative scientific and technical programme. The examples of the programmes show that within the EU in the 70-80s of the XX century the normative and legal, organizational and socio-cultural basis of development of the European educational and research environment was gradually formed.

The European Education Area was launched in 1999 with the signing of the Boulogne Declaration, which was aimed to ensure the convergence of the European higher education systems and the creation of common higher education area. The formation of *the European Research Area* (ERA) as a unified research and innovation environment open to the world, ensuring free circulation of scientific knowledge, technology and researchers started in 2000. A powerful stimulus for the development was the approval of the new Lisbon strategy "Europe 2020. A strategy for smart, sustainable and inclusive growth" [3]. It identified main drivers of economic growth: promoting knowledge, innovation, education and digital society; efficient use of resources and increase competitiveness; increasing employment and overcoming poverty. Being a strategic vector of the European integration in the XXI century, the formation of the most dynamic knowledge-oriented economy in Europe, which provides economic growth, development of education and science has become a priority of the European policy. "The Europe 2020" strategy envisages achievement of such key goals by the EU member states: to make lifelong learning

and mobility a reality and to improve the quality and effectiveness of education and training. The European Union has set itself the task of: ensuring that at least 40% of 30-34-year-olds have the opportunity to obtain higher education at various levels; that at least 15% of the adult population participate in various forms of education in the adult education system.

***Legal bases of Ukraine's European integration.*** Since the beginning of the independence, Ukraine has sought to participate in the system of the European economic, scientific, technical and educational, and cultural cooperation. The focus on cooperation with the EU has been determined by bilateral efforts. In 1990, the European Union launched the technical assistance programme for economic reforms of the USSR, and later for the New Independent States (former Soviet republics). That was TACIS programme (Technical Assistance for the Commonwealth of Independent States). A number of memoranda were signed by the EU on financing technical assistance programmess of the USSR, and then Ukraine [4]. Since 1991, Ukraine has received technical assistance from the EU in various areas of economic activity, including education, science and technology.

Legislation aimed at the European integration is gradually being formed on the part of Ukraine. Most important regulations concerning cooperation in the field of education and science are given in Table. 1.

*Table 1*

**Main normative and legal Acts providing the European integration  
of Ukraine in educational and research spheres**

Name of the normative Act	The importance of the Act for the development of cooperation in education and science
Partnership and Cooperation Agreement between Ukraine and the European Union 1994 [5]	Main directions, spheres and forms of cooperation are clearly defined. Articles 58-59 define the goal, basic principles and forms of cooperation in science and technology, education and training.
Law of Ukraine "On the Principles of National and Foreign Policy" dated 2010 [6]	EU integration has been identified as a strategic goal for Ukraine with the prospect of membership in the European Union. It sets the following tasks: to support the development of

*Table continuation 1*

	trade, economic, scientific, technical and investment cooperation on the basis of mutual benefits.
Agreement between Ukraine and the European Community on scientific and technological cooperation (2002) [7].	The principles, directions and forms of cooperation, coordination and promotion of joint activities have been defined. The agreement is periodically renewed and extended for the next 5 years.
Association Agreement between Ukraine, on the one hand, and the European Union, on the other hand [8] 2015, which entered into force on 1 September, 2017	Section V is devoted to economic and sectoral cooperation: Chapter 9 "Cooperation in Science and Technology" contains principles and areas of cooperation to make progress in acquiring scientific and technological knowledge important for sustainable economic development through the development of research capacity and human potential; Chapter 23 "Education, Training and Youth" contains the commitments of the parties to develop cooperation in higher, vocational and secondary education and youth policy.
Agreement between Ukraine and the European Union on Ukraine's participation in the EU programme Horizon 2020 – the Framework Programme for Research and Innovation (2014-2020) [9], 2015.	Ukraine participates in the Programme as an associated country. Legal entities of Ukraine participate in the activities of educational and innovation societies, the Joint Research Centre, in formal structures established under the provisions of the Programme. To participate in the Programme, Ukraine pays its financial contribution to the general budget of the European Union. An EU-Ukraine Research and Innovation Committee is established to coordinate participation in the Programme.

Among the above listed documents, the most important is the Association Agreement between Ukraine, on the one hand, and the European Union, on the other hand, which finally consolidated the European integration direction of Ukraine and defined the principles of relations in all spheres of activity. With the signing of the Agreement there is a gradual modernization of Ukrainian legislation in the field of education, scientific and scientific and technical activities to bring it closer to the principles which govern this area in the Member States of the European Union. In the research sphere, they were: the Law of Ukraine "On Scientific and Scientific-Technical Activity", which entered into force in January 2016; the National Council for the Development of Science and Technology of Ukraine that was established to coordinate joint efforts of scientists and the government in shaping state policy in

the field of science and strategy for its development; the National Research Fund of Ukraine was established, the main task of which is to provide competitive funding for research on the basis of transparent and high-quality expertise, including involvement of foreign experts; the Strategy for the development of innovation for the period up to 2030 was adopted in 2019, and a number of other regulations that create favourable conditions for the development of national science, technology and innovation and promote broad participation of the Ukrainian scientists in the European cooperation programmes [10].

In the field of education, the Law of Ukraine "On Higher Education" (2014) is important. It aims to provide quality training of competitive human capital for high-tech and innovative development of the country [11]. Amendments to this law adopted in 2020 are aimed at improving the quality of education in line with European practice, as they introduce mandatory accreditation of curricula, reduce licensing of educational activities for the degree of higher education (DHE), increase responsibility for non-compliance with academic integrity and provide the use of external evaluation technologies obtained at a Bachelor's level, contribute to the introduction of dual education. The model of European independent quality assurance agencies has been established according to the Law and the National Agency for Quality Assurance in Higher Education.

The course for the European integration is confirmed in the draft Strategy for the Development of Higher Education for 2021-2031, developed by experts from the Ministry of Education and Science with the involvement of representatives of the executive branch, expert community, educators and scientists [12]. It defines the vision, mission, strategic and operational goals and objectives of the development of DHE of Ukraine, which are aimed at solving existing problems in higher education. Thus, strategic goal 7 – Integration into the European and world educational environment, taking into account national interests provides: organizational support for the conditions of integration into the European and world scientific and educational space; internationalization of the scientific and educational process; active involvement of foreign students in study in Ukraine.

*Educational and scientific potential of Ukraine for participation in European integration processes.* Ukraine has a well-developed educational and research system that is able to form the country's human capital, conduct research and make a significant contribution to the progressive development not only of its own country but also the world as a whole. Despite negative processes that have taken place in recent decades, which have led to the collapse of the educational and scientific sphere of activity, there is a large number of higher education and research institutions in Ukraine (Table 2), which can actively participate in international partnerships.

Table 2

**Main indicators of educational and research system  
of Ukraine as of 2019 [13, 14]**

	Colleges, technical schools, specialized schools	Universities, academies, institute	Scientific organisations of Ukraine
Number of institutions, establishments, units	338	281	950
Number of students, persons	173585	1266121	-
Number of scientific and pedagogical workers/executors of scientific research and developments	23450	133459	79262*
<i>Those who hve scientific degree:</i>	63096		16929
- PhD (Candidate of Sciences)			
- Doctor of Sciences	15548		6526

\* Number of employees involved in research and development

These table shows that Ukraine has 950 research organizations employing almost 80,000 R&D practitioners, of which 30% have a degree. Of the 950 research institutions, 409 operated in the business sector, 408 in the academic public sector (most of them were subordinated to the National Academy of Sciences of Ukraine) and 133 in the higher education sector. In 2019, 11892 scientific and technical works were performed and 19453 types of scientific and technical products were created [15, p. 25, 26]. An example of successful scientific work is the project "Development of a network of active permanent GNSS stations in the Western Transboundary

Region" (the executor was National University "Lviv Polytechnic"). A software and hardware complex was created as a part of the website of a network of 19 GNSS stations in Lviv, Zakarpattia and Volyn regions, special software, communication channels, GNSS stations, server and telecommunication equipment [15, p. 66].

According to Table 2, in Ukraine 338 colleges and technical schools train junior bachelors and junior specialists; 281 universities (academy, institute) train bachelors and masters. There are 157 thousand scientific-pedagogical and scientific workers in higher education institutions, half of whom had a degree and who taught 1440 thousand students. In 2020, Ukrainian universities trained about 400,000 specialists for the economy.

These data show that Ukraine has the potential for cooperation with the EU member states in the field of education and science. The level of international cooperation in the field of education and science is growing. Research organizations of Ukraine in 2019 implemented 119 projects, of which 117 together with scientists from 12 countries (France – 12, China – 10, Germany – 10, Austria – 10, Lithuania – 13, Latvia – 7, Poland – 15, Belarus – 10, the Republic of Korea – 3, the Czech Republic – 10, India – 10, the USA (Civil Research and Development Fund (CRDF) – 7) and 2 within the International European Innovation Science and Technology Programme EUREKA [15, pp. 68].

It should be noted that Ukraine has been a member of the EUREKA programme since 2007, but for a long time its participation in the programme was very passive. Intensification of participation in this programme began in 2018, when the Ministry of Education and Science (MES) of Ukraine held an information and communication event "EUREKA infoday". A similar webinar event was held in September 2019. The main goal is to acquaint Ukrainian innovators and scientists with the possibilities of the programme and its practical tools that will intensify implementation of the national innovative scientific and technical developments in production and access to international markets. According to the Ministry of Education and Science, as of 2020, Ukraine participated in the implementation of 32 projects and cooperated with more than 30 countries participating in the EUREKA programme, including Poland, which acted as project partners 13 times,



the Czech Republic and Lithuania – 9 projects, Spain – 5 projects, France and Finland – 4 projects each; Turkey and Slovenia have 3 projects each [16]. However, these data indicate a low level of involvement of domestic researchers in the EUREKA programme.

Ukraine's participation in the EU Framework Programme for Research and Innovation Horizon 2020 is more active. Ukrainian research institutions have the opportunity to participate in the Programme on the same terms as the EU member states. However, Ukrainian researchers have less experience to participate in international projects, which does not provide them with high results in competitions, as evidenced by the following data. In total, in the period from 2014 to 2018, 694 Ukrainian institutions and organizations submitted 1,434 project proposals for consideration. According to the results of the competition (2014-2018) for 100 Ukrainian organizations participating in the programme “Horizon”, the European Research Area and European Scientific and Technical Cooperation Programmes "provides funding for 114 project proposals worth 20.84 million euros, 16 of which are coordinated by Ukrainian organizations [17]. Thus, of all Ukrainian bidders, only 14.4% received a positive result, and less than 8% of all submitted projects were supported.

There is a growing activity in the development of international cooperation and participation in European educational programmes of higher education institutions. Thus, Ukraine joined the EU Tempus Programme in 1993 and in 1993-2013 about 140 higher education institutions and branch academies of sciences of Ukraine became participants in this programme. During this period, 338 projects were funded with the participation of organizations from Ukraine. Currently, Ukrainian universities are active participants in the European Union's Erasmus+ Programme in the field of higher education in international academic mobility, cooperation between universities and European studies and other areas and spheres of educational activity. The data presented on the website of the National Office of Erasmus+ [18] show that during 2014-2020, Ukrainian universities, students and teachers, as well as state and public organizations involved in education, participated

in the international projects and various forms of cooperation, which carried out in many areas, including the following:

KA 1. Academic mobility. International (credit) mobility: 202 universities participated in partnership with the EU and 11,532 employees, students and graduate students.

KA 1. Academic mobility. Erasmus Mundus International Joint Educational Programmes – scholarships for teaching/teaching in Master's and PhD programs: 23 Ukrainian institutions, including 12 universities; 281 people received scholarships, including 267 Masters and 14 PhD students.

KA 1. Mobility for youth: 153 volunteer projects (KA 125) with 28 countries were implemented, and 3346 youth mobility projects (KA 105) with 31 countries, 17293 representatives of youth and youth workers received funding for exchange of experience.

KA 2. Cooperation projects for the development of innovations and exchange of successful practices. Development of the potential of higher education (KA 211): 48 projects of international cooperation with the participation of Ukraine have been implemented, in which 271 partners were included from Ukraine. Of the implemented projects – 39 joint and 9 structural, 19 national and 29 multinational with a total budget of the EU grants of about 43 million euros.

Strategic partnership projects are also implemented under the Erasmus+ Programme. In 2014-2020, the following projects were implemented: 42 strategic partnerships in the field of innovation projects, in which 36 Ukrainian organizations took part, including 14 universities; 6 strategic partnerships in the field of higher education with the budget of 1015.6 thousand euros; twelve strategic partnerships in adult education; nineteen youth strategic partnership projects, etc. Jean Monnet projects are also being implemented. The winners of seven Jean Monnet competitions from 2014 to 2020 were 121 projects (out of 1,069 submitted). There were 57 implementing organizations from Ukraine, including 45 higher education institutions, 2 research institutes, and 10 public organizations. The following types of projects were implemented within the competition: 82 modules, 12 departments, 4 centres of excellence, 10 projects, 5 networks and 8 Jean Monnet associations. The

EU funding budget for Jean Monnet projects for Ukraine amounted to over 3.9 million euros plus 1.3 million euros to support multinational network consortia [18, p. 23-24].

In recent decades, the higher education system of Ukraine has been increasingly integrated into the European educational environment, and the involvement in this process is growing: if 103 universities participated in international (credit) mobility projects in 2015, in 2020 almost twice as many – 190. The number of partnerships between universities from different countries is increasing and the geography of cooperation is expanding.

It is expedient to pay attention to active participation of the scientific and educational community in research and development of the processes of integration of the national education system into the European Education Area. In 2015, the Ukrainian Association of Professors and Researchers of European Integration (APREI) was established which conducts regular events to disseminate objective and professional information on European integration processes, promotes fruitful partnerships with organizations from European studies. It is also a platform for building up and establishing cooperation between teachers and institutions under Jean Monnet Programme in Ukraine and EU partners. They discuss various issues, hold conferences and forums. Thus, the Association held the following International Scientific and Practical Conferences: "Socio-economic dimensions of European integration processes: trends, challenges, prospects" (October 2020), International Scientific and Practical Conference "Ukraine – European Union: from partnership to association" (March 2019), "European integration processes in the XXI century: key trends, key challenges and new opportunities" (March 2019), International Forum "Reflections on the future of EU-Eastern Partnership: the voice of young scientists" (June 2019), a series of seminars and other events [19].

**Conclusions.** The study showed that Ukraine has created a legal framework for the integration of the research system and higher education in common European research and educational environment. At present, Ukraine has the potential and aspirations for international cooperation in education and science. The state, scientific institutions, higher educational institutions and public organizations are

interested in this. The participation of Ukrainian subjects in international scientific and educational projects is gradually growing.

At the same time, it should be noted the weaknesses of European integration processes:

– cooperation between European and Ukrainian research institutions has been intensifying, but remains at a fairly low level and so far it has had little effect on Ukraine's innovative development. Approximately only every seventh domestic research institution applied for participation in European competitions, of all Ukrainian participants in competitions less than 15% received positive result. At the same time, Ukraine does not use all opportunities for scientific development from cooperation in science and technology with the EU, it is not a participant in many European research programmes, and in many important programmes (e.g. the programme "EUREKA") is quite passive;

– not all institutions of higher education in Ukraine are involved in international cooperation. Thus, about 80 universities were not involved in the implementation of mobility projects, and more than 100 universities were involved in higher education capacity development projects [18]. At the same time, the same universities take most active part in various forms of cooperation, most often universities of Kyiv, Kharkiv, and Lviv;

– a small share of submitted project applications from Ukrainian universities wins competitions. Thus, 130 applications were submitted to competitions for the development of higher education potential in 2016, and 6 projects were won, in 2018, 109 competitions were submitted, and 18 competitions were won [18]. At the same time, very few universities manage to become project coordinators;

– so far, a small number of Ukrainian scientists, students and teachers receive grants for trainings and internships at research institutions and universities in Europe, so their experience in research and educational activities can not significantly affect the development of research and modernization of education in Ukraine.

This indicates a lack of activity, persistence and organizational capacity of Ukrainian research institutions and universities in the process of integration into the European educational and scientific environment. Many Ukrainian universities still

lack experience in establishing channels of cooperation with potential European partners, lack the skills to draw up project applications that would meet the requirements of competitions and be aimed at solving most pressing problems of science, education and social development; there is a problem of insufficient knowledge of foreign languages, especially English for active participation in international cooperation.

To provide more active European integration processes in Ukraine, it is necessary to: continue improving the legislative and regulatory framework of science and higher education in Ukraine in accordance with European principles and norms; modernize the mechanism of financial support of research institutions and universities, to modernize the structure and material and technical base of the research and educational process; to widely introduce latest technologies of research and teaching; update the list of priority areas of research, the content of higher education and the list of specialties; ensure full informatization of the educational process and access to international information educational systems; widely cover Ukraine's achievements in research and education to attract potential partners and customers from other countries.

There is no other alternative for Ukraine than to develop active cooperation with European countries in the field of education and science which will stimulate the development of human capital and innovation processes. This will increase competitiveness of Ukraine's economy, more dynamic economic growth, improve the quality of life of the population and more active participation of Ukraine in the world development and solving global problems.

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