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Preparedness for higher education: What does it mean for today and tomorrow?

The model of integration of higher education of Ukraine into the European Educational Area

Oksana Melnyk, Olena Dashkovska, and Vitalii Pogrebnyak

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Abstract: The integration of Ukrainian higher education into the European educational area is a key condition for its reform and development. It provides for the activation of cooperation between Ukraine and the European Union in the field of higher education, harmonization of higher education systems, deepening of cooperation between higher education institutions of different countries, increasing the quality and importance of higher education in social processes, expanding the autonomy of universities and participation in academic mobility programs.

The model of the European integration of higher education in Ukraine was developed. It can be used by other countries, taking into account the national features of their educational systems. The completeness of the adopted decisions and implemented measures regarding the modernization of the structure of higher education and the National Framework of Qualifications, the introduction of modern standards and educational programs, the principles and mechanisms of their

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development and implementation, compliance with European norms of organisation of educational process were studied and evaluated. The process of development the National Agency for Higher Education Quality Assurance as the key element of the quality system was analyzed. It has been established that all measures are carried out according to European practices and are consistent with the goals set by the Strategy for the Development of Higher Education in Ukraine in 2022-2032. These are significant steps towards improving the quality of Ukrainian higher education. It was determined that certain components of European integration are still in the process of implementation. It was emphasized that significant efforts will be required to rebuild Ukraine as a whole, to restore and develop higher education, in particular, in the post-war period in connection with the losses incurred because of the aggression of the Russian Federation.

Keywords: Bologna process; European Higher Education Area; higher education institutions; National Agency for Higher Education Quality Assurance; National Qualifications Framework; standard of higher education.

I. Introduction

In recent years, the Ukrainian system of higher education (the System) has undergone significant positive changes thanks to the European integration orientation of the development of Ukrainian higher education, determined by the Bologna process and the Association Agreement between Ukraine, on the one hand, and the European Union, the European Atomic Energy Community and their member states, on the other parties (the Association Agreement). The problem is to ensure the effective use of the obtained opportunities for the competitive entry of higher education of Ukraine into the European Higher Education Area (the EHEA). This depends on the purposeful normative and legal, organizational and methodical, informative and analytical activity of state management bodies, their subdivisions, higher education institutions (HEIs) and public structures responsible for the development of higher education in Ukraine. The timeliness and completeness of the taken decisions, the effectiveness of the implemented measures, their compliance with international, domestic legislation in the field of higher education and European quality criteria, the elimination of the causes that inhibit certain modernization processes are determinant. It is also important to use effectively processes, mechanisms and norms that contribute to a significant increase in the quality of higher education, such as cooperation between higher education systems and institutions of different countries, participation in European educational and scientific programs, programs for the mobility of participants of the educational process.

The problems and challenges faced by Ukraine as a result of Russia's large-scale military aggression and their impact on the modernization of the System should be assessed separately. It is also necessary to analyze the decisions taken by state management bodies, higher education institutions and implemented measures to ensure the industry's efficiency in the conditions of martial law and recovery in the post-war period.

The study aims at developing a model of the integration of higher education of Ukraine into the EHEA and analysing the current state of the process of European integration of Ukrainian higher education during the implementation of the Law of Ukraine "On Higher Education"(the Law).

The specific objectives of the study are:

- modeling of European integration of Ukrainian higher education;

- development of a structural scheme for ensuring the integration of Ukrainian higher education into the EHEA;

- study of the activities of the governing bodies in the field of higher education, HEIs and public structures responsible for the development of higher education in Ukraine and the implementation of the provisions of the Law;

- assessment of the results of modernization of the structure and content of higher education through the creation of regulatory and legal support and the necessary organisational structures, and a modern quality assurance system, development and implementation of higher education standards and educational programs in pedagogical practice;

- analysis of the adopted decisions and implemented measures in terms of their timeliness and compliance with international and domestic legislation in the field of higher education, as well as European quality criteria to ensure the competitiveness of Ukrainian higher education in the European educational environment;

- assessment of the influence of the martial law on the modernization of Ukrainian higher education, sustainable functioning of the educational sector and its integration into the EHEA.

II. Literature review

European integration of higher education is recognized by many scientists as the driving force of the economic and social development of a state. The

Bologna process has become an important benchmark for improving the quality of higher education in many countries of the world. Its focus on the standardization of higher education, increasing its competitiveness, ensures the formation of the EHEA. Some scientists studied history of the formation of the EHEA and problems of the development of higher education systems of different countries (Bergan, Deca 2018), identified the stages and challenges of the development the EHEA thanks to the implementation of the Bologna process (Bergan 2019), outlined the future scenarios for the EHEA (Harmsen 2015).

The spread of the Bologna process outside Europe has contributed to many studies on the impact of this process on the university activities, cross-border transparency of qualifications, transnational improvement of quality assurance and interregional mobility of students or scholars. In 2019, a special issue "Twenty Years of the Bologna Process - reflecting on its global strategy from the perspective of motivations and external responses" of the European Journal of Higher Education dedicated to 20 years of the Bologna process was published. In addition to the general issues of the European integration of higher education, it examines the Bologna process as an international norm, its foreign policy strategy and effectiveness. The publication contains an analysis of the main characteristics of the Bologna process (Klemenčič 2019), and research, related to some issue of its implementation and impact on the system of higher education in different countries of the world in, such as: the internationalization of higher education in Canada (King 2019), the normative and strategic impact of the Bologna process on the New Zealand University system (Shannon, Doidge, and Holland 2019), the Israeli perceptions towards the Bologna process as well as outline its reactions to it (Zahavi 2019), how the Bologna process infiltrated and its level of impact on the African higher education reforms (Alemu 2019), responses to the Bologna process in Asia (Cabanda, Tan, and Chou 2019).

In the work "Current and Future Prospects for the Bologna process in the Turkish Higher Education System", the author emphasizes that 19 of the 47 countries that are part of the EHEA are not EU countries and the perspectives, structure and goals of the EHEA need to be pursued through a more inclusive and participative approach (Erdoğan 2015).

Trends and problems of the development of higher education in Ukraine in the context of its European integration are also actively studied by Ukrainian scientists. The integration of higher education of Ukraine into the EHEA for the development of human capital thanks to various forms of cooperation between Ukrainian HEIs and European ones, as well as the

problems restraining the modernization of the System and improving its quality (V. Antonyuk 2021), European strategic guidelines for the development of modern of higher education of Ukraine (Parpan 2018), institutional changes directions in vocational education in the context of European integration of Ukraine (Martynenko 2015).

The methodology for creating educational programs is outlined in the methodical recommendations. Analyzing the integration of Ukrainian higher education into the international educational area, the authors emphasized the key role of the National Qualifications Framework (the NQF) in the formation of the modern structure of Ukrainian higher education and the need for its coordination with the EHEA Qualifications Framework as a factor in accelerating integration processes (Zakharchenko, Luhovyi, Rashkevych, and Talanova 2014).

The issues of European integration of Ukrainian higher education are closely related to the need to master digital technologies and skills, the introduction of a competency-based approach to education, the development of STEM education (V. Antoniuk 2021).

It was analyzed and described the comprehensive and complete legal framework for ensuring European integration processes in the educational area, adopted in Ukraine before 2014 as well as the experience of some universities in the organization of international cooperation, participation in European projects and programs (T. Antoniuk 2015).

In the scientific and analytical report of the National Academy of Sciences of Ukraine, the main problems faced by the higher school during the war period are defined and key recommendations to overcome them are offered (Kremen et al. 2024).

The study by scientists from the Borys Grinchenko Kyiv Metropolitan University (Nikolaiev, Rii., Shemelynets 2023) outlines the problems and challenges faced by the System due to the consequences of the COVID-19 pandemic and the war, evaluates the decisions of the governing bodies and universities in response to these challenges, contains information about the current state of the System in wartime conditions.

However, despite the available research on the European integration of higher education in Ukraine, there is still no clear model of this process and an analysis of the current state of European integration of Ukrainian higher education during the implementation of the Law.

In addition, despite certain studies on ensuring the functioning of the field of higher education in wartime conditions and post-war recovery, they did not consider new management decisions and adopted measures, and there is no information about the consequences of their implementation.

III. Research methodology

To achieve the aim of the study, the following analysis was carried out:

- the regulatory and legal framework of Ukraine on the development of higher education and its integration into the EHEA,

- data presented on the websites of the State Statistics Service and the Ministry of Education and Science of Ukraine,

- literary sources on the issues of ensuring the activities of higher education in Ukraine in new conditions,

- certain steps taken on the way to the European integration of Ukrainian higher education, in particular the introduced changes to the NQF for its compliance with the European one (the EQF); a new list of fields of knowledge and specialties for which higher education applicants are trained; new standards of higher education and educational programs implemented in pedagogical practice; changes to the process of accreditation of educational programs in connection with martial law; formation of the higher education quality assurance system; harmonization of the System with international ones, cooperation between HEIs, active participation of Ukrainian HEIs in international educational mobility programs and achievement of high indicators in world academic ratings.

The collected empirical data was processed and systematized using general scientific methods of analysis, synthesis, generalization, and comparison. Mathematical methods were used to process the empirical data. The modeling method was used to develop the model, and graphic methods were used to construct the scheme and diagrams.

The research methodology was based on the analysis of statistical indicators of the HEIs network and student contingent, stable development trends. It was analysed the compliance of decisions made by management bodies and implemented measures with the tasks and goals determined by the provisions of the Law on modernization of the structure, content, and quality improvement of higher education. The elements of the study are the components of the System defined by the Law. According to its Article 16, the System consists of: HEIs of all forms of ownership; levels and degrees (qualifications) of higher education; fields of knowledge and specialties; standards of higher education; educational and scientific programs; licensing conditions for conducting educational activities and licensing conditions for conducting higher education; governing bodies in the field of higher education; participants of the educational process.

The criteria for evaluating the research results were the achievement of the goals defined by the Bologna Declaration, Association Agreement, and Strategy for the Development of Higher Education in Ukraine for 2022–2032 (the Strategy).

IV. Results

IV.1. *Modeling of Ukrainian higher education integration into the EHEA*

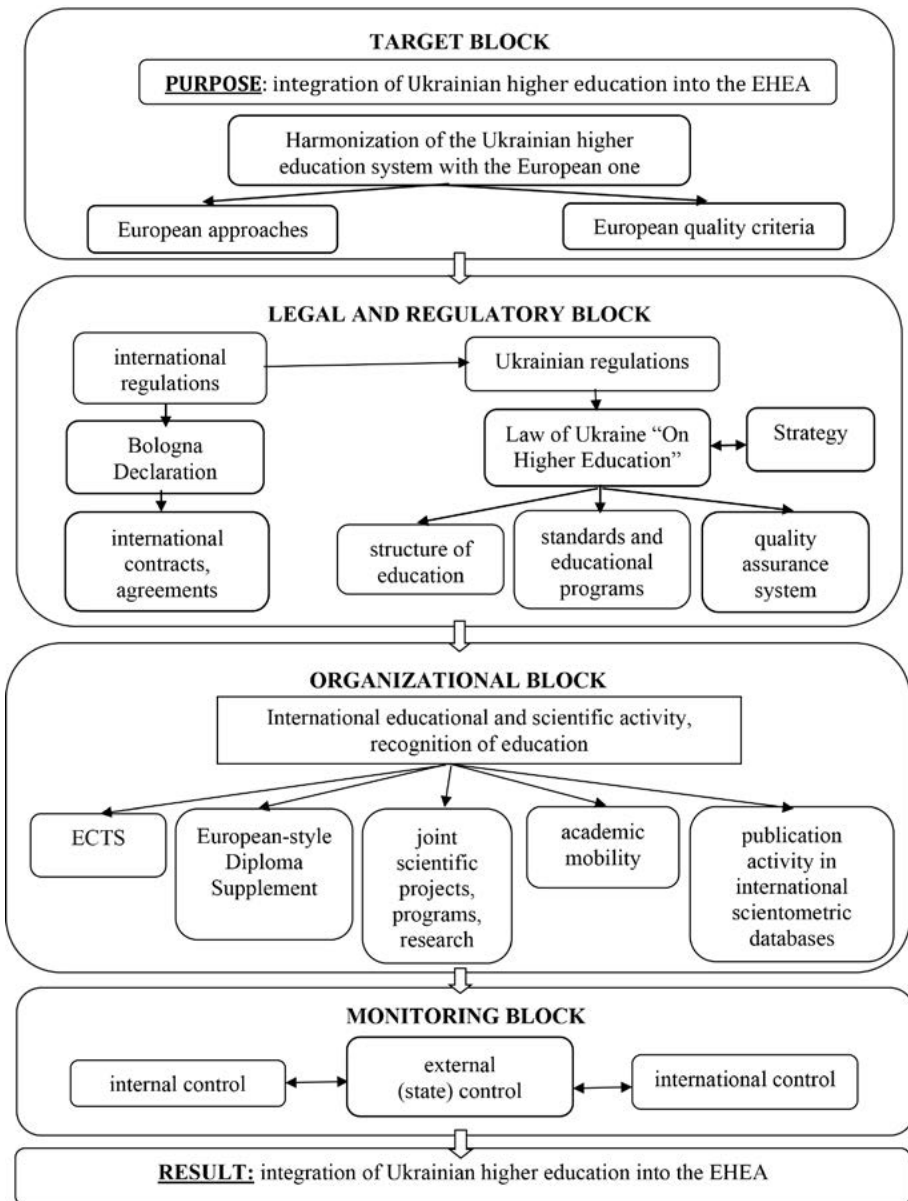IV.1.1. The model of Ukrainian higher education integration into the EHEA

The global challenges of modern times and stimulated by them the internationalization of most spheres of social activity, including educational, competition in the international market of educational services have caused the need to unite the efforts of the governments of European countries, the scientific and educational community to significantly increase the competitiveness of European science and higher education and ensure the growth of their role in social transformations. The creation of the European Union (the EU) and its expansion led to the need to form the joint the EHEA (European Ministers of Education 1999).

The significant steps have been taken in Ukraine on the way to the competitive entry of higher education into the EHEA. This process is facilitated by the adoption of the Strategy, which defines integration into the European educational and research areas as one of the directions of its development. The strategic vision of the development of higher education in Ukraine contains operational goals, tasks and indicators of identified problems. The Strategy emphasizes that European integration aspirations are key problems of the transformation of Ukrainian higher education today. But they are not always supported by a willingness to harmonize structures, to cooperate and share the best practices, as well as to create conditions for studying foreign students and preparing Ukrainian students for the global world (Cabinet of Ministers of Ukraine 2022).

The integration of Ukrainian higher education into the EHEA, which takes place in Ukraine in accordance with European documents on higher education, international agreements, the Law and Strategy, can be presented in the form of a model. It consists of target, legal and regulatory, organizational, monitoring and performance blocks (Fig. 1).

The target block defines the goal of modernization of Ukrainian higher education, which consists in its integration into the EHEA. The specified process requires the harmonization of the System with the European system through the introduction of European approaches and quality criteria, principles of integrity in education and science.

Figure 1

The model of Ukrainian higher education integration into the EHEA

The legal and regulatory block demonstrates that the process of Ukrainian higher education integration into the EU takes place in accordance with the regulatory documents, which consider the specified issue, and which are interconnected (the Association Agreement, Law, Strategy). Ukrainian legislation is also harmonized with international acts (the Bologna Declaration, international contracts, agreements, etc.).

The organisational block shows that the process of European integration is facilitated by the introduction of ECTS, the Diploma Supplement of the European model; joint scientific projects, programs, research; academic mobility; publications in international scientometric databases.

The monitoring block reflects the organisation of control over the process of European integration, which is carried out by a HEI (internal), the state (external – the Ministry of Education and Science of Ukraine, National Agency for Higher Education Quality Assurance, etc.), international organizations and experts (world academic ratings). Such control is carried out regularly. Its results are made public, which makes it possible to identify the dynamics of the process, problems and issues that require more attention or modifying.

Taking into consideration that more and more countries are joining the European integration of education, the model can be used as a basic one, provided that it is adapted to the national characteristics of the country.

A key moment in the transformation of Ukrainian higher education on the way to European integration was the signing by our state of the Bologna Declaration in 2005, which initiated the creation of the EHEA. In his welcoming speech during the XI International Scientific and Practical Conference "European Integration of Higher Education of Ukraine in the Context of the Bologna Process", the former Minister of Education and Science of Ukraine, Serhiy Shkarlet, considering the issue of the formation of the educational policy of Ukraine in the context of the requirements of the XXI century, noted that the restoration of higher education of Ukraine should be in harmony with the values and vision of the development of the EHEA. It should also become a driving force in the post-war reconstruction of the country. He also emphasized that it is the Bologna process that sets clear guidelines and provides the necessary tools to achieve this goal (Ministry of Education and Science of Ukraine 2022).

Joining the Bologna process and concluding the Association Agreement were the first steps taken at the state level in the direction of Ukraine's European integration. The country undertook to adapt its own legislation on higher education to the European one, to reform the System, modernizing all its components, applying European principles and mechanisms. In September 2014, the Law entered into force, and a new stage of reforming the System,

aimed at increasing its competitiveness on the European market of educational services, began. This primarily concerned the modernization of the structure and content of education through the adoption of a system of easily understandable and comparable degrees of higher education; introduction of the structure of higher education, which is based on three cycles (bachelor's degree, master's degree, doctor of philosophy), introduction of new standards that determine the competences of specialists and terms of training at each educational level and programs, the implementation of which forms these competences.
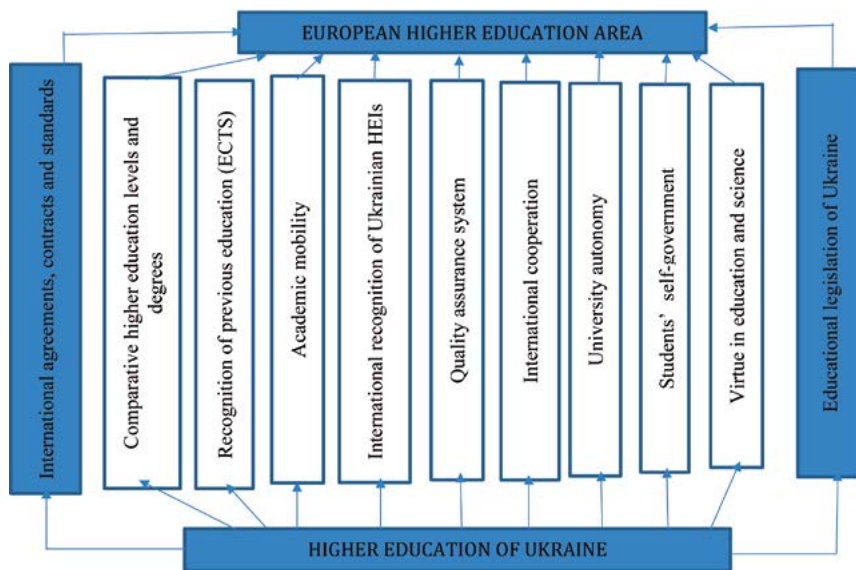
IV.1.2. The structural scheme of Ukrainian higher education integration into the EHEA

The European integration of Ukrainian higher education was presented in the form of a structural scheme, the main components of which can be considered indicators (criteria) of the successful implementation of this process (Fig. 2). The scheme demonstrates that the System is based on the Ukrainian educational legislative framework, which must be brought into line with international agreements, contracts and standards or harmonized with international documents on higher education. Comparative levels and degrees of Ukrainian higher education with three-level system are aimed at its recognition abroad and its entry into the EHEA. Thanks to the development a higher education quality assurance system, doctoral studies, and the introduction of academic integrity, HEIs of Ukraine became more famous in the world, and their participation in joint programs of academic and scientific mobility intensified. The modernization of the management of Ukrainian HEIs in terms of their autonomy and student self-government creates new opportunities for educational institutions to join the EHEA.

The mentioned above process involves the implementation of effective steps in this direction and the development of all components of the structural scheme, which will contribute to the faster integration of Ukraine into the EU.

IV.2. *The analysis of Ukrainian higher education integration into the EHEA*

Since 2014 some elements of the model have been implemented in pedagogical practice (the Bologna Declaration, ECTS, Diploma Supplement, and publishing activity in international scientometric databases). In this study, the other components of the models were monitored. They are structure of education, standards and educational programs, quality assurance system, joint scientific projects, programs, research; academic mobility; internal control, external (state) control, international control.

Figure 2

The structural scheme of Ukrainian higher
education integration into the EHEA

The component of the model selected for the study are contained in the goals and objectives defined by the provisions of the Bologna Declaration, the Law of Ukraine "On Higher Education", Association Agreement and Strategy.

IV.2.1. The network of higher education of Ukraine

The analysis of the network of HEIs and students shows that during the first ten years of Ukraine's independence (1991-2001), the number of HEIs (universities, academies, institutes) increased from 149 to 281 (almost twice), and student number increased from 881,000 to 1,266,100 (almost 1.5 times) according to the latest data from the State Statistics Service of Ukraine. Also, at the beginning of the 2020/2021 academic year, there were 515 HEIs in Ukraine, where 1,141,000 students studied (State Statistics Service of Ukraine 2022). According to the Ministry of Education and Science of Ukraine, in 2024 the network of HEIs included approximately 170 state universities, 100 private HEIs and 40 communal institutions (Business Censor 2024).

The conditions of martial law most noticeably affected the transformation of the basic, interconnected components of the System – the contingents of teachers, students and network of HEIs due to the forced relocation of certain educational institutions, participants of educational process, and some of the latter - to other regions of the country. More than 8,000,000 people became internally displaced ones, more than 6,000,000 people were forced to leave the territory of Ukraine. As of the end of 2022, out of 4,180,000 people registered in European countries for temporary protection, 665,000 students and school pupils and 25,000 teachers. It should be noted that the Ministry of Education and Science of Ukraine measures to simplify the procedure for admission to HEIs in 2022, create conditions for access to higher education for residents of temporarily occupied and especially dangerous territories, and organize testing abroad gave Ukrainian HEIs the opportunity to form the necessary contingents of higher education applicants and ensure activities of the Systems in new conditions. In total, more than 214,000 applicants took part in the 2022 admissions campaign, of which 23,000 were tested abroad in 58 cities in 32 countries (Nikolaiev, Rii. Shemelynets 2023).

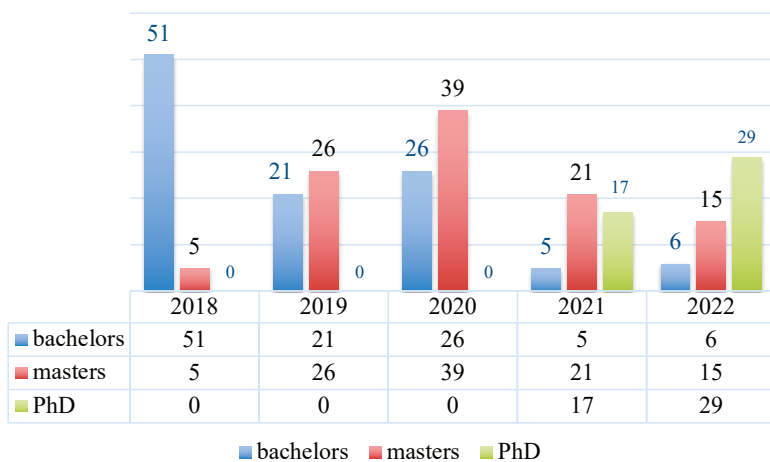IV.2.2. The structure of Ukrainian higher education system

The analysis of the current state of Ukrainian higher education European integration showed positive changes that took place during the last decade. The structure of higher education has been modernized, namely: the NQF has been partially brought into line with the Framework of Qualifications of the EHEA. In 2020, by the government decision (Cabinet of Ministers of Ukraine 2020), the NQF was aligned with the Qualifications Framework for lifelong learning of the EHEA and harmonized with the internationally accepted standard classification of education, which contributed to the creation of conditions for the recognition of national educational qualifications abroad.

Today, the updated NQF contains eight qualification levels and has been supplemented with concepts of educational and professional qualifications. A junior bachelor corresponds to the fifth level of the NQF and is a short cycle of higher education; a bachelor's degree is equivalent to the sixth level of the NQF and the first cycle of higher education of the EQF; a master's degree is considered the seventh level of the NQF and the second cycle of higher education of the EQF; a Doctor of Philosophy and Doctor of Arts correspond to the eighth level of the NQF and the third cycle of higher education. Thus, the NQF fully corresponds to the EQF.

IV.2.3. Standards and programs

The next stage of Ukrainian HEIs integration into the European educational environment was the implementation of the new list of fields of knowledge and specialties. Instead of 48 fields of knowledge, 144 directions and more than 500 specialties of the previous lists, 27 fields of knowledge and 114 specialties were introduced (Cabinet of Ministers of Ukraine December 2022).

Another step on the way to the European integration was the introduction of new standards of higher education and educational programs into pedagogical practice. They are the next generation of educational standards that replaced the industry standards of higher education, which were developed and operated in 2002–2014. By the end of 2022, 109 bachelor's, 100 master's, and 46 doctoral standards have been implemented (Fig. 3) (Ministry of Education and Science of Ukraine 2018-2022).

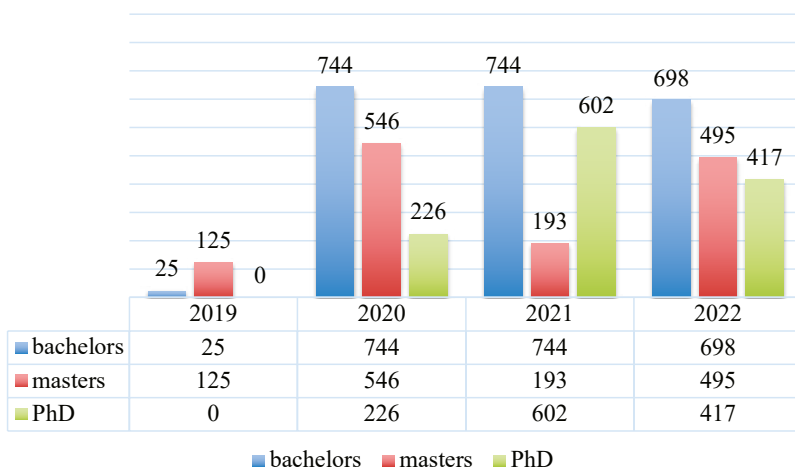|	2018	2019	2020	2021	2022
bachelors	51	21	26	5	6
masters	5	26	39	21	15
PhD	0	0	0	17	29

bachelors   masters   PhD

Figure 3

The approved standards of higher education

Source: the authors' analysis of the data from the website of the Ministry of Education and Science of Ukraine

IV.2.4. The system of quality assurance of higher education

The process of development and accreditation of educational (educational and professional, educational and scientific, educational and creative) programs has been introduced into the legislative field that forms the content of the

educational process. They are built in accordance the requirements of the higher education standard, taking into account the principles and values of the EHEA have been introduced into the legislative field. The programs are developed by HEIs in accordance with the requirements of the higher education standard and are accredited by the National Agency for Higher Education Quality Assurance (the NAHEQA). According to the minutes of the NAHEQA meetings, it was determined that by the end of 2022, 4,815 educational programs were accredited. There are 2,211 bachelor's, 1,359 master's, and 1,245 PhD programs among them (Fig. 4) (NAHEQA 2019-2022).

	2019	2020	2021	2022
bachelors	25	744	744	698
masters	125	546	193	495
PhD	0	226	602	417

bachelors   masters   PhD

Figure 4

The accredited educational programs

Source: the authors' analysis of the data from the NAHEQA website.

The introduction of martial law in the Ukraine affected the practice of accreditation of educational programs and the terms of accreditation documents validity. The NAHEQA is temporarily allowed to carry out accreditation of educational programs in a remote (distant) mode, as well as to make a decision on conditional (delayed) accreditation without conducting or with partial conducting of an accreditation examination. The term of HEIs (or scientific institutions) certificates validity on accreditation of specialties and areas of training and educational programs, which were valid by February 24, 2022, has also been extended until July 1 the year following the termination or cancellation of the martial law in Ukraine (Cabinet of Ministry of Ukraine March 2022).

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Before the adoption of the Law in 2014, quality control of higher education in Ukraine was ensured in the process of licensing and accreditation of HEIs by the central executive body in the field of education and science.

Since 2019 (the beginning of the activity of the NAHEQA), an integrated system of quality assurance for higher education has been launched. It has such components as: internal and external quality assurance of the educational process and quality of higher education, quality assurance of the national agency itself. Paragraphs 23, 24 of Article 1 of the Law define the concept of the quality of higher education as the level of knowledge, abilities, skills, and other competencies acquired by a person, and the quality of educational activity as the level of organization of the educational process in a HEI, which correspond to the standard of higher education, and ensure that individuals obtain a high-quality higher education and contribute to the creation of new knowledge. The NAHEQA carries out effective management of the quality system of higher education (external quality assurance) through the formation of its requirements; analysis of the quality of educational activities of HEIs; approval of the standard of higher education; accreditation of educational programs and institutional accreditation; development of the market of quality educational services; implementation of the mechanism of healthy competition and integrity in higher education, etc.

Each HEI has an internal quality assurance system, which provides for the following procedures and measures:

1) monitoring and periodic review of educational programs;

2) annual evaluation of the achievements of participants in the educational process, regular publication of the results of such evaluations on the official website of the HEI and in any other way;

3) improving the qualifications of pedagogical, scientific, scientific and pedagogical workers;

4) ensuring the availability of the necessary resources for the organization of the educational process, including independent work of students, for each educational program;

5) availability of information systems for effective management of the educational process;

6) ensuring publicity of information about educational programs, degrees of higher education and qualifications; and

7) observance of academic integrity by employees of HEIs and students of higher education, etc.

The system of ensuring the quality of educational activities and higher education (the system of internal quality assurance) is evaluated by the NAHEQA or accredited independent institutions on the basis of its compliance with established requirements and international standards and recommendations.

In connection with the COVID-19 pandemic and Russia's military aggression, there have been significant changes in the network of higher education institutions, the formation of contingents, the organization of the educational process, and quality control. There was a transition to distance or mixed forms of education, which contributed to the activation of the internal information systems of the quality of education of higher education institutions. The methods of improving the qualifications of pedagogical, scientific and scientific-pedagogical workers, which are most often held in the form of webinars, online conferences, online trainings, online internships, etc., have changed significantly.

IV.2.5. The academic mobility

A harmonization of educational systems, cooperation HEIs, active participation of in international educational mobility programs and achievement of high indicators in world academic ratings are important processes that contribute to increasing the competitiveness of Ukrainian higher education. The process of ensuring academic mobility is regulated by the Regulation on the procedure for exercising the right to academic mobility. Academic mobility was also facilitated by the introduction of the European-style Diploma Supplement of higher education in Ukrainian HEIs. It contains the necessary information about an obtained qualifications and educational achievements of a graduate, sufficient to ensure international comprehensibility and recognition of a higher education diploma that expands the possibilities of academic mobility.

The EU Erasmus Mundus+ credit program has become the most widespread and popular of the European educational programs for Ukrainian HEIs. Since 2004, this program has become available for Ukraine. It is implemented taking into account the provisions of the Association Agreement. 1,889 projects for credit mobility were supported out of 2,522 project applications projects submitted by Ukrainian higher education institutions in 2015-2020 (Fig. 5). 227 Ukrainian universities participated in the mentioned projects, the total amount of grant funds was 54,327,000 euros (National Erasmus+ Offices and Higher Education Reform Experts 2021).
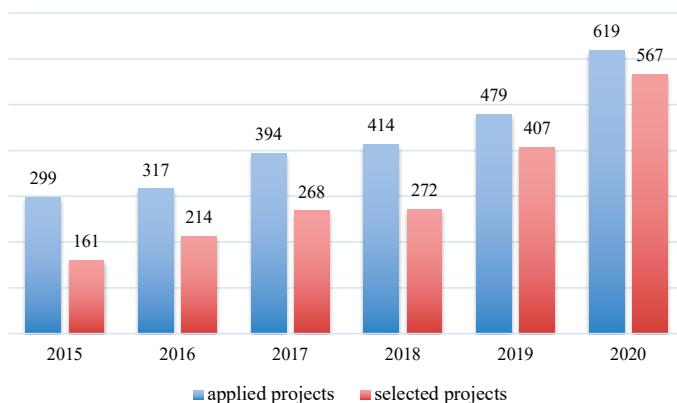
Figure 5

Dynamics of Ukraine's participation
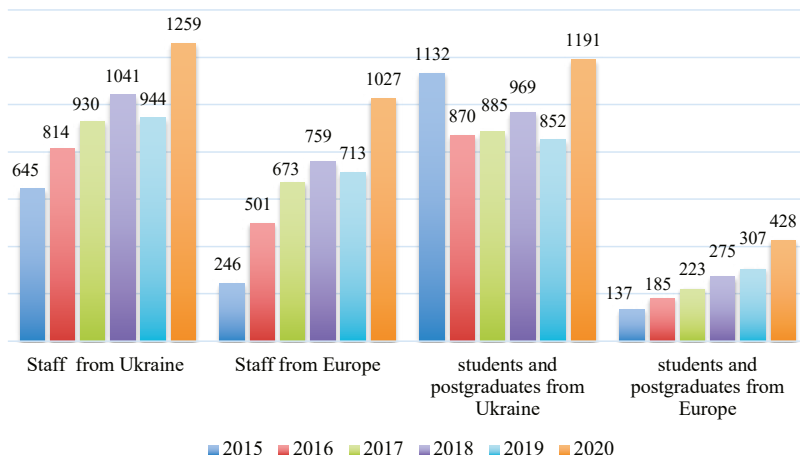in the EU Erasmus+ program during 2015-2020

Source: the authors' analysis of the data from Overview of New Opportunities within
EU-funded Programme Erasmus+ 2021-2027. Participation of Ukrainian organisations EU-
funded Programme Erasmus+ 2021-2027.

Over six years, 11,532 students and post-graduate students studied and more than 5,600 scientific and pedagogical workers taught or improved their qualifications in Europe based on the agreements implemented by European universities together with Ukrainian ones. Accordingly, 5,474 scholars from Europe visited Ukraine to study or teach (Fig. 6).

Poland, Germany, Lithuania, Romania and Spain are among the countries that most actively cooperated with Ukraine. The most active Ukrainian participants are Kyiv Taras Shevchenko National University of Kyiv, Ivan Franko National University of Lviv, National Technical University of Ukraine "Kyiv Polytechnic Institute named after Igor Sikorsky", National University "Lviv Polytechnic", V.N. Karazin Kharkiv National University, National University "Kyiv-Mohyla Academy" (National Erasmus+ Offices and Higher Education Reform Experts 2021).

For comparison, in 2007–2013, under the Program, in cooperation with 26 European universities, more than 1,800 exchanges of students, postgraduates and employees of Ukrainian universities were implemented. In March 2021, another seven-year Erasmus+ Program (2021-2027) was approved. According to the new Program, which is more inclusive, digital and ecological, 2,980,700 euros are planned to be allocated for education and

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training. It is expected that almost 10,000,000 people will take part in it. As one of the members of the European Partnership, Ukraine is included in the group of partner countries and has the opportunity to participate together with representatives of the EU countries in more than 10 projects from 3 key areas of the Program (learning mobility, cooperation among organizations and institutions, support to policy development and cooperation).

Figure 6

Dynamics of participation in the EU Erasmus+ program
of students, postgraduates, teachers

Source: the authors' analysis of the data from Overview of New Opportunities within EU-funded Programme Erasmus+ 2021-2027. Participation of Ukrainian organisations EU-funded Programme Erasmus+ 2021-2027.

An important novation for Ukraine is the implementation by the European Commission from 2022 of a simplified procedure for obtaining grants for mobility within the Erasmus+ Program through the implementation of exceptional measures to promote the integration of Ukrainians into European universities during the war (European Union 2022).

The task for the Ukrainian side is to use these additional opportunities as much as possible and to attract new participants to the projects.

The study shows that certain components of the European integration process are not completed and are in the process of development. These relate to: the structure of higher education in Ukraine (the "junior bachelor" level of higher education remains), research universities have not been

established as a basis for training doctors of philosophy/doctors of arts. The problems of modernization of the HEIs network and management of the industry remain relevant. It requires the expansion of participation of Ukrainian HEIs in international educational and scientific programs and consideration of this factor during the institutional accreditation of HEIs. The restraining factors are the complex and long-term process of Ukraine's accession to the EU and military actions on the territory of Ukraine. The reconstruction of Ukraine as a whole and the development of higher education in the post-war period will require significant efforts in connection with the losses suffered during the aggression of the Russian Federation.

The problems of the development of the System, its European integration into the EHEA under martial law and in the post-war period require the adoption of the necessary decisions at the state and institutional levels, the study of their effectiveness, the introduction and implementation of practical measures. The latter include:

- development of methodological recommendations on the preparation of project applications;

- training of pedagogical, scientific and pedagogical workers in the procedure of preparation and participation in international cooperation programs;

- study and dissemination of the best experience in an international cooperation; and

- joining the program "Intra-European mobility of students and staff of higher educational institutions – open for Ukraine", which provides for the simplification of procedures and mechanisms for the integration into European universities and receiving grants for mobility during the war.

V. Challenges and solutions

The results of the research indicate that certain components of the European integration process are incomplete and are developing. These issues concern the structure of higher education in Ukraine (there are still such levels of higher education as junior bachelor and doctor of science), the formation of postgraduate studies has not been completed, in particular, the creation of research universities as the basis of scientific support for postgraduate studies, approval of higher education standards of the specified level, educational programs of this level are accredited without approved standards yet. It requires the expansion of participation of Ukraine in international educational and scientific programs and consideration of this

factor during the institutional accreditation of Ukrainian HEIs. The restraining factors are the complex and long-term process of Ukraine's accession to the EU and military actions on the territory of Ukraine. The reconstruction of Ukraine as a whole and the development of higher education in the post-war period will require significant efforts in connection with the losses suffered during the aggression of the Russian Federation.

The specified problems of the European integration require the adoption of the necessary decisions at the state and institutional levels as well as the implementation of practical measures, such as:

- creation of an information resource, which should contain the entire legal framework on European integration, a complete list of current programs of international cooperation in the field of education and science, etc.;

- development of methodological recommendations on the preparation of project applications;

- conducting training of pedagogical, scientific and pedagogical workers in the procedure of preparation and participation in international cooperation programs;

- study and dissemination of the best experience of international cooperation of leading Ukrainian universities; and

- draw the attention of HEIs of Ukraine to the Erasmus+ Program, which provides for the simplification of procedures and mechanisms for the integration of Ukrainians into European universities and receiving grants for mobility during the war.

VI. Conclusions

1. The model of the integration of Ukrainian higher education into the EHEA has been developed. It can be used by other countries moving towards European integration, taking into account the national characteristics of their educational systems. This model and experience of Ukraine can contribute to speeding up the process in other countries.

2. Moving to the EHEA, Ukraine adapts its own legislation in the field of higher education to European one, reforms the System, modernizing all its components, achieves the convergence of educational systems and increases the quality of higher education, while applying common European principles and mechanisms:

- in accordance with the needs of society and the demands of the international market of educational services, the basic indicators of the higher education system are being transformed, such as: the network of HEIs and contingents of participants in the educational process (they are more in line with the current level of socio-economic development of the country);

- taking into account the requirements of European standards, the structure of higher education was significantly modernized, the NQF is partially in line with the EQF;

- the new list of fields of knowledge and specialties has been implemented (it became more recognizable in the European educational environment);

- the implemented modern standards of higher education and educational programs developed taking into account the competence approach to the organization of the educational process, the principles defined by the Bologna Declaration and formulated in the international project "Tuning Educational Structures in Europe"; and

- the comprehensive system of ensuring the quality of Ukrainian higher education has been formed (the necessary structures have been formed, approaches and mechanisms tested in European educational practice are used for quality assessment; the NAHEQA actively cooperates with European organizations ensuring quality and integrity in education and science).

3. The Law of Ukraine "On Higher Education" intensified the integration processes in the national higher education, and Ukraine's conclusion of the Association Agreement, joining the Bologna process and obtaining the status of a candidate country for joining the EU testify to the expansion of the presence of Ukrainian higher education in the EHEA. Ukrainian universities have gained access to European educational and scientific programs, are expanding their participation in international academic rankings. Some Ukrainian HEIs are actively presenting themselves on the international market of educational services:

- increased activity of the Ukrainian HEIs in European academic mobility programs; and

- a group of leading Ukrainian HEIs has been defined, which have been participating in EU educational programs for many years, are present in world academic rankings. These educational establishments can be

the basis for research universities with a high level of scientific and research work and an effective system of educational process.

4. Indicators, nature and dynamics of processes in Ukrainian higher education may change significantly in the near future due to the losses incurred by the country as a whole and Ukrainian higher education in particular as a result of aggression against Ukraine by the Russian Federation. Their restoration and improvement will require new decisions, multi-year efforts of the state, regions, university scientific and pedagogical teams, and the entire civil society.

Decisions and implemented measures adopted by state management bodies and HEIs ensure the effectiveness of the higher education system of Ukraine in the conditions of martial law and are aimed at its restoration and development in the post-war period.

Further research requires the modernization of the higher education system and the functioning of the quality assurance system in the new conditions associated with the war and post-war period, in particular:

• further modernization of the network of HEIs in order to improve the quality and efficiency of the higher education system;

• improvement of higher education management through reduction of the number of branch bodies to the management of which belong HEIs; and

• solving the problem of maximum return to Ukraine of students and teachers who were forced to live abroad due to the war.

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