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The Erasmus+K2 project DEFEP
Distance Education for Future:
best EU practices in response to the requests of modern higher education seekers and labor market

ANALYTICAL REPORT:

KEY TRENDS IN REFORMATION OF DISTANCE EDUCATION

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CONTENT

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CHAPTER 1.
DISTANCE EDUCATION IN UKRAINE. CURRENT STATE, CONDITIONS

1.1. INSTITUTIONAL COMPONENT OF DISTANCE EDUCATION

The study of the institutional structure of distance education is a crucial task, since the composition of the structural components and the coherence in their mutual functioning directly determines the effectiveness of its activities and, consequently, the welfare of society as a whole. Considering the transformational processes and challenges taking place in society, including in education, further research aimed at improving the structure of the institutional environment of distance education is considered promising.

The institutional structure of society in general and education in particular is quite complex, diverse and dynamic, which creates additional difficulties in its analysis.

The basic ideas of the modern society's subjects functioning within the limits, norms and rules were substantiated in the works of representatives of traditional institutionalism in the late XIX and early XX centuries. One of such fundamental studies is the work of the famous institutionalist T. Veblen "The Theory of the Leisure Class: An Economic Study of Institutions" (1899). Later, in the 1960s and 1980s, R. Coase developed a new direction of institutionalism – neo-institutionalism – in his research, where he studied the relationship of business entities with various social institutions, which, together with institutional agreements and actors, form the basis of the institutional environment (Obushna 2016).

When studying the institutional environment of distance education in Ukraine, we consider it necessary to pay attention to the conceptual distinction between the categories "institution" and "institute" based on the criterion-etymological identification of their key features.

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Currently, there are many works of scholars on the interpretation of the basic categories of institutional theory, namely “institute” and “institution”. A study of the views of foreign and national scholars on the theoretical and methodological content of the category “institution” has led to the following definition: an institution is a functioning, type of relationship or behavior of participants in a certain community that has evolved evolutionarily and is governed by established rules, norms, principles, ideological views, habits, traditions and ensures the satisfaction of the basic interests and needs of a certain community within the legal, political, economic and other systems. Institutions are characterized by the following features:

– functionality – they ensure the fulfillment of socially, economically or politically significant functions of a particular community or society as a whole;

– universality implies that all members of the community must comply with the principles, rules, customs, and norms;

– social necessity – they arise evolutionarily on the basis of common ideology and interests of social communities, the result of which is the satisfaction of the needs of society at a certain point in time through the relevant organizations and institutions;

– authority is determined by the power of subconscious influence on human behavior of the generally recognized established traditional order and rules, supported by the awareness of responsibility for their non-compliance on the part of the legal structures of the relevant institutions;

– psychological feature – they have a psychological origin, as they arise on the basis of the ideology of a group of social participants, and depend on their mental and cultural characteristics;

– externality explains the variability of institutions, their reaction to changes in social development in accordance with the action of external independent factors and circumstances;

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– organization – they imply the formation of social space, determination of statuses, roles, responsibilities of participants within a certain institutional environment (Makaliuk, Zhaldak, & Martynenko 2022).

Emphasizing the important content of the institution for the functioning of subjects in the institutional environment, we note the illegitimacy of some scholars to identify them with institutes.

Nowadays, when interpreting the content of the concept of "institute", scholars agree on the recognition of its stable structural formation. Translated from Latin, "institute" (institutum) means an establishment, an organization, i.e. it is a "solid" link in the system of economic relations. An institute establishes and disseminates the rules and regulations inherent in the relevant institutions. It is worth paying attention to such a feature of the institute as structural, i.e. the presence of a certain structure, components that function on a unified basis.

Thus, based on D. North's definition, it can be argued that an institution is a "way of being" used in a certain environment, which is caused by rules, habits, traditions, norms of behavior, values, laws, etc.; an institute is an "environment" in which the rights and interests of its participants are realized (North 1990).

The key features of institutes include legal status or legitimacy. This conclusion derives from the encyclopedic interpretation, according to which an "institute" is "a set of legal norms in a particular sphere of social relations…" (Busel 2005). This is also confirmed by approaches to understanding institutes in scientific sources. T. Parsons saw institutes as a set of specific normative complexes involved in the process of regulating the status-role behavior of individuals (Karmazina & Shurbovana 2006). P. Mayburd in his work "Introduction to the History of Economic Thought. From Prophets to Professors" defines an institute as "an order enshrined in the form of a law, an establishment" (Medema & Warren 2003).

The characteristic features of institutes are considered to be:

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- historicity – institutes emerge as a result of the historical development of a particular social sphere;
- structural nature, i.e., the presence of constituent elements within the whole that function on a unified basis to achieve a common goal;
- structure – each institute functions in interaction and interdependence with other institutes of the social system;
- objectivity – the ability of an institute to exist outside of human consciousness in response to the necessity to meet fundamental social needs;
- coerciveness – they are endowed with the power to change the behavior of individuals in society regardless of their will and desires (for example, the obligation to pay taxes or to perform military service);
- hierarchy – the presence of vertical relations within the institute with clear subordination between organizations and bodies that are part of its structure;
- organizational capacity – the ability to ensure the reproduction of a set of homogeneous institutions as an integral system for the implementation of certain socially important activities;
- legal entrenchment or legitimacy. As noted above, institutes provide legal support for the rules and procedures that are generated by specific institutions (Makaliuk, Zhaldak, & Martynenko 2022).

In accordance with the above features, an institute is a stable structural formation that ensures the implementation of one or a set of homogeneous institutions through the legal consolidation of rational models of behavior and actions of a certain group of society members linked by a common interest in the form of laws, regulations, instructions, and procedures, which contributes to increasing the level of society organization and strengthening social order.

As a rule, an institute is a model of a whole set of organizations, the impetus for creation and the basis of which is an institution that determines the structural and functional boundaries of the implementation of sustainable economic relations and

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relations between the parties and subjects of the socio-economic space. As O. Sysoiev (2014) rightly notes, the formation of institutes and their organizational form is due to the evolutionary interaction of functional and structural forms in society, which reflect institutions and organizations, respectively.

At the same time, scholars are now studying the phenomenon of "informal institutes" and define them as "forms of interaction that have not been legalized in legal practice, but at the same time exist in real life…" (Zapuhlyak 2016). However, there are other scholars who disagree with the above definition and the formation of the category of "informal institutes", as they believe that an institute generalizes and can combine formal and informal institutions, but it must have legal basis. We support this approach, so we propose to define the activities of an educational institute based on the principles of non-formal institutions as an "institute of non-formal education". Adapting this methodological approach to the research topic – "institutional component of distance education", the institutional environment of distance education will look like this (Fig. 1.1.1).

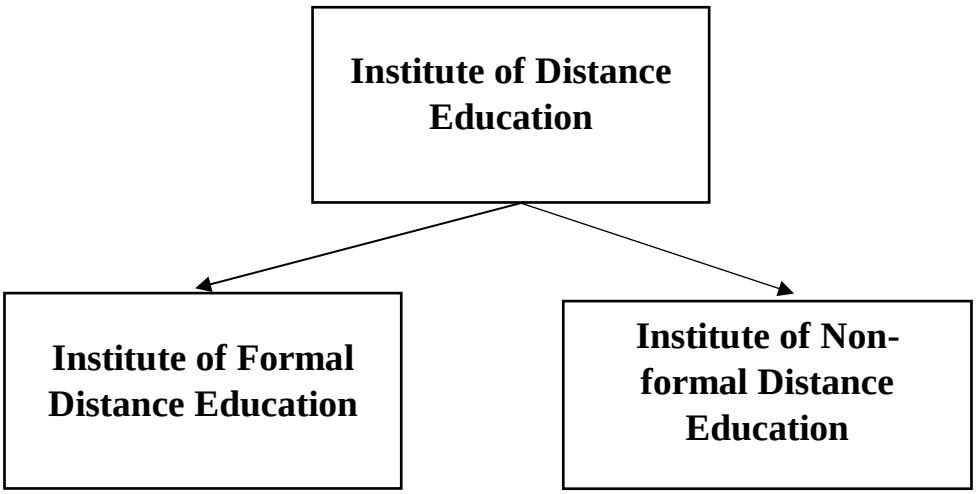

Fig. 1.1.1. Structural components of the institutional environment of distance education

Source: authors' design

Thus, formal and non-formal distance education institutes cannot be established or function without institutions, while institutions, like certain rules, habits or

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traditions, exist outside of institutes and may or may not later be legitimized and implemented in a particular institute.

The institutional component of distance education in Ukraine, based on the main provisions of institutional theory, includes formal and non-formal institutions involved in the formation, regulation, organization, implementation of the distance education system and its technical, scientific, methodological and financial support.

Under the influence of distance education institutions, the structure and relationships of the participants of the distance education institute were formed (Fig. 1.1.2).

Institutions of formal distance education include: The Ministry of Education of Ukraine, which governs research institutions, educational institutions and government agencies responsible for the content and quality of educational services; professional associations and organizations; National Agency for Higher Education Quality Assurance; international agencies for education quality assurance; international institutions and organizations.

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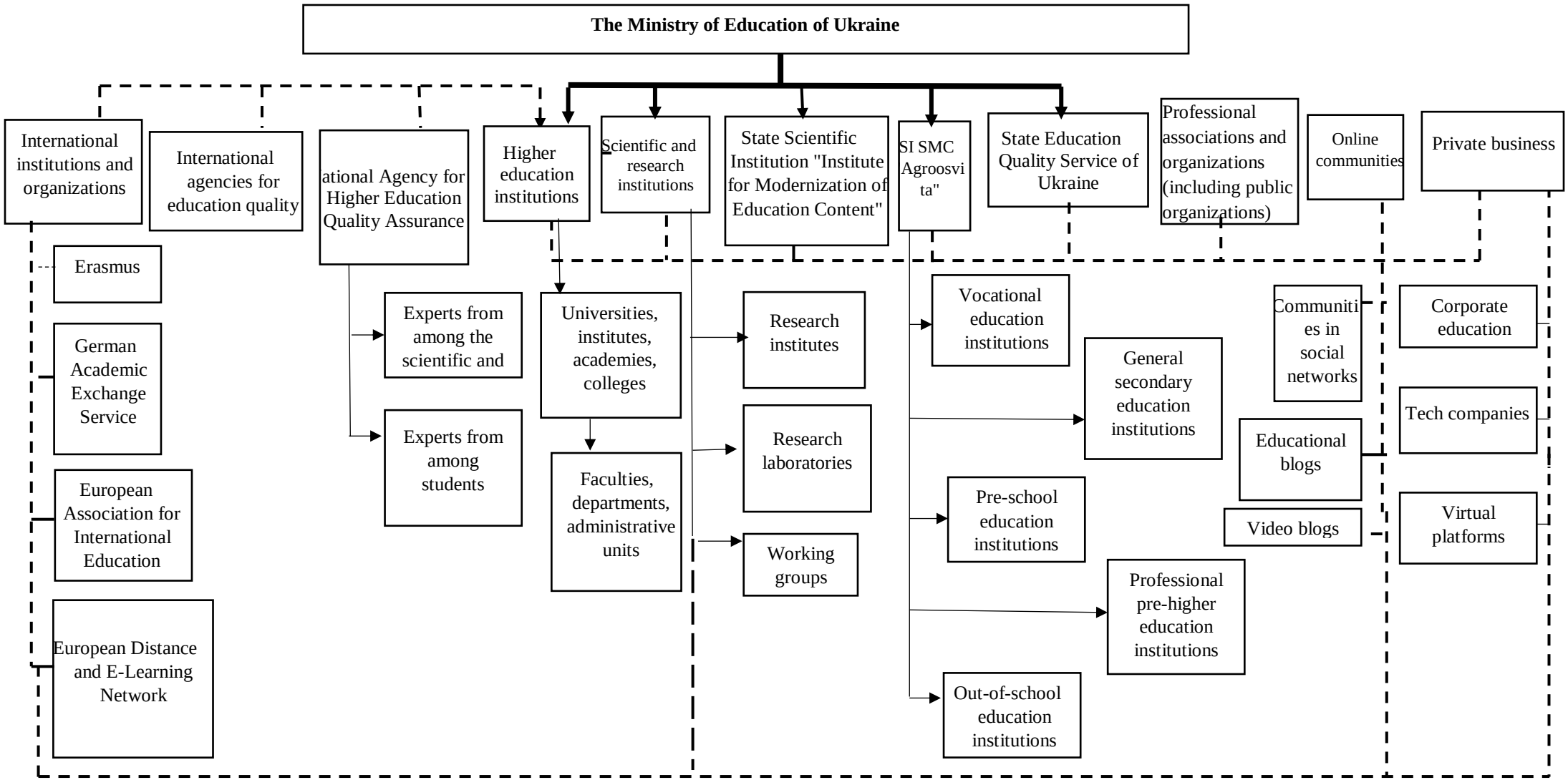

Fig. 1.1.2. The structure of the Institute of Distance Education participants

Source: authors' design

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The Institute of Non-Formal Distance Education complements formal structures and provides additional (non-formal) opportunities for communication, exchange of experience and self-development. It creates a favorable environment for the active participation of students and supports them in the learning process.

Macro-level. Macro-level institutions (national level) are related to the formation of policies, legislation, standards, and different types of educational programs and courses. The main institution regulating the organization of distance education in Ukraine is the Ministry of Education and Science of Ukraine (MES). The basic principles and functions of MES in the system of distance education are defined in the Laws of Ukraine "On Education" of 05.09.2017 No. 2145-VIII, "On Higher Education" of 01.07.2014 No.1556-VII, "On Approval of the Regulation on the Ministry of Education and Science of Ukraine" of 16.10.2014 No. 630 and in some other regulatory acts. MES defines the basic principles of organization and implementation of distance learning by the Order "Regulation on Distance Learning" of 25.04.2013 No. 466. According to the principles of which, distance learning means an individualized process of acquiring knowledge, skills, abilities and methods of human cognitive activity, which occurs mainly through the indirect interaction of participants in the educational process who are remote from each other in a specialized environment that operates on the basis of modern psychological, pedagogical and information and communication technologies.

The National Agency for Higher Education Quality Assurance (hereinafter referred to as the National Agency) is a permanent collegial body authorized by the Law of Ukraine "On Higher Education" to implement state policy in the field of higher education quality assurance. According to the Statute of the National Agency, its main functions related to distance education are the formation of requirements for the system of quality assurance of higher education, analysis of the quality of educational activities of higher education institutions, preparation and publication of a report on the quality of higher education in Ukraine, as well as the formation of proposals for legislative support of the quality of higher education (Statute of the National Agency for Higher Education Quality Assurance).

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In addition to the regulatory function, the National Agency provides advisory assistance to higher education institutions in the development and implementation of educational programs, including those related to distance learning.

At the national level, Ukraine has a network of research institutions subordinated to the Ministry of Education and Science, the National Academy of Sciences of Ukraine and the branch academies of Ukraine (147 research institutions and 35 research and production enterprises) that provide scientific, advisory, methodological, and informational support for the development of distance education. Interaction between the research institutions and the Institute of Distance Education stimulates the development of innovations and improvement of the quality of education. Research institutions play an important role in providing high-quality and effective distance education that meets the needs of the modern educational environment and promotes the dissemination of knowledge and education in society. In the system of distance education, research institutes perform the following functions: research of the basics of the theory and practice of distance learning; scientific and methodological support for the introduction of distance learning in the educational activities of higher education institutions; training of specialists in distance learning for vocational education institutes, higher education institutions and state education authorities; planned professional development of managerial and teaching staff in full-time and distance learning, etc.

The research institutions of the MES of Ukraine that make the greatest contribution to the development of distance education in Ukraine are the State Scientific Institution “Institute for Modernization of Education Content” (IMEC) and the State Institution “Scientific and Methodological Center for Higher and Professional Pre-Higher Education ‘Agroosvita’ ” (SI “SMC ‘Agroosvita’ ”) (Statute of the State Scientific Institution “Institute for Modernization of Education Content”; Statute of the State Institution “Scientific and Methodological Center for Higher and Professional Pre-Higher Education ‘Agroosvita’ ”). According to the charters of these institutions, the main functions related to distance education are scientific, educational and methodological support of innovative development and improvement of the quality of

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education in Ukraine; administration and support of the National Educational Electronic Platform; conducting educational activities to familiarize the public with the results of development and implementation of innovations in education, etc. Thus, the activities of these research institutions have a direct impact on the development and functioning of the Institute of Distance Education.

It is worth noting that professional associations and organizations are now actively developing distance education. For example, the Ukrainian Distance Learning System (UDL System), which is a partner organization that brings together higher education institutions, research institutions, banks, corporations and non-profit organizations to create a new quality through the use of the latest information technologies in education. Goals of UDL System are to expand the scope of educational services in Ukraine by using Web technologies to make the learning and research process more efficient, accessible and interactive; to provide training services for businesses and individuals in Ukraine through distance learning using CD-ROM, e-mail and the Internet; to provide professional development and training in distance education, online course development and distance teaching; to study the market and promote methods and technologies of distance learning; to support and assist universities in using multimedia telecommunication network technology to promote their products and services more effectively in the business environment, etc. (Ukrainian Distance Learning System).

During the war and the Covid pandemic, the position of civil society organizations was particularly active. In cooperation with international organizations and foundations, they develop and implement projects aimed at eliminating digital illiteracy among the population, as well as offer many courses using the principles of distance education. Among Ukrainian NGOs, we would like to mention: Lviv NGO “Ukrainian Distance Learning System”, NGO “Ukrainian Platform for Distance Learning of Doctors”, NGO “Education without Conditions”, NGO “UED Vision”, NGO “Education of the XXI century”, NGO “Smart Education”, NGO “Center for Innovative Development and Distance Education”, etc.

International organizations related to the Institute of Distance Education:

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– Education Quality Agencies;

– organizations, institutions and foundations that provide financial, technical, informational and other types of support for the development of distance education.

The activities of international accreditation agencies are aimed at improving accreditation procedures in Ukraine, enhancing the quality of national education and building its prestige at the international level.

The work of other international educational organizations is aimed at developing cooperation between countries and expanding learning opportunities for a wide audience. The main functions of these institutions in the Institute of Distance Education can be defined as:

1. Promoting the creation of standards and norms, including for distance education, which helps to ensure the quality of education and the recognition of diplomas in different countries.
2. Project funding. International organizations can provide financial support for the development and implementation of distance education in countries with low levels of educational technology development.
3. Developing and disseminating innovative technologies by funding research and development of new technologies for distance learning and promoting their implementation in different countries.
4. Professional support and training for teachers and other educators involved in distance learning.
5. Promoting the exchange of experience. Creating platforms for the exchange of experience and best practices between different countries, which helps to increase the effectiveness of distance learning.
6. Supporting access to quality education for all, including people in remote and less developed regions.
7. Increasing international mobility.

An example of an international institution engaged in the development of distance education is the European Distance and E-Learning Network (EDEN). It exists

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to share knowledge and improve understanding in the field of distance and e-learning, and to promote policy and practice across Europe and beyond (About us).

The European Association for International Education (EAIE) offers a platform for learning, networking and knowledge sharing. The Association aims to help professionals succeed in their work by supporting academic and non-academic professionals with best practices and actionable solutions to internationalization challenges and by providing a platform for international knowledge exchange (About EAIE).

Erasmus+ aims to support the educational, professional and personal development of citizens in the EU and beyond to contribute to sustainable growth, quality jobs and social cohesion, to foster innovation and strengthen European identity and active citizenship. The program supports learning and academic mobility opportunities in education and for young people, projects and partnerships, strategy development and cooperation, professional networks and open resources (About Erasmus + Program).

When studying the contribution of online communities to the development of the Institute of Distance Education, it should be noted that they are closely interconnected and contribute to improving the quality of non-formal learning, creating a supportive environment for participants in the learning process. Here are some aspects of this relationship:

1. Collaboration and exchange of ideas: they provide platforms for collaboration and exchange of ideas between students, teachers, and other participants in distance education.
2. Support and motivation.
3. Access to additional resources that complement and deepen the main learning material (useful articles, videos, courses, etc.).
4. Formation of study groups to study materials together, solve problems and prepare for exams.
5. Development of communication and collaboration skills, which is becoming increasingly important in the modern world.

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6. Social adaptation. Online communities help students feel more socially adapted to distance learning by providing opportunities to interact and communicate with fellow students and teachers.

Thus, online communities in the development of distance education provide interaction, support and knowledge sharing, which contributes to effective and high-quality learning.

When studying the influence of private business on the development of distance education, it should be noted that financial support from business ensures the implementation of various technological solutions and innovations. Cooperation between private enterprises and distance education institutions is possible in the following areas:

1. Development and use of platforms for distance learning.
2. Updating the content of educational programs in accordance with the needs of the labor market and individual interests of students and stakeholders.
3. Financial support in the form of scholarships for distance learning, research and development of new technologies that improve distance education and increase its efficiency.
4. Gaining practical experience and internships.
5. Global accessibility to curricula and resources, allowing students from different countries to receive quality education regardless of their location.

Thus, private business provides distance education students with greater opportunities for learning, access to new technologies and innovations, and expanding the geography of education. Taken together, this improves the quality of distance learning and expands educational opportunities for a wider audience.

Micro-level. The micro-level represented by specific educational institutions (universities, colleges, etc.) offering distance learning services, in particular universities, is focused on specific educational institutions that provide distance learning services. Universities play an important role in creating, implementing and delivering distance courses and programs, developing content, organizing the educational process and supporting students.

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Today, Ukrainian universities are quite flexible and have broad autonomy, actively responding to the specific needs of students, stakeholders, and the challenges of the modern labor market. They develop their own educational strategies, using technologies and methods that are best suited for students, and are constantly working on innovative solutions to improve the distance learning process. To improve distance learning, universities are actively using online platforms and various technologies and tools: video lectures, interactive courses, webinars, e-textbooks, etc.

The practice of implementing distance education at the micro-level is most widely represented at Kyiv National Economic University named after Vadym Hetman. The history of distance education development at the University dates back to 2001. The Institute of Distance Learning Technologies was established as a structural unit in 2013. In the academic year 2015-2016, KNEU launched distance learning in several specialties.

Nowadays, to implement distance learning at the University, the Regulation on Distance Learning (2022) has been developed and is in force (Regulation on Distance Learning at Kyiv National Economic University named after Vadym Hetman), as well as the Institute of Distance Education (IDE) has been created within the structure of the University (Fig. 1.1.3), the functioning of which is regulated by the Regulation on the Institute of Distance Education of the Kyiv National Economic University named after Vadym Hetman (2022).

The purpose of IDE is to form a single digital educational space at KNEU through organizational, administrative, scientific, methodological and technological support of the learning process using distance education technologies in all forms of education and all levels of higher education to meet the needs of society for qualified specialists with higher education, disseminate knowledge among the population, and improve their educational and cultural level.

The main directions and tasks of KNEU IDE activities:

- distance education: career guidance and work with applicants enrolled in distance learning, IT support, scientific and methodological support of the

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educational process in distance learning, implemented through the university-wide distance learning platform Moodle;

- blended learning: implementation and use of e-learning technologies in the educational process in full-time and part-time education, including the organization of entrance and qualification exams, organization of the educational process in special circumstances;
- inclusive education: ensuring the organization of the learning process for higher education students with special needs through distance technologies;
- lifelong learning: advanced training in the field of distance learning technologies for academic staff of the University and other educational institutions of the country;
- scientific and pedagogical research: search for innovative forms of combining traditional and distance learning technologies and methods of effective interaction between academic staff and distance learning students that ensure high quality education;
- applied research in the IT field: conducting research on the development and implementation of the latest tools and innovative e-learning technologies;
- regulatory and legal support: implementation of regulations related to distance learning and development of the University's regulatory documents governing the use of distance and e-learning technologies in the educational process (Institute of Distance Education of KNEU named after V. Hetman).

In the sphere of distance education, IDE of KNEU performs the following functions:

1) IT support, scientific and methodological support of the educational process, which is realized through the distance learning system of the University.

2) Administration of distance courses that provide distance learning and their regular monitoring to determine their compliance with the Unified Requirements.

3) Participation in the organization and conduct of the admission campaign, work in the admission committee (The main tasks, functions and directions of educational and scientific activity of the Institute).

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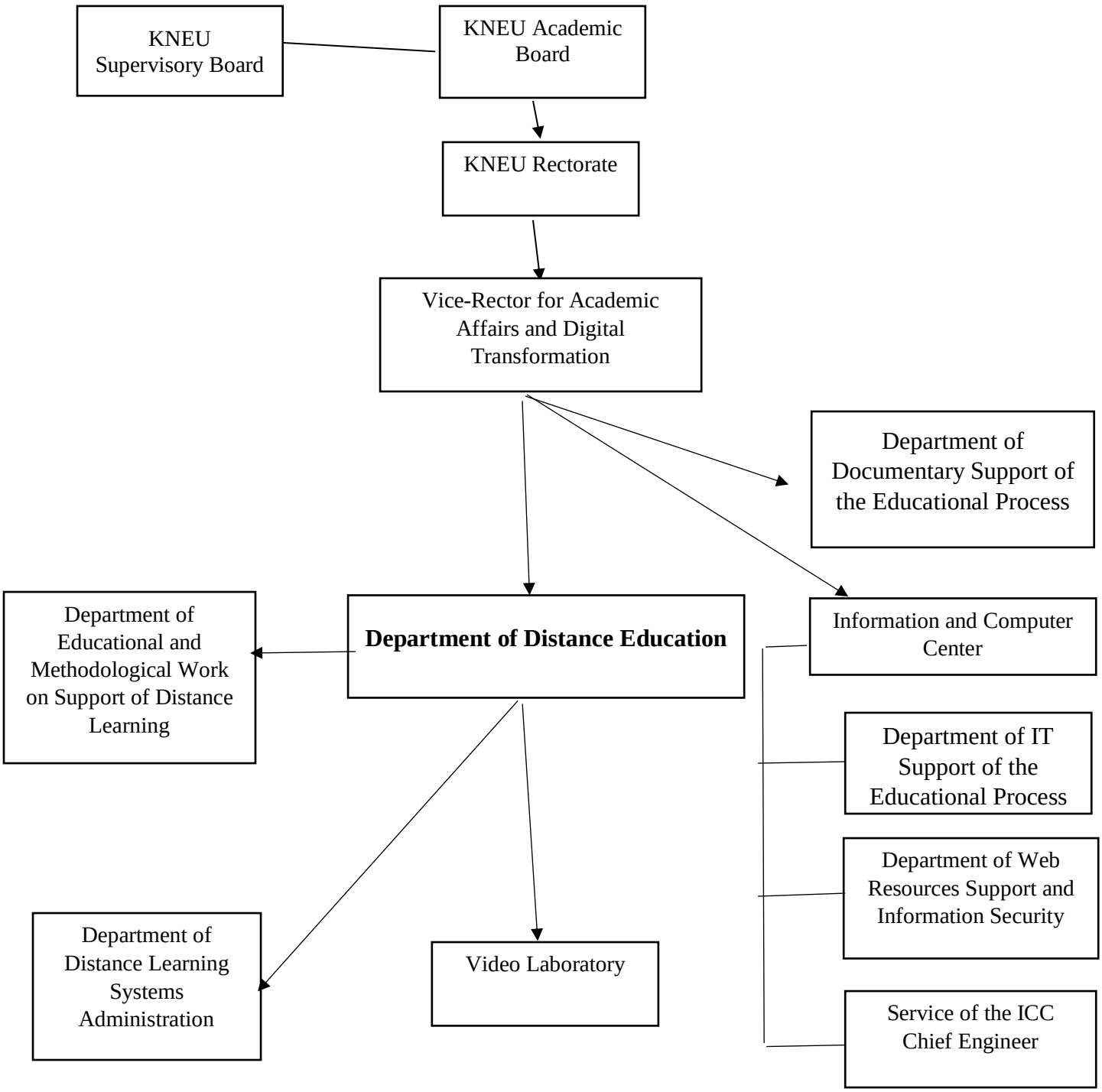

Fig. 1.1.3. Institutional structure of the distance education system at KNEU named after V. Hetman.

Source: authors' design

Given the labor market requirements for the competencies of graduates of economic universities, KNEU takes into account the need to restructure the educational process on the basis of a student-centered model, where the content and organization of education are formed by focusing on the planned end result, rather than on available

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resources (scientific, pedagogical, methodological, etc.). In this context, active learning methods, programmed learning, self-education and distance learning play a significant role in ensuring effective learning activities and achieving the set goals.

Taking into account the positive experience of KNEU in implementing student-centered distance learning, as well as unifying the approach to the institutional structure and content of educational services, we propose to use the recommended institutional structure of distance education (depending on the number of students at the University) when introducing distance education in Ukrainian universities (Fig. 1.1.4).

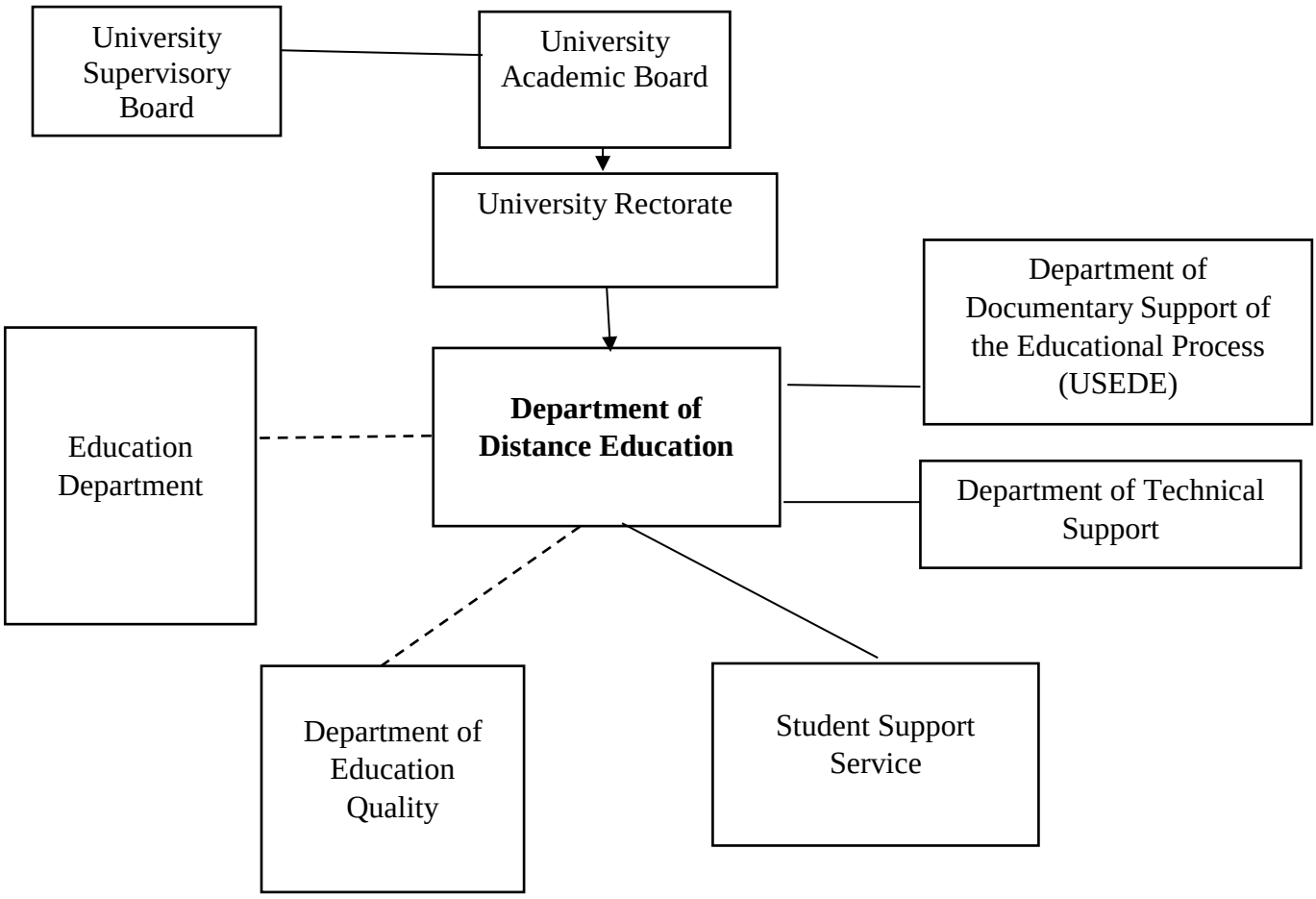

Fig. 1.1.4. Recommended institutional structure of distance education for Ukrainian universities

Source: authors' design

Thus, in the context of current challenges and opportunities, distance education is a necessary and promising area of national education development, which contributes to the accessibility, quality and innovation of higher education in Ukraine. Implementation of the EU best practices for distance learning by Ukrainian higher

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education institutions in response to the requests of modern higher education seekers and labor market will help:

1. Expanding access to education.
2. Flexibility of learning – distance education allows students to study at convenient time, adapt their studies to their personal rhythms and schedules, and combine education with work, family responsibilities and other obligations.
3. Innovative learning.
4. Internationalization of Ukrainian higher education and increasing its attractiveness for foreign students.
5. Development of relevant infrastructures.
6. Cooperation between universities, opening up opportunities for the exchange of knowledge, resources and experience in the development and implementation of distance learning programs.
7. Constant updating of curricula and their adaptation to modern labor market requirements and technological changes.

Taking into account the results of the study, it should be noted that effective interaction of institutions at the macro- and micro-levels will contribute to the active development of distance education in Ukraine, which meets the needs of the modern global educational environment.

1.2. ORGANIZATIONAL COMPONENT OF DISTANCE EDUCATION

Basic principles and forms of distance learning organization in higher education institutions of Ukraine. The system of educational process organization in distance learning is formed in accordance with the following basic regulations:

1. At the level of the Verkhovna Rada of Ukraine: Law of Ukraine “On Higher Education” of 01.07.2014 No. 1556-VII; Law of Ukraine “On the National Informatization Program” of 01.12.2022 No. 2807-IX.

2. At the level of the Ministry of Education and Science of Ukraine: Regulation on Distance Learning of April 25, 2013 No. 466, as amended by Orders of the Ministry of Education and Science No. 660 of 01.06.2013, No.761 of 14.07.2015, No. 1115 of

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08.09.2020; Requirements for Higher Education Institutions and Postgraduate Education Institutions, Scientific, Educational and Research Institutions Providing Distance Learning Services for Training and Professional Development of Specialists in Accredited Areas and Specialties of 30.10.2013 No. 1518.

3. At the level of higher education institutions: regulations on distance learning or distance form of education; regulations on distance courses (electronic educational resources) and their certification; regulations on the structural unit responsible for organizing distance education at the university, and other regulations governing the educational process.

The purpose of introducing distance learning at universities is to provide educational services through the use of modern information and communication technologies in teaching at certain educational or educational qualification levels in accordance with state education standards.

The objective of distance learning is to provide citizens with the opportunity to exercise their constitutional right to higher education and professional development regardless of gender, race, nationality, social and property status, occupation, type and nature of employment, ideological beliefs, party affiliation, attitude to religion, creed, health status, place of residence, in accordance with their abilities. Accordingly, distance learning is focused primarily on the following categories of applicants:

- persons with special needs as related to the organization of education;
- persons who simultaneously receive higher education in several educational programs in one or different higher education institutions;
- persons living in geographically remote locations from the higher education institution;
- citizens of Ukraine who temporarily or permanently reside abroad;
- all applicants for the educational process in special circumstances.

According to the legislation of Ukraine, distance learning is realized by:

- using distance learning as a separate form of education;
- using distance learning technologies to provide education in various forms.

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In accordance with this, distance learning can be implemented in higher education institutions:

- as a separate form of higher education (distance) for students of all levels of higher education;
- by supporting the organization of the educational process for full-time and part-time students through the fragmented use of e-learning technologies;
- as a format for organizing the educational process (distance, blended) in full-time and part-time forms of higher education in special circumstances through the systematic use of e-learning technologies;
- through distance learning of individual modules of certain academic disciplines by students on the basis of massive open online course platforms (Coursera, Udemy, edX, etc.).

Distance learning in general and distance form of education in particular require the creation of a unified digital educational environment at the university, which is usually implemented on the basis of learning management systems. The most common system in Ukrainian universities is Moodle. It is through this environment that distance learning services are provided and educational communication is established. Therefore, when formulating the basic principles of organizing distance learning, universities should take into account the main capabilities and limitations of such platforms.

Based on the goal, objectives, forms of implementation and target audience, two main principles of distance learning can be identified:

- the ability to receive education anytime, anywhere, and on any device;
- distance learning should be similar to full-time education transferred to the virtual world (Fig. 1.2.1).

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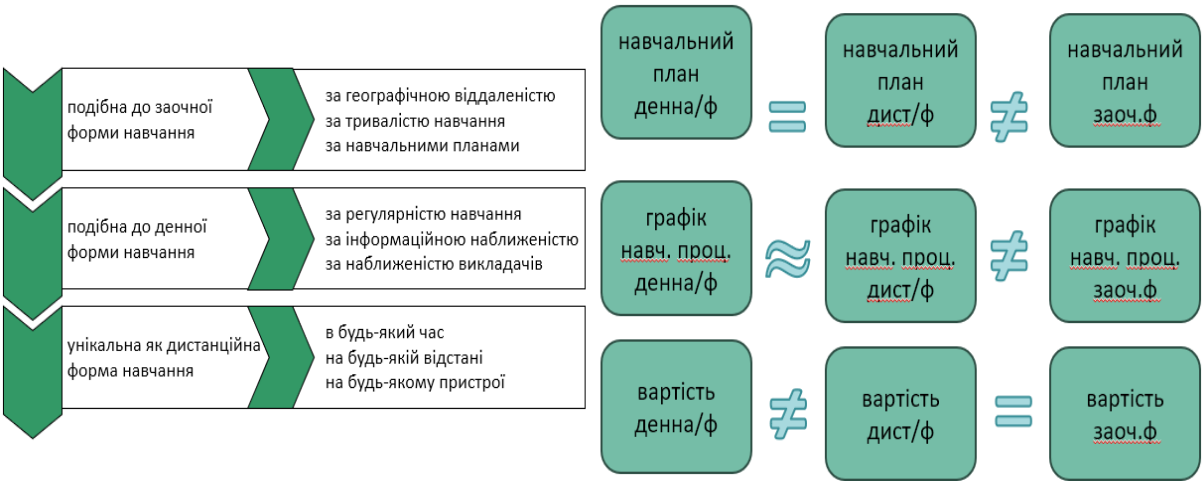

Fig. 1.2.1. Main principles of distance learning

Source: authors' design

Similar to part-time education – in terms of geographical distance, duration of study, curriculum

Similar to full-time education – in terms of regularity of training, information proximity, proximity of lecturers

Unique as a distance learning form – it takes place at any time, at any distance, on any device

Curriculum full-time Curriculum distance learning Curriculum part-time

Academic schedule full-time Academic schedule distance learning Academic schedule part-time

Tuition fee full-time Tuition fee distance learning Tuition fee part-time

The peculiarities of using e-learning technologies, the specific category of students and the limited experience of implementing distance learning in Ukrainian universities require, on the one hand, a special approach to the organization and regulation of distance learning, and, on the other hand, consistency with full-time and part-time education.

Statistics on the providing of distance learning services by Ukrainian universities. At the level of Ukraine as a whole, distance learning is not a widespread form of higher education. In particular, even after a surge in its introduction in 2023, the number of offers in various full-time and part-time specialties far exceeds the number of offers in distance form of education. In general, only a small number of Ukrainian universities offer distance learning services (for example, at the bachelor's

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level, only 14 universities, including the DEFEP project participant, KNEU named after V. Hetman). Table 1.2.1 summarizes the data on competitive proposals opened during the 2023 admission campaign at the bachelor's and master's levels of higher education, while Figures 1.2.2 and 1.2.3 illustrate the general ratio of competitive offers by form of study.

Table 1.2.1

Number of competitive proposals at the bachelor's and master's levels by forms of education and fields of study in Ukraine in 2023

	Bachelor's degree			Master's degree		
Field of study	**Full-time learning**	**Part-time learning**	**Distance learning form**	**Full-time learning**	**Part-time learning**	**Distance learning form**
01-Education/Pedagogy	1562	1003	6	711	933	1
02-Culture and arts	688	386	58	392	203	16
03-Humanities	513	224	8	421	241	5
04-Theology	10	8	0	9	8	0
05-Social and behavioral sciences	646	473	16	554	488	7
06-Journalism	119	79	4	85	53	3
07-Management and administration	1232	1019	49	1114	1011	37
08-Law	266	240	9	198	190	6
09-Biology	52	26	0	64	33	0
10-Natural Sciences	344	135	2	388	148	0
11-Mathematics and statistics	100	14	0	100	17	0
12- Information technologies	611	351	21	486	280	11
13-Mechanical engineering	405	248	4	466	249	4
14- Electrical engineering	322	202	3	339	197	3
16-Chemical engineering and bioengineering	122	79	0	134	68	0
17-Electronics, automation and electronic communications	429	202	2	426	91	2
18-Manufacturing and technology	310	204	2	305	214	4
19-Architecture and construction	284	176	6	387	290	2
20-Agricultural sciences and food	328	249	1	272	216	0
21-Veterinary	0	0	0	9	0	0
22-Healthcare	144	5	0	136	38	4
23-Social work	146	121	1	100	83	1
24-Service industry	270	185	11	161	134	5
25-Military sciences, national security, state border security	12	7	0	9	10	0
26-Civil security	82	58	0	89	84	0
27-Transportation	294	211	1	245	165	1
28-Public management and administration	106	79	6	145	190	4
29-International relations	182	89	7	158	104	6
Total result	**9579**	**6073**	**217**	**7903**	**5738**	**122**

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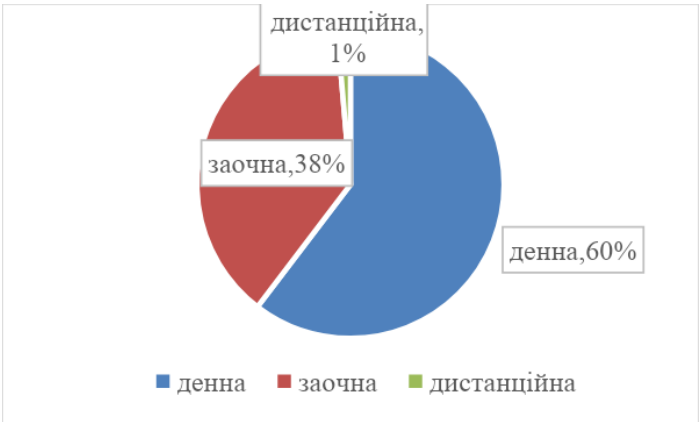
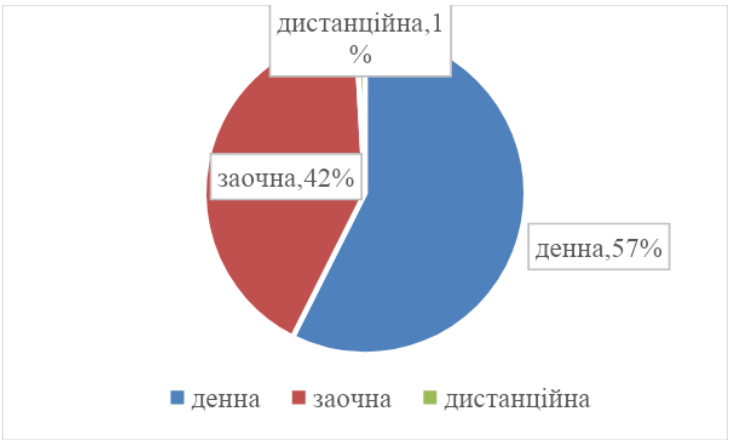
Source: compiled by the authors according to the website https://vstup.edbo.gov.ua/offers/?qualification=1&education_base=40 &speciality=051&education_for data as of 28.08.2023



Full-time learning (60%) Part-time learning (38%) Distance learning (1%)

Fig. 1.2.2. The number of competitive proposals by forms of study at the bachelor's level in 2023.



Full-time learning (57%) Part-time learning (42%) Distance learning (1%)

Fig. 1.2.3. The number of competitive proposals by forms of study at the master's level in 2023.

Source: compiled by the authors according to the website https://vstup.edbo.gov.ua/offers/?qualification=1&education_base=40 &speciality=051&education_for data as of 28.08.2023

Ukrainian partner universities of the DEFEP project have no experience in providing distance learning services, except for KNEU named after V. Hetman. This university initially introduced distance learning in 2013 at the bachelor's degree level in the following specialties: Economic Cybernetics, International Economics, Business Economics, Human Resources Management and Labor Economics, Applied Statistics, Marketing, Finance and Credit, Accounting and Auditing, and Management (the names

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are given according to the old classification). Over time, the list of educational programs has expanded within the university's autonomy, and master's degree programs have been added. The statistics on the number of applications* (*each applicant can apply for several educational programs and several forms of study) for distance learning at KNEU for bachelor's degree and by educational programs are shown in Table 1.2.2, the dynamics of the number of applications is illustrated in Fig. 1.2.4.

Table 1.2.2
Number of applications for distance learning form at KNEU
by educational programs and levels of education

Specialization	Educational program	Number of applications submitted			
		in 2023	in 2022	in 2021	in 2020
Bachelor's degree (total)		**423**	**223**	**110**	**142**
051 Economics	International Economics	92	57	21	24
	Enterprise Economics	53	32	14	17
	Economic Cybernetics	41	20	13	12
071 Accounting and Taxation	Accounting and Auditing			7	4
072 Finance, Banking, Insurance and Stock Market	Corporate Finance	73	28	4	10
	Finance				10
073 Management	Business Organization Management				12
	Human Resources Management				6
	Social Sector Management	55	21	10	12
075 Marketing	Marketing	109	65	21	21
122 Computer Sciences	Computer Sciences			20	14
Master's degree (total)		**56**	**55**	**83**	**66**
051 Economics	International Economics	10	8	14	14
	Economic Cybernetics and Data Science	7	14	21	11
072 Finance, Banking, Insurance and Stock Market	Investment Management	11			
	Financial Management and Controlling	9	23	13	15
073 Management	International Management	8		15	14
	Human Resources Management			7	2
076 Entrepreneurship and Trade	Innovative Entrepreneurship and Digital Leadership	8			
	Entrepreneurship			13	10
232 Social Security	Social Management	3	10		
TOTAL					

Source: compiled by the authors based on the website https://vstup.osvita.ua/r27/337/

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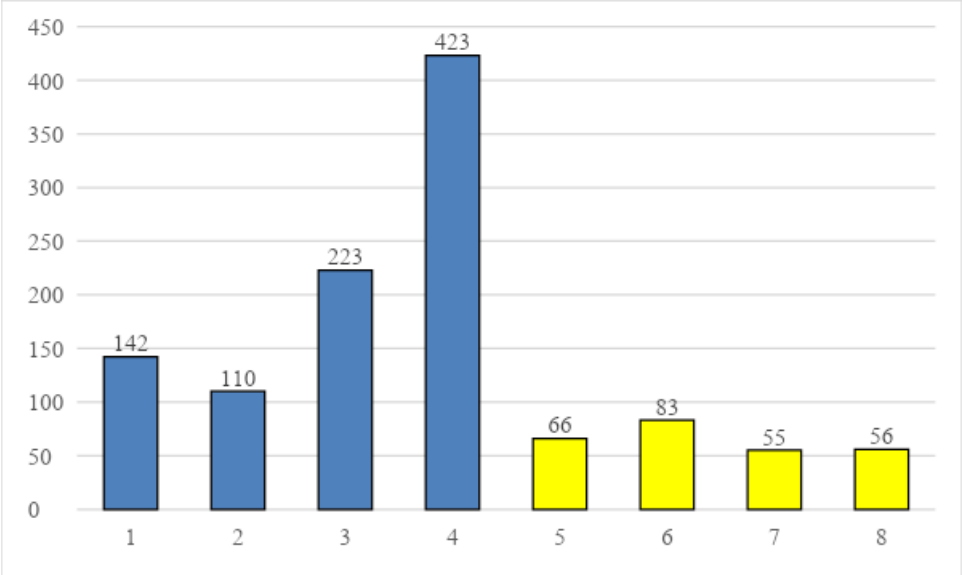

Fig. 1.2.4. The dynamics of the number of applications to KNEU for distance learning form by level of education

Source: compiled by the authors based on the website https://vstup.osvita.ua/r27/337/

At the same time, the number of applications does not quite reflect the real demand for distance learning. More interesting is the statistics on actual students enrolled in this form. General statistics on the number of distance learning students at the bachelor's level at KNEU are shown in Fig. 1.2.5.

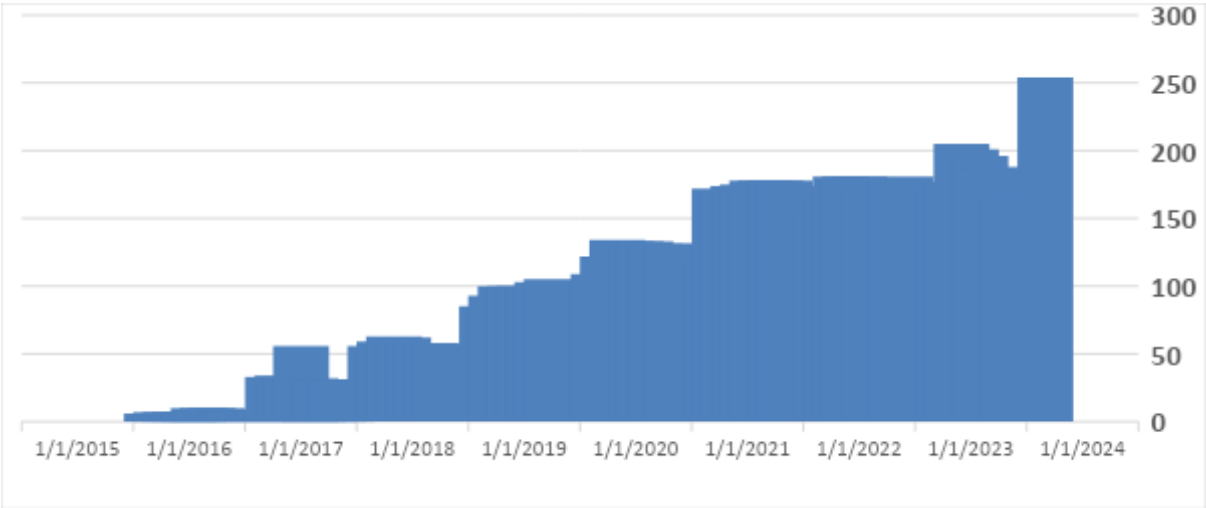

Fig. 1.2.5. Dynamics of the number of distance learning students at KNEU at the bachelor's level

As for the structure of KNEU applicants by different forms in terms of years and levels of study, it corresponds to the national statistics (Fig. 1.2.6).

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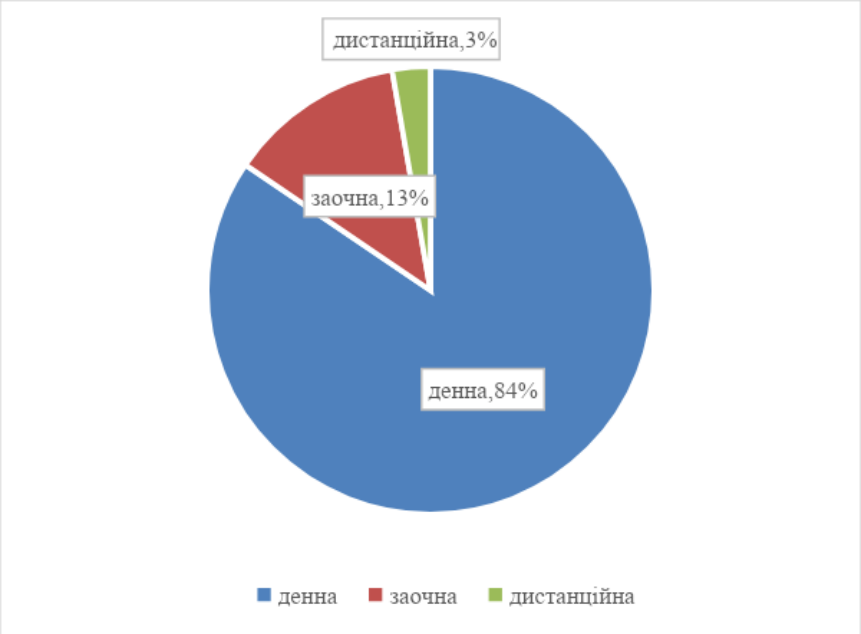

Full-time learning (84%) Part-time learning (13%) Distance learning (3%)

Fig. 1.2.6. The number of students by forms of study at the bachelor's level in KNEU as of 30.08.2023

Levels of higher education and educational programs where it is advisable to introduce distance learning. As can be seen from Tables 1.2.1 and 1.2.2, Ukrainian universities have experience in implementing distance learning at the bachelor's and master's levels of higher education. At the same time, the issue of introducing distance learning as a separate form of education at the PhD level remains relevant.

The analysis of the list of specialties for which distance learning is offered at Ukrainian universities (according to the website of the State Education and Research Agency of Ukraine https://info.edbo.gov.ua/, summarized in Table 1.2.1) suggests that there are significant opportunities for its implementation in the educational process. At the same time, the introduction of distance learning is not advisable or impossible in all educational programs, due to the need to develop practical skills, for example, for medical students, physicists, cadets, etc., as it requires the use of specialized laboratory equipment, devices, practice, the need to maintain the level of secrecy of the program, etc. That is why there are no competitive proposals in the relevant specialties.

Creation of the educational process schedule in distance learning. In accordance with the law, the term of study of students, trainees in distance learning at

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the appropriate educational level is set by the higher education institution within its autonomy and approved by the decision of the Academic Council and is usually similar to other forms of education.

Based on the long-term experience of KNEU named after V. Hetman, we propose to develop the schedule of the educational process in the distance learning form, taking into account the following features:

- the terms of training specialists at the first (bachelor's) level of higher education — three years and ten months; at the second (master's) level of higher education — one year and six months (for specialties with a total of 120 ECTS credits — one year and nine months);
- the academic year, except for graduate courses, lasts 12 months and begins in the 3rd week of September;
- the first two weeks of the autumn semester are allocated for the elimination of academic differences of students transferring to distance learning and for updating user profiles in all university information systems;
- the academic year is divided into two semesters (autumn and spring);
- the duration of theoretical training, examination sessions and practices is 15 weeks each semester (except for the last semester of study); the duration of winter and summer sessions is four weeks;
- winter session is held in remote asynchronous mode; summer session — in face-to-face synchronous mode (in university classrooms);
- the schedule of consultations and examinations of distance learning sessions is formed individually for each applicant separately by the staff of the directorates / deans of the relevant educational and research institutes / faculties or by agreement between the research and teaching staff and the applicant;
- in some cases, if the applicant cannot come to the summer (full-time) session within the time limits established by the curriculum due to objective circumstances, as evidenced by a relevant supporting document, he/she is given the right to take the exam online using the Moodle system;

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– academic debts are eliminated after the examination sessions.

Such a schedule is consistent with the schedule of full-time students, which allows for effective organization of the study of academic disciplines, similar to the full-time form, as well as joint events and training sessions, if necessary. In addition, the coordination between full-time and distance learning schedules allows a smoother "migration" of students from one form of study to another.

Creation of the curriculum for distance learning. Curricula are an integral part of educational programs, which specify the list of educational components, the form of final assessment, the distribution by semesters and the number of hours allocated for their study. It is also regulated that curricula for all forms of education must be consistent in terms of educational components and forms of control.

KNEU's long-term experience of working with distance learning has confirmed the effectiveness of such principles of distance learning curriculum development:

– the curriculum of distance learning in terms of the list of educational components, their distribution by semesters is similar to the curriculum of full-time (daytime) study of the same educational program;
– for academic disciplines of uneven semesters, the final control takes place in the form of tests or distance examinations (for more details on this form of examination, see the subsection "Organization of Examinations");
– for the disciplines of foreign languages, classroom classes are provided at the end of the even semester (with the possible replacement of the format of classes with webinars);
– the main type of classes is distance asynchronous learning.

At the same time, as KNEU's experience has shown, the lack of synchronous interaction, although it allows for the principle of "learning at any time", significantly reduces the quality of learning for those students who do not have a sufficient level of self-motivation and self-organization. Therefore, it is most likely desirable to provide a certain part of the total hours allocated for the study of the discipline for synchronous interaction, for example, through the organization of periodic online classes or consultations.

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Mastering the academic discipline during the semester. To create a unified learning environment and unified principles of studying educational components, all academic disciplines provided for in the curricula of the distance learning form of the relevant educational programs must be provided with fully functional distance courses hosted on the university-wide distance learning platform and meet the same requirements for their structure and content. KNEU uses Moodle LMS, and the framework requirements for distance courses are described in the Regulations on Distance Courses and their Certification at KNEU named after V. Hetman (Fig. 1.2.7).

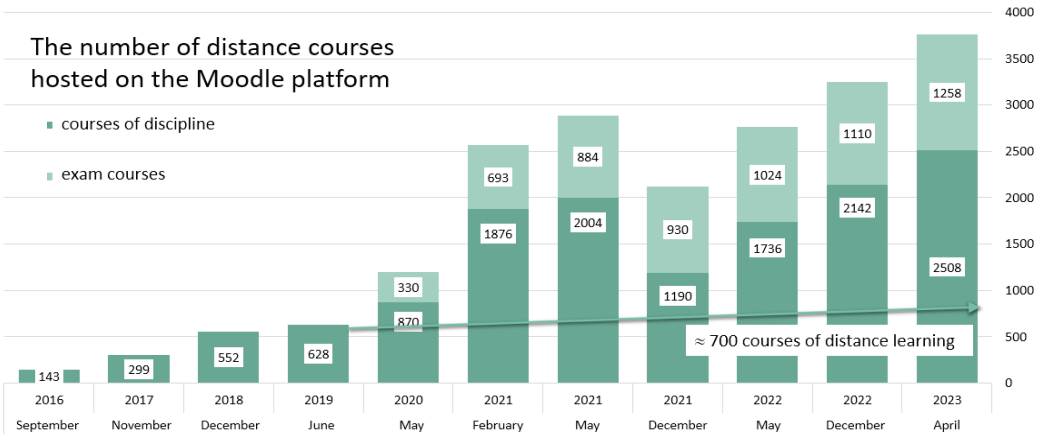

Fig. 1.2.7. The number of distance courses hosted on the Moodle platform

Distance learning courses of academic disciplines that provide distance learning should ensure a uniform pace of mastering the discipline, which is technically regulated by setting deadlines, but uneven work of the applicant during the semester with soft deadlines is allowed.

Based on the principle of "learning anytime and anywhere" and the lack of synchronous interaction between lecturers and distance learners, generally recognized classes – lecture, seminar, practical class, laboratory class – were unacceptable for organizing learning, as they have a precisely defined time frame. Therefore, a new type of class was introduced at KNEU named after V. Hetman – a distance learning class, which is the main type of class for distance learning students, lasting a week.

A distance learning class is a type of class in which the interaction between the subjects of learning occurs exclusively through the Moodle platform and which implies the implementation of this interaction in an asynchronous mode. In this case the interaction between the subjects of distance learning occurs with a time delay, for

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example, the student's work with the educational material of the distance course (watching video lectures, listening to audio files, working with textual educational material, etc., discussions on the forum, completing assignments, taking tests, exchanging messages in the e-learning system). Although the curriculum does not provide for consultations or classes in synchronous mode (except for foreign language courses), online consultations in synchronous mode are allowed by agreement between students and academic staff.

Assessment System. The compliance of the level of acquired knowledge, skills and abilities of distance learning students with the requirements of regulatory documents is ensured by a system of control measures.

The following types of control measures are used in the organization of the educational process for distance learning students at KNEU named after V. Hetman: entrance, current and final examinations in academic disciplines, which are implemented mainly in the distance mode on the basis of the Moodle platform, and certification of students in the form of a qualifying exam or defense of a qualifying work.

The entrance control is optional and is intended to determine the level of student readiness to master the educational material of the relevant discipline.

The current control of students' learning outcomes is carried out in compliance with a certain rhythm of mastering the discipline and maintaining a defined system of evaluation of students' learning outcomes.

The final control of students' learning outcomes in a particular discipline is carried out in accordance with the curriculum in the form of an exam (regular face-to-face exam format), a distance exam (online exam format), and a test. The need to introduce the form of final control "remote exam" and its differentiation from the form "exam" was caused by the need to provide the opportunity for students who studied abroad in the winter session to take exams remotely. At the same time, the face-to-face format of exams allowed teaching staff to get to know students better and conduct better knowledge control. The experience of quarantine and martial law, when the session was held online for all students, allowed us to choose the best options for

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conducting exams, so at present such a distinction is not considered appropriate, and the form of final control "exam" should be established by law with clarification in the relevant regulations on the online format of its conduct for distance learning students.

Attestation of distance learning students in the pre-quarantine period was conducted exclusively face-to-face. However, universities have now gained experience in the online format of certification for all forms of education, which should be introduced for distance learning students.

Organization of students' practical training. Practical training of higher education students in distance learning may include:

- internships in virtual (based on online platforms) and real (based on enterprises and organizations) formats;
- trainings (comprehensive, interdisciplinary, etc.);
- analytical and research work (provided under the legal regime of martial law);
- other types of internships.

The list of types of internships, their content, forms, duration, and timing are determined by a particular educational program and the relevant curriculum.

Procedures for ensuring the quality of education in distance learning. The Law of Ukraine "On Higher Education" requires each higher education institution to form a comprehensive system for ensuring the quality of educational activities and the quality of higher education (internal quality assurance system), one of the components of which is the availability of appropriate resources for organizing the educational process for each educational program.

Among the procedures for ensuring the quality of education in distance learning, the following should be highlighted:

- systematic monitoring by employees of the relevant structural units of universities of distance learning courses as the most important resources for organizing the educational process of distance learning students;
- a defined procedure for certification of distance courses as a means of verifying their compliance with educational standards;

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– constant feedback from the stakeholders of the educational process on the quality of the organization of training.

In order to ensure the quality of education in distance learning, it is advisable to use certified distance learning courses. However, to start the certification procedure of a distance course, it must be tested in the educational process. Therefore, the staff of the relevant structural unit of the university should organize regular monitoring of distance learning courses in order to determine their compliance with the framework requirements with subsequent certification of distance learning courses.

Each higher education institution, in accordance with the specifics of its educational programs, clearly defines the framework requirements for distance learning courses in its regulations. For example, the framework requirements for distance courses in the disciplines used at KNEU are set out in the Regulations on Distance Courses and their Certification. In particular, this regulation contains requirements for the structure, content and design of distance courses of academic disciplines, a list of mandatory components of a distance course depending on the method of organizing the educational process (offline mode, mixed / distance (online) mostly synchronous mode, distance (online) synchronous-asynchronous mode) and the form of higher education, etc.

After successful testing of the distance course in the educational process for at least one academic semester, the lecturer-developer should be able to start the procedure of its certification in accordance with the specified technology in the university's regulations. The result of the certification is the recognition of the distance course as an electronic educational publication (electronic textbook / manual / workshop) and its recommendation for publication and use in the educational process.

In order to recognize distance learning courses of the university as an electronic educational publication (electronic textbook / manual / workshop), it is necessary that the materials provided by the author or team of authors meet the general requirements for:

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- quality and completeness of the content (compliance with the curriculum and educational program, methodological and didactic support, pedagogical and scientific aspects, compliance with the requirements for a distance course, etc;)
- technology (structure, availability of the necessary elements or part of the technological capabilities of converting the provided materials into the Moodle LMS);
- testing (teaching to persons studying at the university using distance learning technologies during the semester, academic year);
- review (availability of reviews from experts in the relevant field of knowledge).

The distance course submitted for certification must include the following blocks:

- educational material (interactive books, lecture presentations, video recordings of lectures, etc.);
- a system for diagnosing the learning of educational material (tests, tasks for practical implementation, control questions, examples of solving typical problems, etc.);
- questions for self-testing of knowledge and/or questions to control the level of knowledge;
- interactive elements that allow the lecturer and students to communicate with each other within the distance course (forums, chats, tests, problem-solving tasks, control questions that have feedback between the lecturer and the student);
- glossary (a terminological dictionary of basic terms);
- recommended literature (electronic resources and other information links and resources).

At the same time, the study of the need for the development of certified distance learning courses and the possibility of their funding within the framework of this study receives a classic answer – there is a need, but no possibility (66%). Another 22% of HEI management see a need for this and note that such an opportunity exists. And only 12% of the surveyed leaders indicate that there is no such need (Table 1.2.3).

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Table 1.2.3.
HEI management on the development of certified distance learning courses

Is there a need and opportunity to pay for the development of certified distance learning courses, as well as the development of monographs, manuals, etc.?	**%**
There is a need and an opportunity	22,4
There is a need, but no opportunity	66,4
There is no need, but there is an opportunity	3,7
There is neither need nor opportunity	7,5
Total	100

Source: Report on the results of sociological survey of stakeholders' requests for distance education, https://defep.chmnu.edu.ua/wp-content/themes/twentytwenty/media/social_survey/Sociological%20survey_Ukraine_engl.pdf

There is a significant difference in the responses to this question by the heads of different HEIs (Table 1.2.4): all the heads of Chernihiv Polytechnic National University and almost all the heads of V. N. Karazin Kharkiv National University see the need to fund the development of certified distance learning courses, but they assess the possibility differently (the responses of representatives of Chernihiv HEI on the possibility/impossibility of funding were divided almost in half, while representatives of Kharkiv HEI most often indicated that there is a need, but no such possibility). Representatives of Petro Mohyla Black Sea National University and UNUH answered in a similar way, although the number of heads who do not see the need for this is relatively higher there. At LNEU the situation is different: one third of the surveyed heads do not see the need for this, but of those who do, almost all indicate that there is no possibility. And at KNEU named after Vadym Hetman, the share of those who see a need and indicate a lack of opportunity is one of the highest.

Table 1.2.4.
Development of certified distance learning courses (heads by HEI, %)

	KNEU named after Vadym Hetman	LNEU	CPNU	UNUH	V.N. Karazin KNU	Petro Mohyla BSNU
There is a need and an opportunity	7	1	6	2	4	4

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There is a need, but no opportunity	17	7	8	8	23	8
There is no need, but there is an opportunity	1	2	0	0	1	0
There is neither need nor opportunity	2	2	0	2	0	2
Total	27	12	14	12	28	14

Source: Report on the results of sociological survey of stakeholders' requests for distance education, https://defep.chmnu.edu.ua/wp-content/themes/twentytwenty/media/social_survey/Sociological%20survey_Ukraine_engl.pdf

In addition, to ensure the quality of distance learning courses, it is advisable to conduct surveys of students on their satisfaction with the organization of distance learning, as well as to involve them in the rating of distance learning courses.

The distance format of organizing the educational process may bring new challenges in the context of both the organization of monitoring the results of students' learning activities and the organization of monitoring the teaching activities of lecturers. However, based on the responses of the heads of university departments, this issue is not urgent: 50-75% of the heads could not answer specific questions about the appropriateness or inappropriateness of various methods and technologies for additional accounting of lectures in the distance format.

If we consider only meaningful answers (i.e. those where heads and lecturers were able to give some assessment of different control methods), we can see some discrepancy between the vision of heads and lecturers (Table 1.2.5). Regarding the possibility of involving representatives of the administration / dean's office in online classes for control, lecturers are more negative (39% of lecturers consider it unacceptable, and 28% agree), while heads perceive this method of control better (18% consider it unacceptable, but 30% consider it appropriate). Another control method – conducting classes exclusively on platforms with video recording of the lecturer's presence and activity – did not receive a valid assessment, and the differences between

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the responses of lecturers and heads are rather random. And the third method of control from the proposed ones – monitoring of student evaluation of lecturers – is perceived as appropriate by lecturers themselves, while heads have the most doubts (meaningless answers).

Table 1.2.5
Assessment of additional monitoring methods (lecturers and HEI heads, %)

Please evaluate the following methods and technologies for additional monitoring of lectures and consultations in a distance format		***I consider it unacceptable***	***I consider it acceptable***	***I can't evaluate***	***Total***
Joining an online class by a representative of the administration/dean's office	Response of academic staff	38,7	28,2	33,2	100
	Responses of HEI heads	17,8	29,9	52,3	100
Conducting classes exclusively on platforms with video recording of the presence and activity of the lecturer	Responses of academic staff	35,4	36,4	28,2	100
	Responses of HEI heads	16,8	21,5	61,7	100
Monitoring students' assessment of lecturer's performance	Responses of academic staff	19,6	56,4	24	100
	Responses of HEI heads	12,1	13,1	74,8	100

Source: Report on the results of sociological survey of stakeholders' requests for distance education, https://defep.chmnu.edu.ua/wp-content/themes/twentytwenty/media/social_survey/Sociological%20survey_Ukraine_engl.pdf

Implementation of distance learning for students with special educational needs. It is advisable to organize learning for students with special educational needs on an individual schedule using distance learning courses. At the same time, the learning of persons with special needs (including those with visual, hearing, musculoskeletal and mental impairments) should involve the use of additional distance learning technologies in all types of training, including professional and practical training, taking into account the peculiarities of student development.

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1.3. REGULATORY AND LEGAL COMPONENT OF DISTANCE EDUCATION

The regulatory and legal component of distance education is outlined in a number of regulations at the state and corporate levels. Thus, distance learning as a separate form of education in Ukrainian legislation is regulated by the Constitution of Ukraine, laws, decrees of the President of Ukraine, resolutions and orders of the Government, orders, instructions, guidelines, recommendations and programs of line ministries and departments. The higher-level regulatory framework governs distance education technologies, and the lower level regulates the organization of distance learning in individual educational institutions.

In particular, Article 53 of the Constitution of Ukraine states that everyone has the right to education. Complete general secondary education is compulsory in Ukraine. The state ensures accessibility and free of charge pre-school, complete general secondary, vocational and higher education in state and municipal educational institutions; development of pre-school, complete general secondary, out-of-school, vocational, higher and postgraduate education, various forms of education; provision of state scholarships and benefits to pupils and students. Thus, the various forms of education guaranteed by the Constitution of Ukraine include distance learning.

In the context of building an information society, the process of reforming the distance education system was enshrined in the Law of Ukraine № 1556-VII dated July 1, 2014 "On Higher Education". The explanatory note to the Law states that distance learning and distance learning technologies may be used in the implementation of educational programs, regardless of the form of education. The Law also explains the licensing procedure for institutions that use distance learning technologies in the education system. Thus, e-learning is considered to be the organization of the educational process with the use of information contained in databases for the implementation of educational programs using information technologies, technical means, as well as information and telecommunication networks that ensure the transmission of this information through communication lines and interaction of participants in the educational process. The Law also states that the

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implementation of educational programs using purely e-learning and distance learning technologies in an educational institution requires the creation of conditions for the functioning of an electronic information and educational environment, which includes electronic information resources, electronic educational resources, a set of information and telecommunication technologies, appropriate technological means and ensures that students master educational programs in full regardless of their location.

Many of the problematic issues that have arisen in the polemical debate over distance learning were answered by the Order of the Ministry of Education and Science of Ukraine № 466 dated 25.04.2013 "On Approval of the Regulation on Distance Learning". According to this Order, distance learning technologies are considered to be educational technologies implemented mainly with the use of information and telecommunication technologies with indirect (at a distance) and (or) not fully indirect interaction between a student and a teacher. The purpose of using distance educational technologies by educational institutions is to provide them with the opportunity to master educational programs directly at the student's place of residence or temporary stay (location). At the same time, clause 1.2. of this order considers distance learning as an individualized process of acquiring knowledge, skills, abilities and methods of human cognitive activity, which occurs mainly through the indirect interaction of participants in the educational process who are remote from each other in a specialized environment that operates on the basis of modern psychological, pedagogical and information and communication technologies.

A separate governing body in the field of higher education, which is a permanent collegial body and is authorized to implement state policy in the field of quality assurance in higher education in Ukraine, is the National Agency for Higher Education Quality Assurance. Within its competence, the National Agency for Higher Education Quality Assurance has developed the Temporary Procedure for Conducting an Accreditation Examination Using Technical Means of Video Communication within the framework of the implementation by higher education institutions of the Order of the Ministry of Education and Science № 406 dated March 16, 2020 "On Organizational Measures to Prevent the Spread of Coronavirus COVID-19". In

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addition, according to the Resolution of the Cabinet of Ministers of Ukraine № 295 dated 16.03.2022 "On the Peculiarities of Accreditation of Study Programmes for Higher Education under Martial Law", all educational programs are currently accredited in accordance with the Temporary Accreditation Procedure for Educational Programmes Used for Training Higher Education Students under Martial Law. In the case of accreditation expertise using technical means of video communication, the order appointing the expert group 1) does not mention the business trip of the expert group to the higher education institution; 2) determines the period of remote work of the expert group using technical means of video communication. Conducting an accreditation examination with the use of technical means of video communication implies a full-fledged examination without the physical presence of experts in the institution.

The main regulatory document at the state level governing the recognition of learning outcomes obtained on platforms with open mass online courses is the Order of the Ministry of Education and Science № 130 dated February 08, 2022 "On Approval of the Procedure for Recognition in Higher and Professional Higher Education of Learning Outcomes Obtained through Non-formal and/or Informal Education". According to the mentioned Procedure, in order to ensure the recognition of non-formal and/or informal learning outcomes, an educational institution develops its own recognition procedure and independently determines specific organizational and other aspects of recognition procedures, authorizes the relevant structural units to perform them, appoints authorized persons and determines assessment methods. The format of evaluation of students is also determined by the educational institution.

According to the Law of Ukraine "On Education" № 2145-VIII dated September 5, 2017, educational institutions are endowed with autonomy. It includes their sovereignty, independence and responsibility in making decisions on academic (educational), organizational, financial, personnel and other issues in their activities carried out in the manner and within the limits established by law. Thus, the final decision to introduce distance education is made by the educational institution. Similarly, according to Article 10 of the Law of Ukraine "On Complete General

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Secondary Education", the forms of organization of the educational process are determined by the pedagogical council of the educational institution within the time provided for by the educational program, in accordance with the amount of academic load established by the relevant curriculum, and taking into account the peculiarities of the region, etc. Part four of Article 18 stipulates that the organization of the educational process and activities of a general secondary education institution is within the authority of its head.

The procedure for obtaining general secondary education in the institutional form (full-time (day, evening), part-time, distance and network) in general secondary education institutions is regulated by the Regulation on the Institutional Form of General Secondary Education, approved by the order of the Ministry of Education and Science № 536 dated 23.04.2019. The Regulation stipulates that the organization of education in the institutional form is carried out in accordance with the educational program of the educational institution. At the same time, distance learning can be implemented through distance learning as a separate form of education or distance learning technologies to provide education in various forms, their combination.

The study time in the case of organizing education by distance learning is set by the educational institution:

- at the level of primary education - no more than 50% of the total number of academic hours of the invariant and variable components of the curriculum under the typical educational program;
- at the levels of basic secondary and specialized general secondary education - in accordance with the curriculum for part-time education under a typical educational program.

The procedure for organizing the educational process in general education institutions in the distance learning mode is determined by the Regulation on Distance Learning, approved by the Order of the Ministry of Education and Science of Ukraine № 466 dated 25.04.2013 (as amended). According to clause 2.10 of the Regulation, the decision on the use of distance learning technologies in the educational process of

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general secondary education institutions is made by the pedagogical council of the educational institution.

If computer equipment is used in the classroom, the continuous duration of classes directly with a video display terminal (computer screen) and preventive measures must meet sanitary requirements. In accordance with the requirements of the State Sanitary Rules and Norms for the Construction, Maintenance of General Education Institutions and Organization of the Educational Process (Sanitary and Epidemiological Rules and Norms 5.5.2.008-01), changes in the duration of lessons are allowed upon agreement with the relevant educational authority and the institution of the State Sanitary and Epidemiological Service.

Thus, general secondary education institutions may use distance learning technologies in any form of education - full-time (day, evening), part-time, external, etc. The legislation already provides for the possibility of combining full-time, including daytime, education with distance learning technologies and implementing blended learning.

Modern vocational training of future specialists cannot take place without distance learning tools and technologies. At the same time, the level of development of modern information and computer technologies contributes to the successful use of distance learning elements in the system of vocational education. According to the Law of Ukraine "On Vocational Education", the main forms of vocational education are full-time, part-time, distance learning, and external education based on individual curricula. When addressing the organizational aspects of e-learning resources, it is important to take into account that the prerequisite for vocational education is basic and complete secondary education and that students undergo current, thematic, intermediate and final control of their learning activities.

Internal regulatory documents of higher education institutions developed and adopted by them to organize the educational process in distance education are of great importance in the organization of distance education. The evaluation of internal regulatory support for distance education at universities participating in the international project "Distance Education for Future: Best EU Practices in Response to

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the Requests of Modern Higher Education Seekers and Labor Market (DEFEP)" was carried out according to the following criteria (Table 1.3.1):

1. Use of e-learning technologies.
2. Organization of the educational process in a distance format (under special circumstances).
3. Organization of the educational process in distance education.
4. Motivation of teachers for quality work in distance education.
5. Recognition of the results of non-formal education obtained through distance learning.
6. Quality of distance courses.
7. Copyrights of distance course developers.
8. Academic integrity.
9. Professional development of research and teaching staff of higher education institutions within the distance education.

Table 1.3.1

Information on regulatory support for distance education at universities participating in the international project "Distance Education for Future: Best EU Practices in Response to the Requests of Modern Higher Education Seekers and Labor Market (DEFEP)"

№	University	Institutional Regulation	Purpose of the Regulation	Link
1. Using e-learning technologies				
	Petro Mohyla Black Sea National University	Regulation on Scientific, Educational and Electronic Publications at Petro Mohyla BSNU	It is declared that electronic educational resources are intended for various types of students learning activities, including distance education.	http://surl.li/kjoyk
	V.N. Karazin Kharkiv National University	Regulation on the Organization of the Educational Process at V.N. Karazin Kharkiv National University	- The university's educational activities are based on the principles of electronic support of educational activities; - training under an individual curriculum may be carried out using	http://surl.li/gpdrf

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			distance (e-learning) technologies; the structural unit that ensures the functioning and use of the e-learning system and organizes and ensures the use of e-learning for full-time and part-time study is the Institute of Post-Qualifying Education and Part-Time (Distance) Learning of the university	
		Regulation on the Recognition of Information Web-Resources of the Electronic (Distance) Learning System at V.N. Karazin Kharkiv National University as Teaching and Methodological Works (Manuals) and Their Certification (Expertise)	It defines that a distance course is the main element of distance learning, it is placed in a bank of web resources, and its content is developed by university research and teaching staff.	http://surl.li/kjsnm
	Kyiv National Economic University named after Vadym Hetman	Regulation on the Organization of the Educational Process at Kyiv National Economic University named after Vadym Hetman	Determines that the interaction between learning subjects takes place exclusively through the Moodle platform in an asynchronous mode, when such interaction between the subjects of distance learning takes place with a time delay, for example, the work of the applicant with the educational material of the distance course (watching video lectures, listening to audio files, working with textual educational material, etc.), discussions on the forum, completing tasks,	http://surl.li/edyxu

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			taking tests, exchanging messages in the distance learning system	
		Regulation on Distance Courses and Their Certification at Kyiv National Economic University named after Vadym Hetman	Determines the types, structure and purpose of distance learning courses, the technology of their certification (recognition as an electronic textbook / manual / study guide)	http://surl.li/edyyi
		Regulation on Distance Learning at Kyiv National Economic University named after Vadym Hetman	Determines that the university-wide platform for organizing training using distance learning technologies is the Moodle learning content management system. To conduct online classes in synchronous mode, academic staff choose one of the cloud services (Zoom, Google Meet, MS Teams, Moodle BigBlueButton, etc.). Distance learning at the university is realized, among other things, through distance learning at the request of the applicant of individual modules of certain academic disciplines on the basis of platforms of massive open online courses (Coursera, Udemy, edX, etc.)	http://surl.li/edyxz
		Regulation on the Procedure for Assessing the Learning Outcomes of Higher Education Students at Kyiv National Economic University named after Vadym Hetman	The principles of student assessment, including distance education, are specified.	http://surl.li/efjdh

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	Uman National University of Horticulture	Regulation on the Organization of Current, Semester Control and Certification of Education Seekers using Distance Technologies at Uman NUH	Learning technologies are one of the forms of individualization of the educational process based on the principles of open learning with the widespread use of computer-based training programs for various purposes and creating, with the help of modern telecommunications, an information educational environment for the transfer of web resources of educational disciplines and interaction between participants. Distance learning technologies provide for interaction between participants in the educational process, both asynchronously and synchronously in time.	http://surl.li/kjtuk
	Lviv National Environmental University	Regulation on the Organization of the Educational Process at Lviv National Environmental University	It is envisaged that remote communication of participants in the educational process can be carried out through communication tools, e-mail, messengers (Viber, Telegram, etc.), video conferencing (MS Teams, ZOOM, Google Meet, Skype, etc.), forums, chats, etc. Control measures of the educational process under these conditions can be carried out using distance learning technologies in a specialized online testing service Moodle, subject to authorized access to information and communication tools for organizing distance	http://surl.li/hlwmk

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			learning; the ability to determine the start and end time of access, the duration of tasks; objectivity of the criteria for checking the results of performance using automated knowledge assessment tools; variability of forming tasks for control measures using random selection algorithms.	
	Chernihiv Polytechnic National University	Regulation on the Organization of the Educational Process at Chernihiv Polytechnic National Universit	Declares that higher education seekers are provided with free permanent access to the electronic database of educational and methodological support (web resources of academic disciplines) in the university-wide distance learning system Moodle	http://surl.li/bhgmk
		Regulation on Distance Learning at Chernihiv Polytechnic National University	It stipulates that in the organization of the educational process in any form of education, distance learning technologies can be used at the university for methodological and didactic support of independent work, control measures, as well as in the conduct of training sessions.	http://surl.li/cxzox
2. Organization of the educational process in a distance format (under special circumstances)				
	Petro Mohyla Black Sea National University	Order of the Rector on Preparations for the Beginning and Peculiarities of the Organization of the Educational Process	Obliges in connection with the martial law in the country and the start of training in the context of ongoing military (combat) operations,	http://surl.li/kqbsx

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		in the Academic Year 2022–2023	artillery shelling within the city of Mykolaiv, the threat of rocket and bomb attacks and the activities of sabotage and reconnaissance groups, terrorist acts, possible destruction (damage) of critical infrastructure and restrictions on the use of energy resources, curfews and general mobilization throughout Ukraine in accordance with the recommendations of the Ministry of Education and Science of Ukraine to start the educational process in a full-time and distance (blended) format	
		Orders on the organization of the educational process in the relevant semester of the relevant academic year	Transfer of university student academic groups to full distance learning during quarantine and martial law	
	V.N. Karazin Kharkiv National University	Orders on the organization of the educational process in the relevant semester of the relevant academic year	Organization of the educational process related to martial law, use of e-learning technologies for each new semester	
		Orders on the organization of the educational process in the relevant semester of the relevant academic year	Transfer of university student academic groups to full distance learning during quarantine and martial law	
	Kyiv National Economic University named after Vadym Hetman	Regulation on Distance Learning at Kyiv National Economic University named after Vadym Hetman	Defines the use of distance learning technologies in special circumstances, including the organization of the educational process for	http://surl.li/edyxz

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			full-time, part-time and distance learning students	
		Regulation on the Organization of the Educational Process at Kyiv National Economic University named after Vadym Hetman	Determines the organization of the educational process in special circumstances, in particular its transformation in accordance with the model of organization of blended or distance learning with the use of e-learning technologies	http://surl.li/edyxu
		Regulation on the Procedure for Assessing the Learning Outcomes of Higher Education Students at Kyiv National Economic University named after Vadym Hetman	Regulates the general provisions for assessing the learning outcomes of applicants in the organization of the educational process in special circumstances, in particular, the control of the learning outcomes of applicants is carried out in compliance with the rhythm of mastering the discipline provided for in the Map of Academic Work of the applicant and the preservation of a certain system of assessment of the learning outcomes of applicants with the systematic introduction of grades in the Electronic journal.	http://surl.li/efjdh
		Orders on the organization of the educational process in the relevant semester of the relevant academic year	Transfer of university student academic groups to full distance learning during quarantine and martial law	
	Uman National University of Horticulture	Order of the Rector on the Temporary Transition to Learning	Determines the procedure for organizing educational activities at Uman National	http://surl.li/kqblb

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		Using Distance Technologies	University of Horticulture when using distance learning methods	
		Orders on the organization of the educational process in the relevant semester of the relevant academic year	Transfer of university student academic groups to full distance learning during quarantine and martial law	
	Lviv National Environmental University	Regulation on the Organization of the Educational Process at Lviv National Environmental University	Declares that in conditions where the possibility of physical attendance of classes by students is limited or absent, and traditional tools for semester control and certification of higher education applicants cannot be applied due to force majeure (natural disasters, quarantine and other force majeure circumstances), by order of the rector, certain forms of organization of the educational process, control measures and certification of higher education applicants may be carried out using distance learning technologies	http://surl.li/hlwmk
		Orders on the organization of the educational process in the relevant semester of the relevant academic year	Transfer of university student academic groups to full distance learning during quarantine and martial law	
	Chernihiv Polytechnic National University	Regulation on the Organization of the Educational Process at Chernihiv Polytechnic National University	It is stipulated that in some cases, according to the order of the rector (due to quarantine, etc.), training sessions and control measures (including assessment of practices and	http://surl.li/bhgmk

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			certification) may be conducted using distance learning technologies.	
		Orders on the organization of the educational process in the relevant semester of the relevant academic year	Transfer of university student academic groups to full distance learning during quarantine and martial law	
3. Organization of the educational process in distance education				
	Petro Mohyla Black Sea National University	Regulation on the Organization of the Educational Process at Petro Mohyla BSNU	Distance education is mentioned only once - in section 6 "Ensuring the Educational Process" as a process that requires the development of information systems and platforms.	http://surl.li/kjose
	V.N. Karazin Kharkiv National University	Regulation on Electronic (Distance) Learning at V.N. Karazin Kharkiv National University	Regulates the concept of distance learning, the purpose of distance learning, distance learning, distance learning web environment, ways of implementing distance learning, etc.	http://surl.li/fqdbu
		Regulation on the Recognition of Information Web-Resources of the Electronic (Distance) Learning System at V.N. Karazin Kharkiv National University as Teaching and Methodological Works (Manuals) and Their Certification (Expertise)	Determines the placement of information resources, i.e. distance learning courses on the websites of the electronic (distance) learning management system (university platform Moodle) of the university, namely: manuscripts or other products of intellectual work of the university community, distance learning courses, video lectures, virtual laboratory work and simulators, business games	http://surl.li/kjsnm

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		Requirements for the Structure of a Distance Course	The distance learning course should include material sufficient for the trainee/student to master the full scope of knowledge, skills and abilities provided by the relevant educational program. The distance course is developed on the basis of the educational and methodological complex of the discipline in the full-time form of study.	http://surl.li/kjsiu
		Regulation on the Institute of Post-Qualifying Education and Part-Time (Distance) Learning of V.N. Karazin Kharkiv National University	The main structural subdivisions of the Institute are: Center for Post-Qualifying Education, Center for E-Learning, Methodological Department of Part-Time (Distance) Learning, Department of International Programs and Marketing, Department of Audio-Visual Content.	http://surl.li/kjtrs
	Kyiv National Economic University named after Vadym Hetman	Regulation on the Organization of the Educational Process at Kyiv National Economic University named after Vadym Hetman	It involves distance learning and distance learning classes. A distance learning course is a means of organizing distance learning using the Moodle system.	http://surl.li/edyxu
		Regulation on Distance Learning at Kyiv National Economic University named after Vadym Hetman	It defines distance learning as a separate form of higher education (distance) for applicants for the first (bachelor's) and second (master's) levels of higher education. Distance learning at the university is implemented through	http://surl.li/edyxz

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			the Institute of Distance Education, which provides organizational, administrative, methodological and technological support for the distance learning process. It regulates the implementation of distance learning at the university on the basis of organizational, managerial, educational, methodological, program, personnel, logistical and financial support.	
		Regulation on the Organization of the Educational Process by Distance Learning	Expired due to the fact that distance learning has become commonplace at KNEU. Defined basic terms and concepts, organization of the educational process in distance learning, subjects of distance learning, process support and international cooperation in the field of distance learning	http://surl.li/kqcrx
		Regulation on the Institute of Distance Education of Kyiv National Economic University named after Vadym Hetman	Regulates the general legal, economic and managerial principles of the functioning of the Institute of Distance Education, defines the main tasks, functions, principles of management and organization of the Institute, relations with other structural units	http://surl.li/hhyue
	Uman National University of Horticulture	Regulation on the Organization of Current, Semester Control and Certification of Students using	Current control of the learning outcomes of students using distance technologies is carried out during distance learning, as well as by	http://surl.li/kjtuk

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		Distance Technologies at Uman NUH	assessing individual and group assignments performed by students in electronic form. Semester control is carried out remotely by means of LMS or other tools for synchronous or asynchronous communication.	
		Regulation on the Moodle Learning Management System at Uman NUH	Moodle is designed to organize an automated learning process, conduct various types of monitoring and evaluation of students' learning achievements using distance learning technologies in all forms of education.	http://surl.li/kjuif
		Regulation on the Organization of the Educational Process at Uman NUH	Among other things, it provides for distance education.	http://surl.li/bdjjf
	Lviv National Environmental University	Regulation on the Organization of the Educational Process at Lviv National Environmental University	Among other things, it provides for distance education. It determines that one of the tasks of the educational process is to improve the practice of developing and implementing e-learning courses and equipping classrooms for remote lectures and teleconferences.	http://surl.li/hlwmk
	Chernihiv Polytechnic National University	Regulation on the Organization of the Educational Process at Chernihiv Polytechnic National University	It provides for a distance form as an individualized process of obtaining education, which takes place mainly through the indirect interaction of participants in the educational process who are remote from each other in a specialized	http://surl.li/bhgmk

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			environment that operates on the basis of modern psychological, pedagogical, information and communication technologies.	
		Regulation on Distance Learning at Chernihiv Polytechnic National University	It is noted that distance learning is implemented at the university by: • implementation of distance learning as a separate form of education; • usage of distance learning technologies to provide training in various forms	http://surl.li/cxzox
4. Motivation for teachers to work well in distance education				
	Petro Mohyla Black Sea National University			http://surl.li/kjpgb
	V.N. Karazin Kharkiv National University	Regulation on the Recognition of Information Web-Resources of the Electronic (Distance) Learning System at V.N. Karazin Kharkiv National University as Teaching and Methodological Works (Manuals) and Their Certification (Expertise)	Encouragement of scientific-pedagogical staff who have passed the certification, in accordance with the decision of the Academic Board of the University or the Scientific and Methodological Council of the University, is carried out in accordance with the Collective Agreement, the Charter of V.N. Karazin Kharkiv National University and the current legislation	http://surl.li/kjsnm
		Procedure for Rewarding Scientific-Pedagogical Staff and Researchers of V.N. Karazin Kharkiv National University	Regulates the procedure for incentivizing scientific-pedagogical staff and researchers who have the highest individual rating indicators. Provides for	http://surl.li/kjtmw

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			bonuses for certification of distance learning courses	
	Kyiv National Economic University named after Vadym Hetman	Regulation on Planning and Accounting for the Workload of Scientific-Pedagogical Staff of Kyiv National Economic University named after Vadym Hetman	Sets time standards for preparing and conducting training sessions, including individual ones, checking the completion of tasks, conducting current and final control in the remote mode. Sets time standards for the development of distance learning courses	http://surl.li/ejuxk
		Regulation on Distance Learning Courses and Their Certification at Kyiv National Economic University named after Vadym Hetman		http://surl.li/edyyi
		Collective Agreement of Kyiv National Economic University named after Vadym Hetman	Regulates material incentives and the procedure for payments for the preparation of educational publications, including distance learning courses	http://surl.li/egknz
	Uman National University of Horticulture	Regulation on Planning and Accounting for the Workload of Scientific-Pedagogical Staff of Uman NUH	Sets time standards for preparing and conducting training sessions, including individual ones, checking the completion of tasks, conducting current and final control in the remote mode. Sets time standards for the development of distance learning courses	http://surl.li/flrs
	Lviv National Environmental University			

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	Chernihiv Polytechnic National University			
5. Recognition of the results of non-formal education obtained through distance learning				
	Petro Mohyla Black Sea National University	Regulation on Recognition of Learning Outcomes Acquired in Non-formal Education and/or Informal Learning at Petro Mohyla BSNU	Organization of the procedure for university recognition of learning outcomes obtained in non-formal education	http://surl.li/evlqz
	V.N. Karazin Kharkiv National University	Regulation on Recognition of Learning Outcomes Acquired in Non-formal Education and/or Informal Learning at V.N. Karazin Kharkiv National University		http://surl.li/fdyvh
	Kyiv National Economic University named after Vadym Hetman	Regulation on Recognition of Learning Outcomes Acquired in Non-formal Education and Informal Learning at Kyiv National Economic University named after Vadym Hetman		http://surl.li/eessm
	Uman National University of Horticulture			
	Lviv National Environmental University	Regulation on Recognition of Learning Outcomes Acquired in Non-formal Education and Informal Learning at Lviv National Environmental University		http://surl.li/fgkie

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	Chernihiv Polytechnic National University	Regulation on the Organization of the Educational Process at Chernihiv Polytechnic National University	Declares that the activities of the university aimed at organizing, providing and implementing the educational process in formal and/or non-formal education, carried out in order to ensure the acquisition of higher education in the relevant specialties at certain levels of higher education	http://surl.li/bhgmk
6. Quality of distance learning courses				
	Petro Mohyla Black Sea National University			
	V.N. Karazin Kharkiv National University	Regulation on the Recognition of Information Web-Resources of the Electronic (Distance) Learning System at V.N. Karazin Kharkiv National University as Teaching and Methodological Works (Manuals) and Their Certification (Expertise)	Regulates the general requirements for distance learning courses that are certified as teaching and learning materials (manuals). A distance course that is granted the status of an educational and methodological work (manual) is considered to be an information web resource hosted on the university platform Moodle that supplements or partially replaces a textbook with the aim of providing distance learning	http://surl.li/kjsnm
	Kyiv National Economic University named after Vadym Hetman	Regulation on Distance Courses and Their Certification at Kyiv National Economic University named after Vadym Hetman	Determines the procedure for certification of distance learning courses, including quantitative and qualitative assessment of distance learning courses submitted for certification	http://surl.li/edyyi
		Regulation on Distance Learning at Kyiv National	Determines the mandatory use of certified distance learning	http://surl.li/edyxz

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		Economic University named after Vadym Hetman	courses to ensure the organization of the educational process of distance learning students	
	Uman National University of Horticulture			
	Lviv National Environmental University			
	Chernihiv Polytechnic National University			
7. Copyrights of e-learning course developers				
	Petro Mohyla Black Sea National University			
	V.N. Karazin Kharkiv National University	Regulation on the Recognition of Information Web-Resources of the Electronic (Distance) Learning System at V.N. Karazin Kharkiv National University as Teaching and Methodological Works (Manuals) and Their Certification (Expertise)	A certified distance learning course is recognized as an educational and methodological work. Thereafter, the relationship between the authors of information web resources (their individual elements) and the university regarding copyright and property interests of both parties is regulated in accordance with applicable law.	http://surl.li/kjsnm
	Kyiv National Economic University named after Vadym Hetman	Regulation on Distance Courses and Their Certification at Kyiv National Economic University named after Vadym Hetman	Declares that the protection of intellectual property rights (copyrights) for the distance course is carried out in accordance with the current legislation of Ukraine and the Regulations on the Preparation and Publication of Educational Literature at	http://surl.li/edyyi

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			Kyiv National Economic University named after Vadym Hetman	
	Uman National University of Horticulture			
	Lviv National Environmental University			
	Chernihiv Polytechnic National University			
8. Academic integrity				
	Petro Mohyla Black Sea National University	Regulation on Academic Integrity at Petro Mohyla BSNU	Organization of a system for preventing and detecting plagiarism in academic texts of higher education students and employees of Petro Mohyla BSNU. The list of academic texts to be checked for plagiarism is specified: qualification papers, dissertations, manuscripts of monographs, textbooks, articles, theses, term papers, etc.	http://surl.li/evjww
	V.N. Karazin Kharkiv National University	Regulation on the System of Prevention and Detection of Academic Plagiarism in Scientific and Educational Works of Employees and Higher Education Students of V.N. Karazin Kharkiv National University	Regulates measures to prevent and detect academic plagiarism in scientific works	http://surl.li/feyuh
	Kyiv National Economic University named after Vadym Hetman	Regulation on Distance Courses and Their Certification at Kyiv National	Provides that the materials of the distance course must comply with the principles of	http://surl.li/edyyi

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		Economic University named after Vadym Hetman	academic integrity in accordance with the Regulation on Academic Integrity at Kyiv National Economic University named after Vadym Hetman	
	Uman National University of Horticulture	Code of Academic Integrity Uman NUH	It establishes the general principles, values, norms and foundations of academic integrity, as well as the rules of conduct for participants in the educational process and employees of Uman NUH, which they should be guided by during learning, teaching, research, performing their tasks and duties, and also defines the policy and procedures for ensuring compliance with academic integrity at Uman NUH and responsibility for violations of academic integrity.	http://surl.li/kqbps
	Lviv National Environmental University	Regulation on the Verification of Term Papers (Projects) and Other Educational, Scientific and Methodological Works for Academic Plagiarism at Lviv National Environmental University	Regulates the procedure for checking term papers (projects) and other educational, scientific and methodological works of the academic staff of Lviv National Environmental University	http://surl.li/fgkie
		Regulation on Academic Integrity at Lviv National Environmental University	Developed to ensure high standards of academic integrity and scientific ethics in all areas of research and educational process	http://surl.li/kqxei

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	Chernihiv Polytechnic National University			
9. Professional development of scientific-pedagogical staff of higher education institutions in the framework of distance education				
	Petro Mohyla Black Sea National University			
	V.N. Karazin Kharkiv National University	Regulation on Advanced Training and Internships at V.N. Karazin Kharkiv National University	The purpose of advanced training and internships of university employees is to expand professional knowledge, skills and abilities, to acquire the use of innovative technologies for the implementation of training content, which involves the introduction of distance, information and communication technologies.	http://surl.li/fodco
		Regulation on the Institute of Post-Qualifying Education and Part-Time (Distance) Learning of V.N. Karazin Kharkiv National University	The Institute of Post-Qualifying Education and Part-Time (Distance) Learning provides advanced training and internships for pedagogical and scientific and pedagogical staff and participates in the creation of web resources for e-learning: distance learning courses, their certification; training video courses and video lectures; other electronic and media content.	http://surl.li/kjtrs
	Kyiv National Economic University named after Vadym Hetman	Regulation on Distance Learning at Kyiv National Economic University	The forms of methodological support for scientific-pedagogical staff include training at the ongoing professional development courses	http://surl.li/edyxz

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		named after Vadym Hetman	"Distance Technologies in the Educational Space of the University" and the usage of the online distance learning video course "Creating a Distance Course Step by Step"1 posted on the Moodle platform.	
	Uman National University of Horticulture	Regulation on Advanced Training of Scientific-Pedagogical Staff of Uman National University of Horticulture	The purpose of advanced training of scientific-pedagogical staff is their professional development and improvement of practical training using modern equipment and technologies, mastering the latest unique methods.	http://surl.li/bedme
	Lviv National Environmental University	Regulation on Advanced Training of Pedagogical and Scientific-Pedagogical Staff of Lviv National Environmental University	The tasks of professional development include the use of innovative technologies for the implementation of training content, which involves its differentiation, individualization, and the introduction of distance, information and communication technologies.	http://surl.li/fgkie
	Chernihiv Polytechnic National University	Regulation on Distance Learning at Chernihiv Polytechnic National University	Provides that pedagogical, research and teaching staff and methodologists who directly ensure the organization of the educational process in the distance form must improve their qualifications in the organization and mastery of distance learning technologies (at least once every 5 years and in the amount of at least 108	http://surl.li/cxzox

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			academic hours). The qualification of employees who have upgraded their qualifications must be confirmed by a document on advanced training on the subject of distance learning.	

Conclusions. The regulatory framework of distance education and distance learning includes a number of legal acts: international (conventions, declarations, agreements) and domestic (the Constitution of Ukraine, laws, decrees of the President of Ukraine, resolutions and orders of the Government, orders, instructions, recommendations, programs of line ministries and departments). Their analysis showed that despite the large number of documents, the current legal framework of the distance education system is not clearly systematized and does not meet the requirements for the effective development of the distance education system.

The impetus for constructive work on creating a legal framework for distance education was the adoption of the Law of Ukraine "On Higher Education" in July 2002, which states that distance education is officially allowed in Ukraine along with part-time education. At the same time, the Law contains aspects that do not meet the requirements of the times, including inaccuracies and inconsistencies in the interpretation of terms – distance education is presented as a process of distance learning.

The subordinate act regulating the system of distance education in Ukraine is the Order of the Ministry of Education of Ukraine № 466 dated 25.04.2013 "On Approval of the Regulation on Distance Learning". We note that certain theses of this regulation are outdated, in particular, regarding the identification of distance education as a learning process, as well as the requirements for academic staff to undergo an internship. For example, the document states that within five years, a research and teaching staff member working in a distance education program is obliged to undergo

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advanced training in the field of distance technologies in the amount of 108 hours. This number of hours does not meet the current requirements of the credit-module system.

If we analyze the regulatory framework formed by Ukrainian universities participating in the international project "Distance Education for Future: Best EU Practices in Response to the Requests of Modern Higher Education Seekers and Labor Market (DEFEP)" to provide distance learning, we can note that it has certain legitimate commonalities. Thus, all universities are guided by internal Regulations on the organization of the educational process, which, along with full-time and part-time education, provides for distance education.

All universities participating in the project, in accordance with the orders of their rectors, have moved their student academic groups to full distance learning under the special circumstances of COVID-19 quarantine and martial law.

For all universities, the learning content management system Moodle is the platform for organizing training using distance learning technologies. To conduct online classes in synchronous mode, academic staff of all universities choose any of the cloud services (Zoom, Google Meet, MS Teams, Moodle BigBlueButton, etc.). At the same time, only Kyiv National Economic University named after Vadym Hetman, V.N. Karazin Kharkiv National University, and Uman National University of Horticulture are guided by separate internal regulations on the organization of distance education and asynchronous learning based on the Moodle platform. Other universities declared practical recommendations for using Moodle in their Regulations on the organization of the educational process.

At Kyiv National Economic University named after Vadym Hetman, where distance education has been introduced as a separate form of education, and at the V.N. Karazin Kharkiv National University, the level of internal regulatory support meets all the criteria for the assessment of distance education.

Proposals. The regulatory framework for distance education needs to be improved, timelines need to be harmonized, and brought up to date. Particular attention should be paid to the development of a legal framework for the National Strategy for Barrier-Free Space in Ukraine. For example, it is appropriate to develop a draft Law of

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Ukraine "On Adult Education" to provide for distance education for those who have lost their jobs, including due to the war, and need additional training. Institutional support is needed for the development of the All-Ukrainian Online School and the provision of distance learning with electronic resources. This will enable schoolchildren and students whose schools have been destroyed or damaged and who are studying remotely.

At the state level, there is a need to streamline the procedure for granting copyrights to distance courses, which are now equated with electronic resources. Confusion in recognition is the reason for the complicated procedure for obtaining copyright by the developer of a distance course.

The Regulation on Distance Learning, approved by the Order of the Ministry of Education and Science of Ukraine № 466 dated 25.04.2013, needs to be modernized and regulated as a primary legal document that serves as a basis for developing internal regulations of universities.

The internal regulations of universities should provide for the assignment of specific responsibilities for organizing distance education to administrative units (offices, institutes, faculties, centres, departments, etc.).

For universities that are starting to implement distance education as a separate form of education, all decisions on the launch of this process should be recorded in the rector's orders and declared in separate regulatory documents. The next stage of implementation should be the development of systematic internal regulations in the form of several basic provisions that would combine the components of distance education in the context of the criteria used to assess the current regulatory framework of the universities participating in the project. In particular, the internal regulations should define the procedure for advanced training of academic staff in the use of distance technologies in the educational process, both on the basis of relevant university training courses and through non-formal education, including massive open online courses; staff motivation for the development, integrity, and quality of distance courses; and the procedure for certification of distance courses.

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1.4. TECHNICAL ASPECTS OF DISTANCE EDUCATION

Training highly qualified specialists is impossible without an effective electronic document management system and learning management systems. Such systems include various LMS systems, chatbots, database management systems, and other software products that facilitate work with student data and reduce the workload of teachers during routine operations, store information about course content, and help with communication.

The use of such systems can greatly simplify the work with students during distance learning, reduce the number of routine operations and, as a result, free up the teacher's time for more creative work with students, individual checking of creative assignments, and personal work with students. The speed of reaction and response of such systems, as well as their ability to work around the clock, allows to improve the quality of students' work on the material by quickly evaluating assignments, reminding them of deadlines, which is important when it is impossible for a teacher to have constant contact with a student.

Not all types of work with students can be automated. For example, it is undesirable to automate answers to individual tasks that require some creative work, for example, developing individual projects or completing coursework. To evaluate such activities, it is necessary to check not only the fulfilment of formal requirements but also to verify the correctness of the proposed solutions and their optimality. In this case, the teacher's competence and knowledge of current trends in a particular field are required.

Distance education systems or learning management system (LMS). Such systems are used to develop, manage, and distribute distance learning materials with shared access. Today, there are more than 700 different learning management systems (Learning Management Systems).

First of all, they differ in the type of access – cloud-based or located on the university's own server. Cloud-based LMSs allow their users to launch the distance learning process quickly and easily, but all information about courses, students, and grades is stored on external servers. Using an in-house server is more difficult to

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administer, but if the university has an IT department, it can be handled by it. Using an in-house server also places stricter demands on the university's computing centre, but all information is stored on the university's servers and belongs only to the university.

It also needed to consider the number of courses and students who will use these courses. When using LMS in universities, the problem of qualification of course developers and users is not a big one, as all students and teachers have the necessary level of digital literacy, and the initial knowledge of using LMS by 1st year students is solved during the first weeks of study.

It is possible for a university to use its own LMS, which is developed by the university, but this way is quite complex and time-consuming and requires a team to develop and maintain this project. Therefore, most Ukrainian universities use the open-source LMS Moodle, which is one of the most popular LMSs used by many educational institutions around the world and has been translated into Ukrainian (Moodle - open source learning platform).

Today, LMSs are an indispensable tool and play an important role in the education system. Let us take a look at some of the most popular LMSs: Moodle, Adobe Captivate Prime, and TalentLMS.

Moodle. Moodle is a free and open-source platform for online learning. The name Moodle is an acronym for "Modular Object-Oriented Dynamic Learning Environment". Moodle is a free and open-source system, which allows its users not only to use it, but also to customize and supplement it with plug-ins and extensions.

The main function of Moodle is to create online courses: instructors can create courses, add materials, assignments, tests, and other tasks for students, and upload and organize various types of files such as text documents, images, videos, and audio files (Fig. 1.4.1).

Moodle allows to create tests, assignments, and other assessment materials to test students' knowledge. Instructors can also assign grades and track student progress.

Moodle has a number of advantages, including:

1. Open code. Thanks to this, the system can be modified and customized to the user's needs.

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2. Free access.
3. The ability to add a variety of content, including video and audio, different types of files and tasks.
4. Availability of mobile applications.
5. Support for many languages.

However, there are some drawbacks:

1. It is not always easy to customize the platform to the user's needs.
2. Basic features may be limited compared to other LMSs.

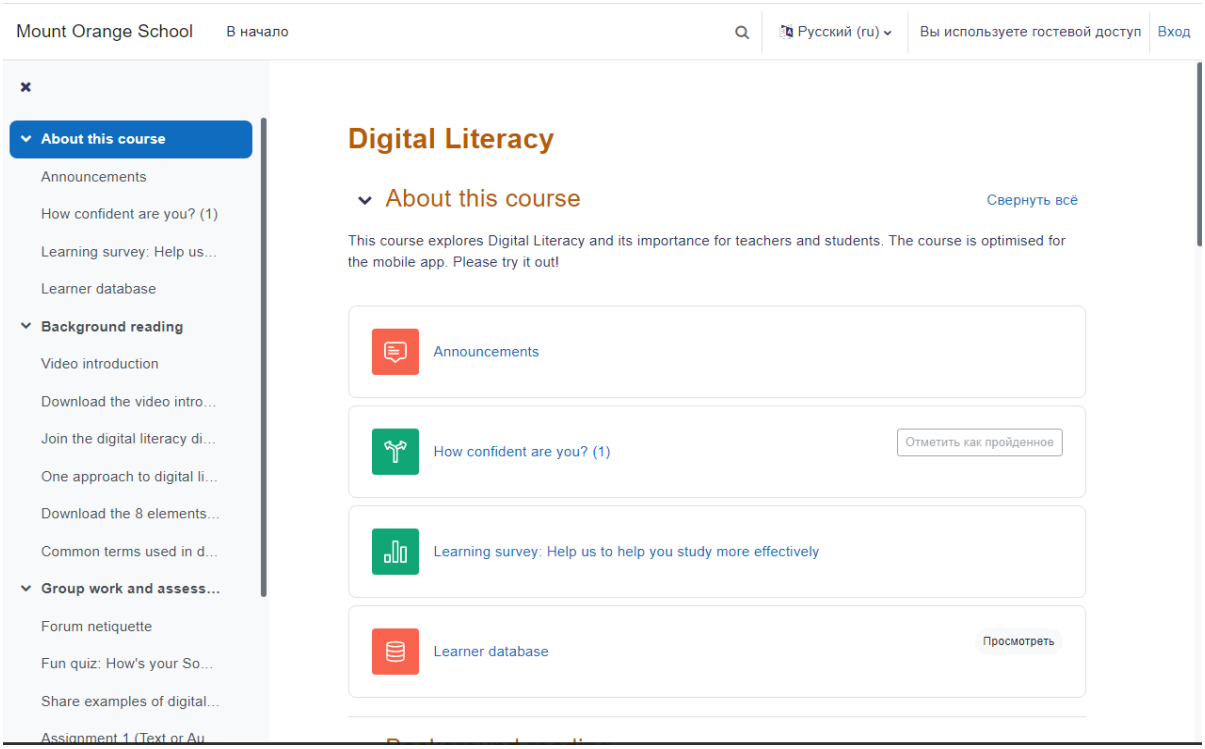

Fig.1.4.1. Interface of the Moodle program

Adobe Captivate Prime. Adobe Captivate Prime is a commercial platform with a wide range of features for creating and editing courses, integrated with video conferencing tools and other Adobe applications (Adobe Captivate Prime). Adobe Captivate Prime allows a user to create various types of courses, including learning materials, assignments, video and audio, emulations and interactive simulations, assessment, and reporting (Fig. 1.4.2). This platform allows to manage courses and students, set schedules and deadlines, monitor student progress, give feedback, and much more.

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The advantages of Adobe Captivate Prime include:

1. Multifunctionality that allows to create and edit courses at a high level.
2. Integration with other Adobe applications, which makes the platform very versatile.
3. Convenient course and student management system.
4. Reporting and analytics to track student progress and course performance.

However, there are some disadvantages:

1. A commercial platform that can be quite expensive for smaller companies or educational institutions.
2. High complexity of setup and use.

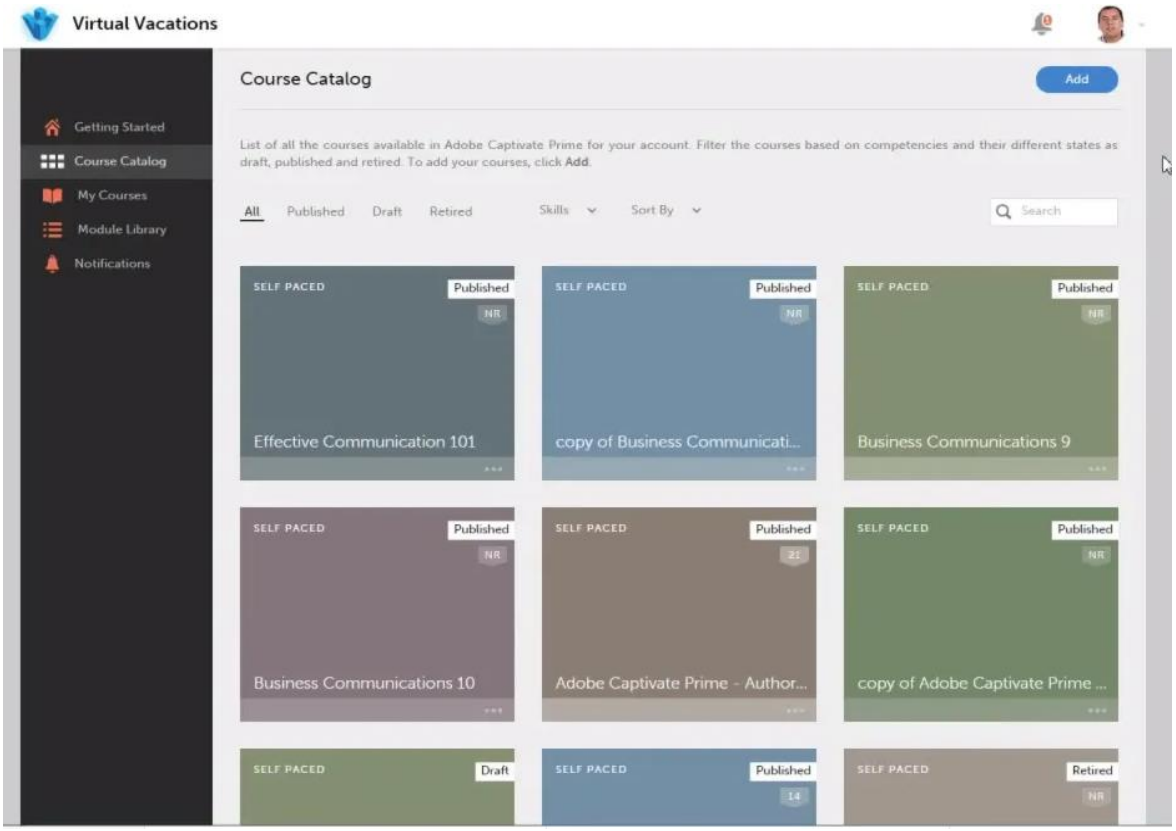

Fig. 1.4.2. Interface of Adobe Captivate Prime

TalentLMS. TalentLMS is a relatively new online learning platform that was created in 2012 (TalentLMS). TalentLMS has a fairly simple and intuitive interface that allows users to quickly create and manage courses (Fig. 1.4.3).

The advantages of TalentLMS include:

1. A simple and intuitive interface that allows to quickly create courses.

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2. Multifunctionality that allows to create different types of courses and tasks.
3. Ability to integrate with various video conferencing tools and other applications.
4. Convenient course and student management system.
5. Availability of a free version with limited features.

However, there are some drawbacks:

1. Limitations of the free version.
2. Limited ability to customize and edit courses individually.
3. Not as rich in functionality as more sophisticated LMSs like Moodle or Adobe Captivate Prime.

Compared to Moodle and Adobe Captivate Prime, TalentLMS is a less complex and less feature-rich platform, but it is very convenient for smaller companies and educational institutions with a small number of students. It also has a very simple and intuitive interface that allows to quickly create and manage courses.

Fig. 1.4.3. Interface of TalentLMS

A comparative analysis of these three most popular LMSs is shown in Fig. 1.4.4 (Adobe Captivate Prime vs Moodle LMS vs TalentLMS Comparison) and several conclusions can be drawn from it:

1. The cost of the LMS. The use of Moodle in Ukrainian universities is primarily explained by the fact that it is a free LMS. Moodle is provided free of charge as open

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source software under the GNU General Public License. Anyone can adapt, extend, or modify Moodle for both commercial and non-commercial projects without license fees and benefit from the cost-effectiveness, flexibility, and other advantages of using Moodle. Other LMSs require a subscription that increases with the number of students or courses. For example, TalentLMS has several tariffs:

Starter: $59 per month for 40 users,

Basic: $129 per month for 100 users.

Plus: $249 per month for 500 users.

As it is seen, the cost of using such an LMS for public universities with 5 or 10 thousand students is quite tangible, which makes it impossible to use commercial LMSs.

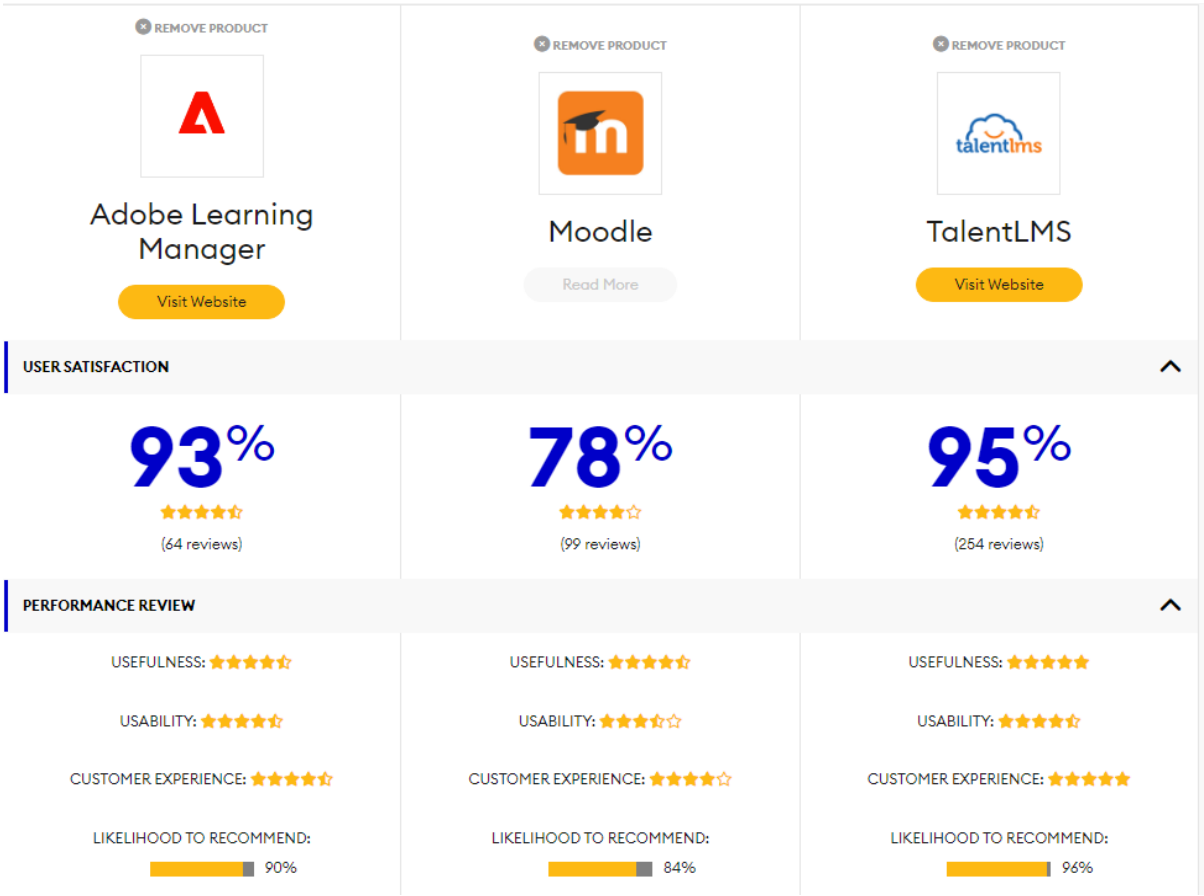

Fig. 1.4.4. Comparison of Moodle with the most popular LMSs

2. LMS administration. Moodle has a large number of settings that allow users to customize the LMS to their needs and requirements. Also, Moodle has many

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different plugins and applications that allow to extend the functionality of the LMS. There is a large community of Moodle users and developers in the world that provides free technical support and assistance with the use of the LMS. In addition, the community is constantly developing new features and plugins. Adobe Captivate Prime is a commercial platform with many features that allows users to create and edit courses at a high level but can be expensive and difficult to use. TalentLMS is a new online learning platform that has a simple and intuitive interface that allows to quickly create and manage courses but has limited ability to customize and edit courses. In general, Moodle is the undisputed leader in terms of support, the number of different extensions, and customization for a specific task.

3. Ease of use. Compared to other LMSs, Moodle may seem a bit complicated and require additional time to learn and master the functionality. Also, downloading and using Moodle may require a certain level of technical training and equipment, which may be a challenge for some users. The Moodle interface, compared to other LMSs, is outmoded and outdated. And by these criteria, Moodle loses to other commercial LMSs.

Higher education institutions widely use various information systems to support the educational process. Such systems include various automatic management systems of educational institutions.

There are several developers in Ukraine that provide services for building such automated systems. These include the Automated Management System (AMS) "HEI" (АСУ «ВНЗ»); "Dean's Office", "University", "Staff" by Politek-Soft company (Програмне забезпечення для вищих навчальних закладів України), and the automated management system of an educational institution by "RPC "MIR" (АСУ).

All of these systems have approximately the same functionality and are focused on different aspects of the work of an educational institution: admissions, dean's office, dormitory, human resources department, methodological and educational departments. Such a system consists of several programs, each of which performs a separate function, but all of them work in a single information space and greatly facilitate the work of the educational institution.

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Let us look at the functions of such programs on the example of AMS "HEI" used by Chernihiv Polytechnic National University. The use of this system has significantly reduced the amount of manual work and the number of errors in document processing.

The areas of application of AMS HEI include (Fig. 1.4.5):

Fig. 1.4.5. Modules of AMS HEI
Source: АСУ «ВНЗ»

1. The work of the admission committee.
   - Transferring data from the Unified State Electronic Database on Education (USEDE) and verification of educational documents through the IPS "OSVITA".
   - Formation of lists and ratings, enrollment of applicants, etc.
2. The work of the dean's office and other administrative units of the university.
   - Examination session, analysis of results and awarding of scholarships.
   - Development, generation of group and individual student curricula, calculation and distribution of teacher workload (Fig. 1.4.6).
   - Working with student data, transferring and graduating students (Fig. 1.4.7).
   - Creating a web schedule.
   - Work with data of university staff, staffing of the university.
3. The work of the campus.
   - Accommodation of students.

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– Automation of places allocation.

– Formation of documentation for dormitories.

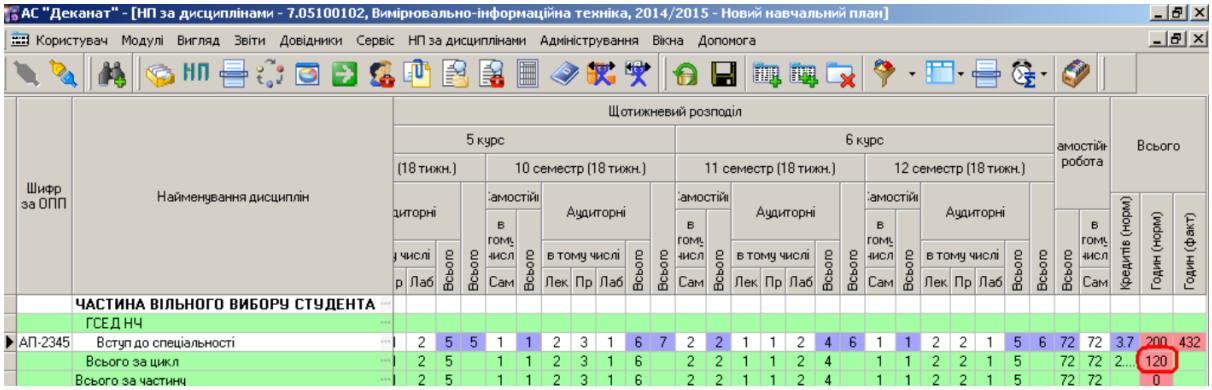

Fig. 1.4.6. AMS HEI. Working with plans
Source: Didenko & Cherkas 2014, ed. 3

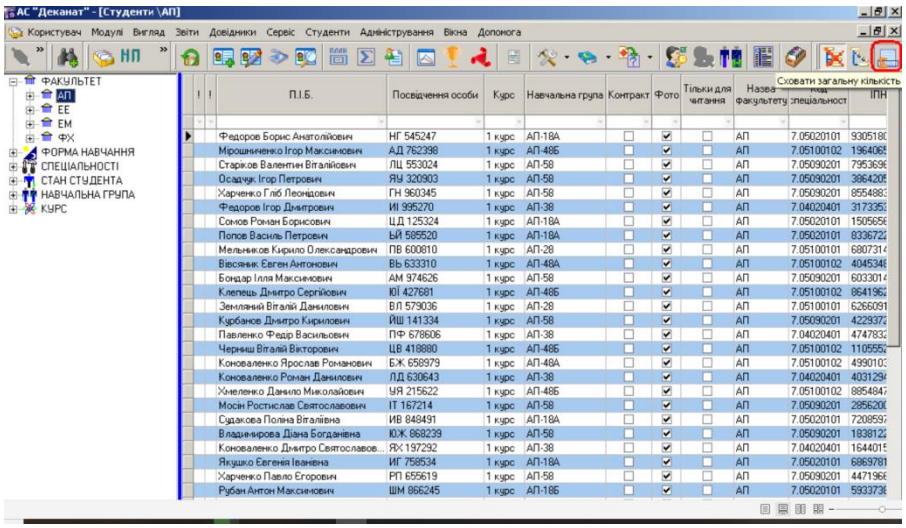

Fig. 1.4.7. AMS HEI. Working with students
Source: Didenko & Cherkas 2014, ed.4

In addition, the use of such a system allows users to abandon paper record books. Instead, students have access to their personal accounts, which allows them to fully track their educational trajectory, see what they have learned and what grades they have received (Fig. 1.4.8).

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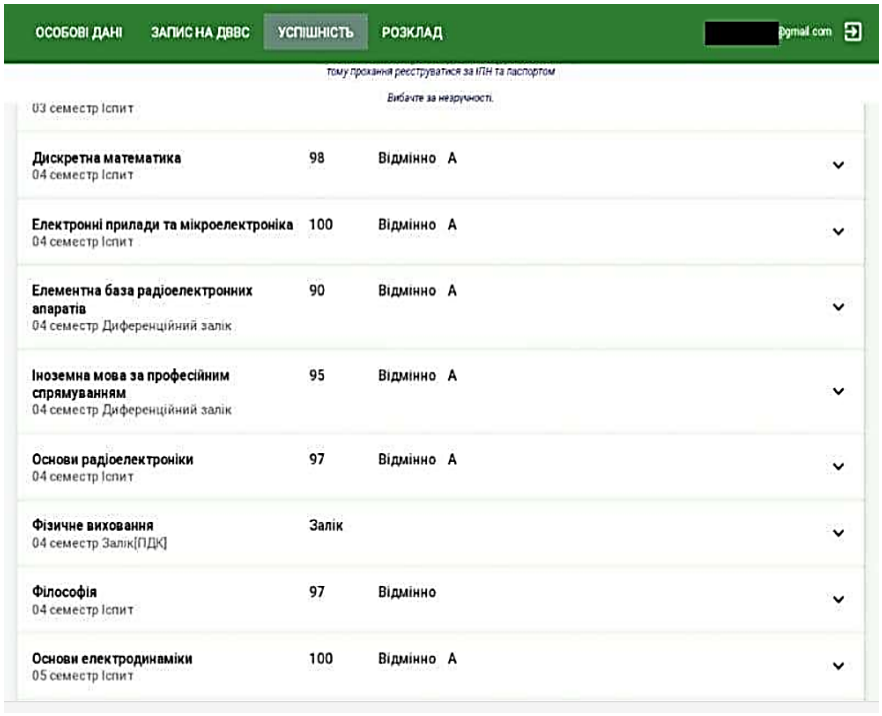

Fig. 1.4.8. Personal account of the applicant

A typical situation in the dean's office involves entering grades from the record into an electronic system. For a faculty of 500 students, one examination session means about 4000 grades. With such a large number of records, mistakes are common. Student and teacher access to the database allows a user to quickly identify these errors and correct them.

The use of the teacher's electronic office in such a system allows a teacher to enter student grades directly into the system during an exam, thus removing another paper document from the document flow – the exam report card. On average, one group is assessed at 75–80 assessment points during the bachelor's program. Taking into account the information on retakes, about 150 information sheets are created for one group during the course of study. Thus, by removing one more link between the grade that the student sees in the system and the grade given by the teacher, the number of errors can be significantly reduced, as the time that passes between the teacher's grade and the student's familiarization with this grade in their individual profile is reduced.

Distance learning is impossible to imagine without platforms that allow communication and collaboration between students and teachers. Two competing platforms are among the most commonly used in Ukrainian educational institutions:

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Google Workspace for Education and Microsoft 365 for Education. These two platforms from the two IT market leaders are used by Ukrainian universities thanks to the cooperation of the Ministry of Education and Science with "Microsoft Ukraine" (Microsoft) and Google Ukraine (Teach From Anywhere).

Google Workspace for Education is a set of cloud-based tools and services provided by Google that are designed for schools and higher education institutions that facilitate distance learning (Google Workspace for Education overview). The tools and services offered by Google Workspace for Education include messaging and collaboration applications such as Gmail, Google Drive, Google Calendar, Google Docs, Google Classroom, and many others. To be eligible to participate in Google Workspace for Education, educational institutions must be officially accredited by government agencies that provide national or international primary, secondary, or tertiary-level certifications. Google Workspace for Education is used by more than 170 million students and teachers worldwide (More options for learning with Google Workspace for Education).

Google Workspace for Education tools:

1. Google Classroom: a platform that allows teachers to create, distribute, and grade assignments, as well as communicate with students. The advantage is the ease of integration with other Google tools.

2. Gmail: provides email services for both teachers and students with additional security features designed for use in education.

3. Google Drive: Offers cloud-based storage for documents, spreadsheets, presentations, and other files with easy sharing and collaboration capabilities.

4. Google Meet: a video conferencing tool that allows users to conduct virtual classes and meetings.

5. Google Docs, Sheets, and Slides: Web-based applications for creating and editing documents, spreadsheets, and presentations that users can collaborate on in real time.

6. Google Forms: a tool for creating surveys, tests, and assessments that can be used for educational purposes.

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Microsoft 365 for Education is a set of cloud-based collaborative learning tools specifically designed for educational institutions, including schools, colleges, and universities (Microsoft 365 Education). It is designed to provide teachers and students with the tools they need for teaching, learning, and administrative tasks. Microsoft 365 for Education includes various components and features, such as:

1. Microsoft Teams for Education is the central product for communication and collaboration. Teachers and students can create virtual classrooms, schedule and join online meetings, chat, and collaborate on projects in real time.

2. Microsoft OneDrive for business is cloud storage for documents, files, and data that makes it easy to access and share resources securely from anywhere.

3. Web-based versions of popular Office applications such as Word, Excel, PowerPoint, and OneNote that can be used to collaboratively create and edit documents.

4. Microsoft Forms is a tool for creating surveys, tests, and assessments that can be used for educational purposes, such as assignments and grades.

5. OneNote Class Notebook is a digital notebook that allows instructors to organize course content, assignments, and resources, and facilitates student collaboration and note-taking.

Microsoft 365 for Education is available in a variety of subscription plans, including free plans for eligible educational institutions. These plans vary in features, storage limits, and licensing options. Educational institutions can choose the plan that best suits their needs and budget.

As discussed, Google Workspace for Education and Microsoft 365 for Education provide roughly the same set of tools, and it is necessary to distinguish these cloud-based toolkits from learning management systems (LMS).

Cloud toolkits have the following properties:

1. This is a set of cloud-based tools and services from Google or Microsoft designed for schools and higher education institutions for collaboration and distance learning. These tools are quite easy to use and provide better collaboration and

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communication between teachers and students – email services, video conferencing, chats, and forums.

2. Tools include privacy and security features to protect student data and to ensure that only authorized users have access to sensitive information.

3. Provide tools for saving information in various formats and administering access to it.

Learning management system (LMS):

1. It is a software application for administering, documenting, tracking, reporting, automating, and delivering training courses, training programs, or learning and development programs.

2. Provides a centralized platform for managing and delivering educational content.

3. Offers such functions as course creation, assignment management, grading, and reporting.

4. Provides a number of tools to support online learning, such as discussion forums, chats, and video conferencing.

Summarizing, Google Workspace for Education and Microsoft 365 for Education are a set of cloud-based tools and services designed for schools and higher education institutions to collaborate, optimize teaching, and ensure learning security, while an LMS is a software program for administering, documenting, tracking, reporting, automating, and delivering courses, curricula, or training and development programs. Therefore, the use of these two types of tools in distance learning is very important, but users should not substitute cloud tools with LMS or vice versa.

It should be noted that with the proper integration of Moodle and cloud tools, it is possible to use one account for a student or teacher for both systems. This greatly simplifies distance learning and unifies mail and other operations of distance learning participants.

At Chernihiv Polytechnic National University, when using Microsoft Teams to organize online classes, teams are used, and the class schedule is synchronized with teams and events in Microsoft Teams. To do this, all students and teachers are divided

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into teams according to their groups. Fig. 1.4.9 shows the groups that are available to one of the authors – the director of the institute of Chernihiv Polytechnic.

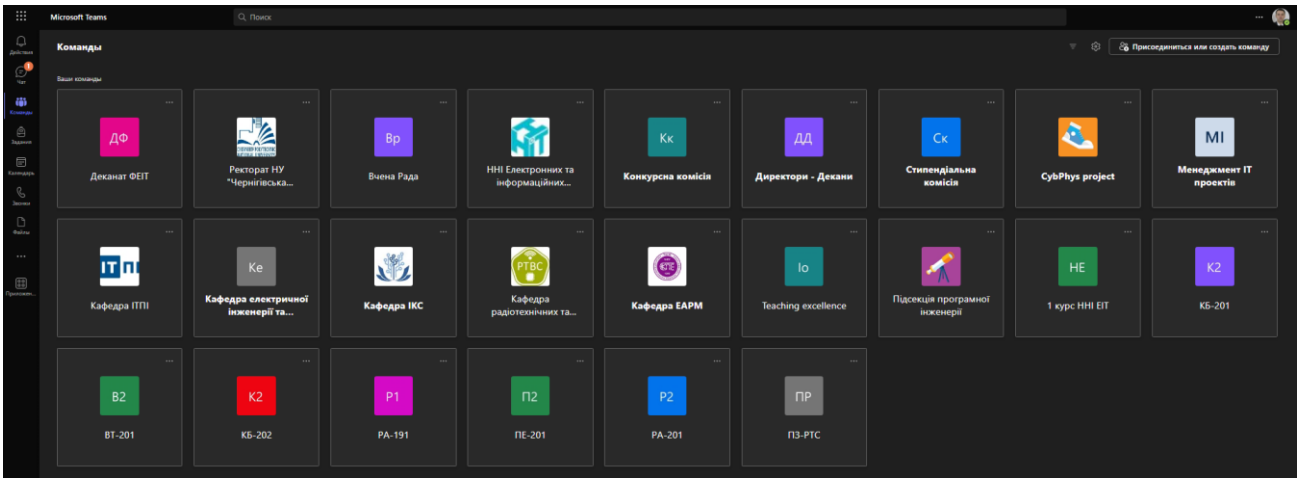

Fig. 1.4.9. Groups in Microsoft Teams

For example, a group for the dean's office unites the dean, deputy dean, and staff. This group has its own SharePoint site that contains all the working documents of the dean's office (Fig. 1.4.10). Such a site is synchronized with all the working computers of the dean's office and allows for the creation of a common workspace. This technology proved to be particularly effective during the outbreak of hostilities in Chernihiv region, as the documents were stored in the cloud and the loss of physical media on work computers and lack of access to university servers did not interfere with the work.

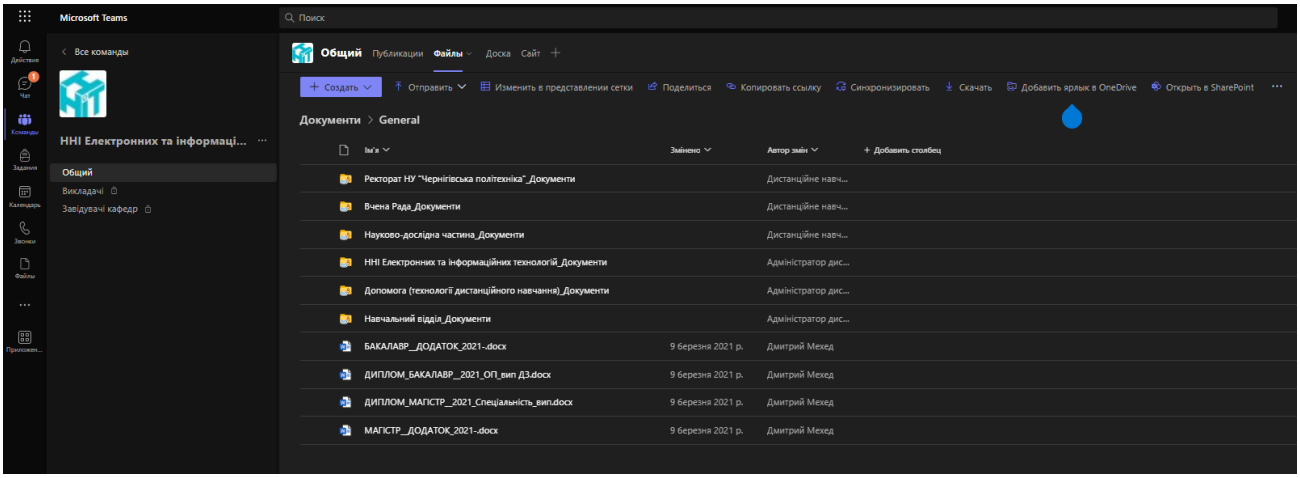

Fig. 1.4.10. Group files in Microsoft Teams

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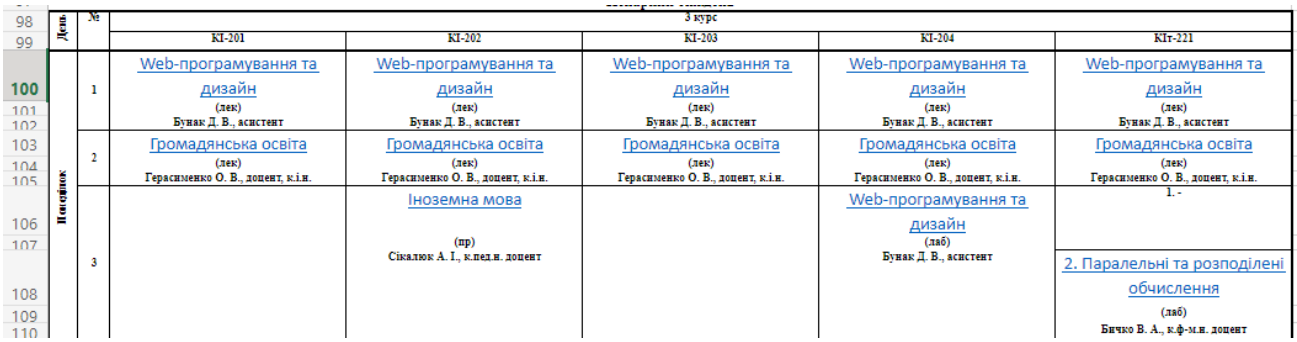
A student group in Microsoft Teams is a group of students who belong to the same academic group. For such a group, a user creates an event link in Microsoft Teams that is synchronized with the schedule. An example of a schedule synchronized with events in Microsoft Teams can be seen in Fig. 1.4.11 (Chernihiv Polytechnic National University).



День	№	3 курс				
		КІ-201	КІ-202	КІ-203	КІ-204	КІт-221
Понеділок	1	Web-програмування та дизайн (лек) Бунак Д. В., асистент	Web-програмування та дизайн (лек) Бунак Д. В., асистент	Web-програмування та дизайн (лек) Бунак Д. В., асистент	Web-програмування та дизайн (лек) Бунак Д. В., асистент	Web-програмування та дизайн (лек) Бунак Д. В., асистент
	2	Громадянська освіта (лек) Герасименко О. В., доцент, к.і.н.	Громадянська освіта (лек) Герасименко О. В., доцент, к.і.н.	Громадянська освіта (лек) Герасименко О. В., доцент, к.і.н.	Громадянська освіта (лек) Герасименко О. В., доцент, к.і.н.	Громадянська освіта (лек) Герасименко О. В., доцент, к.і.н.
	3		Іноземна мова (пр) Сікалюк А. І., к.пед.н. доцент		Web-програмування та дизайн (лаб) Бунак Д. В., асистент	1. - 2. Паралельні та розподілені обчислення (лаб) Бичко В. А., к.ф-м.н. доцент

Fig. 1.4.11. Schedule synchronized with events in Microsoft Teams

Chatbots. A chatbot is a program that uses machine learning and neural network technologies to communicate in text or audio format. Chatbots are widely used to provide reference information and imitate an interactive human conversation using key, pre-calculated user phrases and auditory or textual signals (What is Chatbot? – Definition).

Typical tasks that a chatbot can solve include answering standard questions: what is the next lecture, when is the individual assignment due, what is the individual assignment, what is the schedule of the educational process or the schedule of calls, how is the scholarship calculated, what are the additional courses, etc. In other words, those questions that involve standard answers and can be easily recognized as questions from the student. Usually, there are about 80% of such questions during work, so a chatbot can be easily programmed to automatically answer standard questions, and any number of such questions will not overload a teacher or university employee and, accordingly, will free the staff of the educational institution from answering these questions.

"Yesterday, the support team received 38,924 questions about Covid certificates (and there are more than 70 of other products). 26,619 users received a chatbot consultation without involving the support team. 14,892 users initiated a dialog with a

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live manager." Deputy Prime Minister, Minister of Digital Transformation of Ukraine M.A. Fedorov, November 3, 2021 (DOU).

The analysis of chatbots for education on the Facebook platform showed that they should have the following characteristics (Fig. 1.4.12) (Smutny & Schreiberova 2020):

- teaching – providing educational content, feedback, and progress tracking;
- humanity – the ability to maintain a conversation;
- affect the user – greeting the user, joking;
- accessibility – responding to the emotional state of messages.

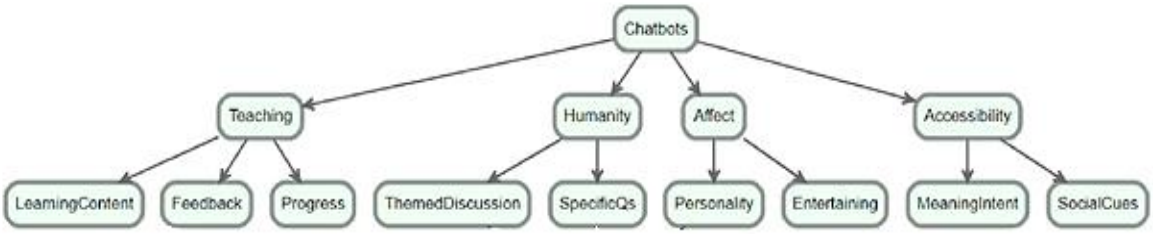

Fig.1.4.12. Characteristics of chatbots

A chatbot can save students' time during standard questions, as it will learn by analysing the sequence of questions asked and gradually be able to give correct answers, taking into account the context of previous questions.

In addition to answering standard questions, a chatbot allows to get a lot of information about student behaviour and, based on this, create new opportunities for a course or university, or new chatbot features. By analysing information about what students are looking for, what information they could not find on the website, it is possible to create new pages on the university website and to increase student satisfaction with the university and the learning process, keep the information up-to-date all the time, and understand the new requirements that the education market and students put forward to the institution.

Another advantage of chatbots is that they can work around the clock, ensuring constant communication between the educational institution or teacher and students. This is necessary because students learn not only while completing tasks but also while

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receiving feedback on their assignments and analysing the grade they receive. This will allow a student to find out the wrong ways to solve the problem immediately after the answer. However, seeing the best practices in completing the task, seeing the analysis of the assignment – these tasks cannot be entrusted to the program. All this requires a more detailed answer.

1.5. METHODOLOGICAL COMPONENT OF DISTANCE EDUCATION

Modern trends in society, globalization processes and challenges of recent decades are transforming the requirements of the modern community both in relation to the competencies of education professionals, students and to the methods and forms of education. The process of modernization of distance learning methods in the world has received a significant impetus after the introduction of quarantine restrictions during the Covid-19 pandemic, which made it impossible to use traditional methods of learning and required new technological solutions from national education systems. The Ukrainian education system faced new challenges after the start of Russia's full-scale invasion in 2022, which led to even greater digitization of educational processes. Today, distance learning technologies are widely used in the private and public education sector globally and in Ukraine in particular. The introduction of distance learning technologies in higher education institutions is necessary not only to expand the audience, provide access to educational services under non-standard conditions (quarantine restrictions, occupation, problems with Internet connection and electricity supply), export knowledge, and modernize education, but also to promote the internationalization and integration of educational processes, which requires more interactive, flexible, and mobile methods of learning and acquiring knowledge. The use of such technologies in combination with traditional teaching methods allows to better unleash the learning potential of students, simplify the mechanisms for obtaining educational information, and generally make the learning process more advanced and accessible. This report section aims to analyze the main methodological components of modern distance learning in Ukrainian higher education institutions, as well as to outline the main advantages and difficulties of their implementation.

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It is worth noting that recently the issue of studying the methodological component of distance education has been in the center of national and foreign research. Scientists pay attention to the analysis of modern challenges of distance education and its functioning in crisis situations (Tertychna, Koziak 2021; Kucherenko 2018; Krychkivska, Bilous, Demianiuk 2022), highlight the specifics of didactic and methodological organization of distance learning (Hetta et al 2017), study the peculiarities of implementing distance education in higher education institutions (Hakhovych, Savchenko 2018; Hedzyk, Pohoda et al 2023), etc.

The Regulation on Distance Learning approved by the Ministry of Education and Science of Ukraine defines distance learning as an individualized process of acquiring knowledge, skills, abilities and methods of human cognitive activity, which occurs mainly through the indirect interaction of remote participants in the educational process in a specialized environment that operates on the basis of modern psychological, pedagogical, information and communication technologies (Regulation on Distance Learning). According to this Regulation, scientific and methodological support for distance learning includes methodological (theoretical and practical) recommendations for the development and use of pedagogical, psychological, information and communication technologies of distance learning; criteria, means and systems for quality control of distance learning; informational, didactic and methodological content of web resources (distance courses) of the curriculum / educational program.

The main types of distance learning classes are lectures, seminars, lessons, practical classes, laboratory classes, consultations, and others, which are conducted remotely in synchronous or asynchronous mode in accordance with the curriculum (Regulation on Distance Learning). Synchronous learning is distance learning when students are simultaneously present in a web-based distance learning environment (chat, audio, video conferencing, social networks, etc.) (Regulation on Distance Learning). In asynchronous learning, there is such interaction between the subjects of distance learning, during which participants interact with each other with a time delay, using e-mail, forum, social networks, etc. A remote "listener" equipped with a package

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of educational materials and information tools independently accumulates knowledge, skills, abilities, and the lecturer periodically monitors the quantity and quality of the acquired knowledge, they are not in touch at the same time. Blended distance learning combines distance learning, classroom instruction, and self-study. This type of learning is used when students can join an online classroom in synchronous mode or study independently in asynchronous mode. In today's realities during the war, when students live in different countries or in the occupied territories with different Internet access, part of the student group can join synchronous online classes, and part can study asynchronously. This situation increases the lecturer's workload, as it requires additional interaction with those students who could not join synchronous classes. A partial solution to this problem may be to divide students into separate groups with synchronous learning, asynchronous online learning, or classroom learning.

Scientists of T. H. Shevchenko Chernihiv National Pedagogical University, studying the complexity of activities, functions and tasks of a lecturer in the conditions of distance learning, include the development of methodological support for the distance learning process (development of a syllabus, model and structure of a distance course; development of theoretical, practical, control and evaluation materials of a distance course, taking into account their variability; analysis and evaluation of the quality of scientific, methodological and educational materials) (Hetta et al 2017, 213).

Experience shows that not all lecturers can ensure the creation of a modern distance course using information and communication technologies. After all, digitizing lectures and plans for practical and seminar classes, i.e. transferring old teaching materials into the electronic plane, cannot be considered a modern distance course that meets the urgent needs of students and corresponds to the realities of our time. Its creation requires additional technical training of the lecturer, constant research of new information and communication technologies, methodological techniques, their implementation in the pedagogical process and improvement of the course. According to the results of a Social Research Report conducted at Ukrainian partner universities, the level of effectiveness of students' perception and assimilation of course materials depends on the format of presentation chosen by the lecturer.

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Table 1.5.1.
Effective forms of presenting material in a distance format (students)

What forms of teaching do you consider to be the most effective in distance learning?	%
Online lecture with presentation (PowerPoint, etc.)	83,4
Brief lecture outline	60
Video recording of the lecture	54,5
Moodle distance learning course	46,9
Interactive electronic materials	37,9
Video tutorials and screencasts	36,5
Textbooks, manuals on the topic	33
Articles, monographs on the topic	21,6
Audio recording of the lecture	11,1
Online lecture without presentation	10,2

Source: Table 1.4.1 in Report on the results of sociological survey of stakeholders' requests for distance education, https://defep.chmnu.edu.ua/wp-content/themes/twentytwenty/media/social_survey/Sociological%20survey_Ukraine_engl.pdf

Thus, audio recordings of lectures or online lectures without presentations are considered to be the least effective, with 11% and 10% respectively (see Table 1.5.1), which is an indicator of the unpopularity and ineffectiveness of old methods of teaching material among university students. Articles and manuals on the topic, which are published in text format in whole or in part on learning platforms, are also considered ineffective by the majority of students surveyed. A comparative table summarizing the assessment of different methods of teaching distance courses in six HEIs (see Table 1.4.2) also indicates a preference for such formats as video lectures, online lectures with presentations, and distance courses on educational platforms.

Table 1.5.2.
Effective forms of presenting material in a distance format (HEI students, %)

	KNEU named after Vadym Hetman	**LNEU**	**CPNU**	**UNUH**	**V.N. Karazin KNU**	**Petro Mohyla BSNU**
Online lecture with presentation						
Brief lecture outline						
Video recording of the lecture						
Moodle distance learning course						
Interactive electronic materials						

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Video tutorials and screencasts						
Textbooks, manuals on the topic						
Articles, monographs on the topic						
Audio recording of the lecture						
Online lecture without presentation						

Source: Table 1.4.2 in Report on the results of sociological survey of stakeholders' requests for distance education, https://defep.chmnu.edu.ua/wp-content/themes/twentytwenty/media/social_survey/Sociological%20survey_Ukraine_engl.pdf

Remarkably, the percentages of respondents who consider online lectures with presentations and Moodle distance learning courses to be effective are almost identical among lecturers and students (for comparison, see Table 2.4.2 in Report on the results of sociological survey of stakeholders' requests for distance education). But, for example, video recordings of lectures (55%) and brief outlines (60%), which are popular among students, are not recognized as effective by lecturers as often (28% and 29%, respectively). It is worth noting that according to the survey, 28% of lecturers faced difficulties in adapting their discipline for teaching in a distance mode, 21% faced the lack of special teaching materials to ensure distance learning, and 13% indicated a lack of necessary skills to work with distance technologies (Table 2.2.8 in Report on the results of sociological survey of stakeholders' requests for distance education). In the synchronous learning format, lecturers try to transfer methods and forms of classroom work to the distance format. This is evidenced by the absolute leadership of online lectures with presentations among the various forms of teaching. According to a study conducted in several Ukrainian universities, 87% of lecturers consider them effective, which is somewhat different from the opinion of students (Kucherenko 2018). There are definitely many free online resources, online courses for distance learning, but a significant part of them involves a fee for using an extended and more interesting, advanced version. This forces lecturers to develop their own materials for courses, which sometimes requires significant time and skills to work with distance technologies.

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It is worth noting that synchronous forms of work with students turned out to be the most desirable for the teaching staff. According to the report of the same study, lecturers prefer oral answers (68%), student presentations and reports (63%) during classes (Table 1.5.3). In contrast, students consider the test format to be the most effective way to assess knowledge. The students who gave a relative preference to control tests (63%) were probably guided by a slightly different logic, as the lecturers' leader – oral answers – was desirable for only 35%, which is almost twice less than the corresponding lecturers' indicator. It should be noted, however, that 58% of lecturers said that during distance teaching they faced difficulties in controlling students' independence in completing current and test tasks. This probably plays a role in the fact that preference is given to oral answers and reports during classes, when students can be required to turn on their cameras.

Table 1.5.3.

Desired forms of work and knowledge control (lecturers)

What forms of assignments do you prefer?	%
Oral answers, discussions during classes	68,2
Presentations and reports during classes	62,8
Control tasks in a test format	55,9
Group assignments during seminars (practice) and laboratory classes	45,8
Homework (papers, analytical notes, essays, etc.)	44,1
Group homework, projects	32,1
Other	4,3

Source: Table 2.4.4 in Report on the results of sociological survey of stakeholders' requests for distance education, https://defep.chmnu.edu.ua/wp-content/themes/twentytwenty/media/social_survey/Sociological%20survey_Ukraine_engl.pdf

It should also be noted that 31% of lecturers faced difficulties in identifying students in classes, tests, and exams, which indirectly indicates the non-universality of the effectiveness of visual control. Through the prism of the difficulty of controlling the independence of work and identifying students in distance education, it is interesting to see how lecturers assess the impact of distance education on the situation with academic integrity. Despite the fact that half of the respondents do not see any dependence between the distance format and the situation with academic integrity, 41%

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of lecturers believe that the transition to distance learning complicates the verification of compliance with academic integrity (Kucherenko 2018).

Learning in an asynchronous format is more like personalized or individualized learning, since every student who cannot join a synchronous online class needs some kind of interaction and communication with the lecturer, which takes place outside the classroom on an individual basis. And this requires additional unplanned and unpaid working time from the lecturer. Of course, students, especially introverts, like this form of learning, they avoid public speaking in front of their classmates, which, in turn, relieves psychological stress and makes learning comfortable. But there is the issue of control by the lecturer, self-control and motivation by the student. Distance learning requires a high level of professional and cognitive motivation, self-control, and self-discipline from the student, which often increases with the maturation of the student. And how to make the lecturer's control as effective as possible? It may be appropriate to diversify the forms of control and involve new technologies in the implementation of the process of assessing the quality of education. For example, as part of the distance course "Using Educational Technology in the English Language Classroom", American colleagues from Iowa State University suggest that in addition to testing, students' communication skills should be monitored by mandatory participation in regular asynchronous student forums, where the number and content of each student's messages are taken into account. However, this raises the question of software that automatically identifies, counts, and reads each student's messages individually. This type of activity would be very appropriate, for example, to control the skills and abilities of communication in writing in a foreign language, etc. The European experience of engaging senior students through a comprehensive system of mentoring and tutoring in higher education institutions can also help solve the problem of monitoring and feedback to students and disseminate European teaching practices. Given the above, we can conclude that asynchronous learning requires more time to interact with each student individually, since in traditional classrooms or during synchronous online classes, a lecturer can monitor several students simultaneously during oral work in groups, pairs, discussions, frontal questioning, which does not

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happen during distance asynchronous learning. The lecturer may receive the completed work from students within a certain period of time, which means that they have to submit their work for review at different times, and the lecturer spends even more time sending it back with comments. Sometimes this leads to formal control, which students can take advantage of and do their homework poorly (formally), hoping that the lecturer will not notice.

Methodological activity is an integral part of the educational process, requiring high adaptability of lecturers to individual characteristics and needs of students, changing external factors and the latest trends in approaches to distance education, as well as the ability to self-analyze, self-educate and creatively choose methods and techniques of distance learning. According to scholars, e-learning based on the use of Internet technologies provides unlimited opportunities for organizing students' independent work (Hetta et al. 2017, 176). V.H. Hetta and others believe that distance learning is focused on students' independent work with information fields from various sources of knowledge, project work, trainings and other activities with information and computer technologies, the introduction of such learning models in the educational process that involve web conferences. The means of distance learning are modern information and communication technologies, namely: Internet, e-mail, video conferencing, chat, etc. (Hetta et al., 2017, 179) According to the researchers, success of distance learning largely depends on the didactic quality of the content of educational information used; professional skills of lecturers, the ability to effectively manage the pedagogical process, the quality of software and hardware, as well as the readiness of students to work with modern technologies (Hedzhyk et al., 2023). Often, in addition to the general criteria, university administrations propose to determine the number of synchronous online classes held as a criterion for the quality of distance learning. For example, for the 1st year, they should be 90%, for the 2nd year – 80%, for the 3rd and 4th years – 70% and 60%, respectively. It should be noted that these ratios may vary from institution to institution, which may indicate that there are no uniform criteria for determining the quality of distance learning.

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The experience of HEI lecturers also shows that combining theory and practice in distance learning is ineffective. At the same time, senior students try to use the time saved by distance learning for practical activities in their chosen specialty, getting a job and gaining experience and professional skills that they do not get during distance learning at the university. Thus, according to the results of a sociological survey, 82% of students find combining education and professional activities most convenient when studying in a distance format (Table 1.5.4).

Table 1.5.4.
Social and psychological comparison of learning formats (students, %)

Which learning format is better suited to this statement?	**in full-time (face-to-face) format**	*approximately the same*	**in distance format**	**Total**
Psychologically more comfortable...	17,3	22,2	**60,5**	100
Causes more fatigue...	**59,4**	26,8	13,7	100
It is easier to combine study and work…	4,5	12,8	**82,7**	100
It is easier to establish friendships and work relationships...	**57,7**	30,5	11,8	100

Source: Table 1.6.2 in Report on the results of sociological survey of stakeholders' requests for distance education, https://defep.chmnu.edu.ua/wp-content/themes/twentytwenty/media/social_survey/Sociological%20survey_Ukraine_engl.pdf

Perhaps this is the solution to the situation – when the university provides theoretical knowledge, and students can acquire practical skills on their own directly at the workplace. The form of control can be carried out jointly with representatives of organizations where students work. Diplomas should be issued after a year of on-the-job training, as in some European countries. In a survey of students about which form of education they would choose next year, 97% of respondents in the 3rd-6th year preferred distance learning, 60% of 2nd year students are also interested in distance learning, and 55% of 1st year students expressed a desire to study full-time (Kucherenko 2018). These survey results indicate that students' motivation, self-control, and self-discipline are increasing with age.

The results of research by Ukrainian scientists show that distance learning is appropriate and has the right to exist in parallel with full-time learning but requires the transformation of scientific and methodological approaches to its implementation.

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The organization of a high-quality educational process, according to scientists, involves the implementation of a number of tasks: adaptation of curricula and educational programs to the distance learning format in order to find effective mechanisms for a practice-oriented approach; development of educational and methodological complexes that would provide not only the acquisition of a system of professional knowledge, but also be focused on the formation of practical skills and personally significant qualities of a future professional; reorganization of the educational process structure in order to include innovative teaching technologies (webinars, interactive lectures, individual online consultations, group discussions, forums, psychological debates, trainings, etc.); development of methods for creating and using distance courses in the educational process based on modern pedagogical, information and communication technologies; introduction of a system of effective control and monitoring of students' learning outcomes; systematic training of scientific and pedagogical staff to work with modern computer technologies and development of methods for organizing and conducting classes in an online format; introducing the practice of wide involvement of students in the independent design of the educational process by allocating different levels of disciplines: compulsory, professionally oriented and free choice, which will enable future professionals to better understand the process of distance learning and be ready to take responsibility for its results (Tertychna, Koziak 2021). In addition, according to a sociological survey conducted at partner universities, almost three-quarters of students (72%) tend to choose the distance learning format for master's programs. Also, senior students are more optimistic about the initiative to introduce distance programs than junior students (by 4-7%). The above trend is not surprising, as distance learning opportunities have a number of advantages: firstly, it allows you to keep the educational process going during periods of pandemics, wars and various social challenges, which is very valuable in nature, ensuring the continuity and accessibility of learning at different times and in different geographical locations; secondly, it provides an opportunity to learn throughout life on the job; thirdly, it provides opportunities to study in a psychologically comfortable, familiar environment for the student, with an individual pace of learning, a level of

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independence and creativity; fourthly, it overcomes territorial and time constraints; fifthly, the university saves significant financial resources in paying for the use of electricity, water, the Internet, and heating. At the same time, we note that there are a number of drawbacks:

- on the part of the student – the lack of "live" social contact; in the junior years, cognitive motivation, self-control and self-discipline are low, there is no clear schedule of the school day; technical problems;
- on the part of the lecturer – the complexity of developing theoretical, practical, control and evaluation materials for a distance course, taking into account their variability, the payment for which is included in the total salary of the lecturer and does not correspond to the actual time spent; creation of interactive types of work using modern technologies that are rapidly developing and require constant research in order to be implemented in the educational process to improve courses and increase student motivation. Feedback to students also takes a lot of time, since the relationship between the student and the lecturer takes place outside the classroom on an individual basis, requiring additional working time, which also needs to be taken into account in the lecturer's teaching load. At this stage, asynchronous online classes are equivalent to synchronous ones.

Based on all of the above, we can conclude that the advantages of implementing distance learning methods are disproportionate to its disadvantages. As more and more interactive methods of communication appear every year, the methodology, forms of work and control are being improved, and thus the progress of this form of learning is being observed. A large number of scientific studies, the development of technologies and practices will reduce the shortcomings in the methodology of distance learning, and its positive aspects will serve to overcome social challenges and solve many current problems. The variety of technological and methodological solutions available today make it possible to create high-quality distance courses for various specialties of higher education institutions that meet the requirements of the times and the needs of students. At the same time, effective and high-quality distance learning requires mastering synchronous and asynchronous teaching methods by the teaching staff of

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higher education institutions, improving control methods and mastering innovations in the field of distance education.

1.6. PERSONNEL COMPONENT OF DISTANCE EDUCATION

For the successful implementation of distance education (DE), academic staff of higher education institutions (HEIs) must meet certain criteria and possess the necessary competencies. The published document of the Ministry of Education and Science (MES) of Ukraine "Recommendations for the Implementation of Blended Learning in Professional Pre-Higher and Higher Education Institutions" states that the basis of the four key competencies required for teachers to work is digital literacy – "the ability to use online technologies and master new ones" (16). Digital literacy provides the foundation for key competencies such as technology integration ("the ability to effectively combine online learning with classroom learning"), data use ("the ability to use digital tools to monitor activity and performance to manage student progress"), personalization ("the ability to create learning environments that allow students to realize their own goals, pace and/or mode of learning"), and online interaction ("the ability to establish effective online interaction with students and students with each other") (16).

The development of professional competencies of distance education teachers should be supported by the HEI personnel system, which also contributes to the improvement of professional and teaching skills and the acquisition of additional competencies. Advanced training in Ukraine is regulated by Article 59 of the Law of Ukraine "On Education", Article 60 of the Law of Ukraine "On Higher Education" and the Procedure for Advanced Training of Pedagogical and Scientific-Pedagogical Employees approved by the Cabinet of Ministers of Ukraine № 800 of August 21, 2019. Advanced training of teachers in HEIs is mandatory and its absence or presence may affect the employment of a teacher or the term of the contract. According to the Order of the Ministry of Education and Science № 1115 of September 8, 2020 "Some Issues of Organizing Distance Learning", "[p]edagogical workers who organize distance learning should improve their skills in the use of information and

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communication (digital) technologies in the educational process through formal (according to a typical training program), non-formal or informal education in the manner prescribed by law" (Section IV, clause 5).

According to the analysis based on the results of a sociological survey of distance education stakeholders' requests, which included higher education students, teachers, HEI management and employers, scientific-pedagogical staff (SPS) assessed the need for organized professional development in the use of digital technologies required for distance education. According to the report, "Among the difficulties faced by teachers when teaching courses in a distance format, only 14% indicated a lack of the necessary skills to work with distance technologies. However, the need for organized professional development in the use of digital technologies necessary for distance education was recognized by 40% of teachers with different motivations, and another 20% said that such a need would depend on specific circumstances (see Table 1.6.1)." The report of the sociological survey explains that it is necessary to pay attention not to the need for professional development as such, but to its basis: "Teachers are reluctant to admit that their skills are insufficient, but they are willing to refer to the high speed of digital development: this is the reason for the need for professional development indicated by 37% of teachers" (section 2.7).

Table 1.6.1.
Assessment of the need for organized professional development of teachers

Do you feel the need for organized professional development in the use of digital technologies required for distance education?	***%***
No, because I have the necessary level of knowledge of these technologies	19,8
No, I can improve this knowledge on my own if necessary	19,4
I am not sure, it depends on the specific circumstances	20,4
Yes, because digital technologies are developing very quickly	37
Yes, because there are difficulties with the use of technology	3,4
Total	**100**

Source: Table 2.7.1 in Report on the results of sociological survey of stakeholders' requests for distance education, https://defep.chmnu.edu.ua/wp-content/themes/twentytwenty/media/social_survey/Sociological%20survey_Ukraine_engl.pdf

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Important information is provided by teachers' answers about their interest in the areas of advanced training in which they were able to specify their personal needs. According to the survey, teachers recognize professional development in new methods and approaches to teaching in a distance format (50.9%), skills in preparing video materials, video recording (49%) and working with video editors, editing (49.9%) as the most useful - "the total interest (of varying degrees) in these areas is from 83% to 91%" (2.7). However, skills of working in front of the camera, acting, as well as skills of developing diction and working with a microphone are in much lower demand – "more than a third of respondents indicated a complete lack of interest in these areas" (2.7).

Based on the analysis of the sociological survey report, almost half of the teachers (48.9%) consider the teaching workload to be higher in the distance learning format than in the in-person (full-time) format (Table 2.5.5). In this regard, not all scientific-pedagogical staff (SPS) is able to help students in distance learning. While most faculty members are willing to assist students in distance learning, there are faculty members who are less willing to do so. The report notes that to improve the situation, "it is important to provide adequate training and support for teachers in working with distance learning, to provide them with the necessary resources and tools to facilitate the process of learning and communication with students in the online environment" (2.5). Summarizing and analysing the responses of students from all universities that participated in the survey, there is a great need for more consultations from teachers during distance learning (1.6). In addition, regarding the issue of interaction between students and teachers, "students from all HEIs noted the need for more understanding and loyalty from teachers, which emphasizes the importance of support and cooperation between students and teachers in distance learning" (1.6). Providing sufficient work support for SPS will not only improve the development of key competencies in data use and online interaction but will also have a positive impact on the work-life balance of faculty members, which is necessary for faculty to rest and renew their energy for quality work of SPS and teaching. As noted in the report of the sociological study, "understanding the readiness of teachers to assist students in

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distance learning will help to identify the needs of teachers and direct efforts to develop support and teaching and methodological resources that will promote effective learning and ensure that the needs of both teachers and students are met" (2.5).

The distance learning format requires not only the adaptation of traditional forms of teaching, but also the improvement and development of special forms that are effective for this type of education. According to the results of the sociological survey, "the importance of increasing the practical and interactive component of distance education was emphasized by students of all universities, which actualizes the need to introduce interactive tools and virtual practical classes" (section 1.6). Online lecture with presentation is considered the most effective form by all categories of students, and electronic interactive materials are rated as the most effective by about 40% of students.

Motivation is another important component of DE that stakeholders pointed to in their survey responses. According to the report, "students of all universities noted significant problems with motivation caused by the distance learning format; a generalized need to create certain motivational programs and resources that will help support students in the distance learning process can be formulated" (section 1.6).

The analysis of the attitude of modern employers to the qualification level of employees who have received distance education has shown that although the advantages of distance education, in their opinion, outweigh the disadvantages, it is necessary to pay attention to the need for motivation and self-organization – "a total of 14% of respondents determined that self-discipline and motivation may be difficult in distance education" (section 4.3). Employers also drew attention to other soft skills of specialists that they consider necessary and important, such as communication skills. According to employers, regardless of the specialty, "the availability of 'flexible skills' is defined as a necessary element in achieving professional success" (section 4.3). The survey report emphasizes that "the lack of communication and face-to-face skills is identified by half of the employers (50%) as one of the biggest drawbacks of distance learning. A decrease in organizational and teamwork skills is also perceived as a significant disadvantage by a significant number of respondents: 40% say that distance

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education can make it difficult to collaborate and interact in team projects or teamwork" (section 4.3).

Thus, based on the analysis of the results of the sociological survey on the problematic aspects of SPS, the advanced training of teachers should include methodological aspects of developing an interactive component, tasks aimed at developing communication skills, teamwork skills, and other soft skills, as well as familiarization with motivational resources and practices for the successful implementation of DE and quality training.

Having analysed the willingness of employers to participate financially in the implementation of distance education, it is obvious that more than "half of the organizations (55%) are interested in developing certified distance courses, online monographs, manuals, etc. (see Table 4.3.7). However, only 26% of them are able to pay for such developments, which may be one of the obstacles to the development of distance education.

Table 1.6.2.
Readiness of employers to finance the development of methodological and technical means of distance education (%)

&	***Development of certified distance learning courses, online monographs, manuals, etc.***	***Purchase of servers, software, creation of video laboratories and other technical means for the remote format***
Interesting and there is such opportunity	25,6	11,4
Interesting, but there is no such opportunity	29,8	**39,5**
There is no interest, but there is an opportunity	12	10,5
There is neither interest nor opportunity	**32,6**	**38,6**
Total	100	100

Source: Table 4.3.7 in Report on the results of sociological survey of stakeholders' requests for distance education, https://defep.chmnu.edu.ua/wp-content/themes/twentytwenty/media/social_survey/Sociological%20survey_Ukraine_engl.pdf

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Almost 45% indicate a lack of interest in financing methodological developments" (4.3). In this case, most of the work falls on the efforts of HEIs and professional organizations that will guide the work on advanced training of DE teachers. This may also include the issue of the need to create a separate organizational structure in HEIs for distance learning, which was considered by another group of stakeholders - a group of HEI managers - "a quarter of managers chose the 'medium' option, another quarter each chose the 'easy' options - 'rather yes' and 'rather no'. A definite answer of no such need was given by 18%, and only 9% definitely agreed with the need" (3.3). Although the survey report notes that the estimates are conditional ("since in none of the cases did the average assessment of the need exceed 6 out of 10"), some responses provide an opportunity to get acquainted with specific opinions on the issue of establishing DE units. For example, for Kyiv National Economic University named after Vadym Hetman, "to some extent, there was a need to create units for support and maintenance of DE and information security for DE; also, at Petro Mohyla Black Sea National University there is some interest in the department for support and maintenance of the DE system" (3.3). This issue was considered as an internal issue, separately for each of the 6 HEIs, but through common needs indices, among which were proposed such units as support and maintenance of the distance learning system, material and technical support, management, methodological support and information security. The need for a structural unit of methodological support was rated the lowest by the heads of 4 out of 6 HEIs.

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CHAPTER 2.
DISTANCE EDUCATION IN MOLDOVA. CURRENT STATE

2.1. INSTITUTIONAL COMPONENT

The "institutional component" of the distance learning system refers to the overarching organizational framework, structure, and administrative elements that facilitate and govern the delivery of education in a remote or online environment. It encompasses the formalized policies, practices, and resources provided by an educational entity to ensure the effective planning, execution, and management of distance education programs. This component serves as the backbone that upholds the educational mission, quality, and integrity of the institution's distance learning initiatives.

Understanding "Institution" and "Institute" in the Context of the Institutional Component:

Institution. In the context of the institutional component of distance education, an "institution" typically refers to a comprehensive and recognized educational organization, such as a university, college, or school, that offers a wide range of academic programs, including traditional on-campus and remote or online learning options. The institution is responsible for establishing the strategic vision and goals for distance education, ensuring alignment with its overall mission and values.

Institute/Faculty. An "institute" within the institutional component may refer to a specialized unit or department within the broader educational institution that is specifically dedicated to managing and supporting distance learning initiatives.

Institutes are often tasked with designing and delivering online courses, developing instructional materials, training faculty, managing technology infrastructure, and overseeing student support services related to distance education.

They play a critical role in maintaining the quality and consistency of the distance learning experience.

The "institutional component" of the distance learning system is the organizational structure and support framework provided by an educational institution

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to facilitate remote or online education. The terms "institution" and "institute" are used within this context to distinguish the overarching educational entity from specialized units or departments responsible for managing and implementing distance education programs effectively. Together, they ensure the institution's commitment to providing accessible, high-quality education in a digital learning environment.

The educational process is a complex and varied set of training actions, systemically and organically integrated, directed and oriented towards a clear determined finality. The effective implementation and organization of the didactic-educational action requires methodical elaborations in order to achieve, simultaneously or successively, of several knowledge objectives oriented towards the development of new cognitive and operational structures of the student. Therefore, the finality of the action has a dominant position in the definition of the method, and the method is like an extension of the predetermined goals and tasks. In this way, the choice of method takes on a huge importance, varying according to the objectives, tasks and contents proposed for learning.

In order to modernize higher education under the conditions of public accountability and university autonomy, the Ministry of Education, Culture and Research has approved the Regulation on the organization of undergraduate (cycle I) and integrated higher studies. As part of the educational policies, the Regulation aims to ensure efficient and competitive conditions for the organization of undergraduate and integrated studies, in order to stimulate academic performance in all its manifestations. The formal regulation of the educational process within higher education institutions is supposed to pass an evaluation of both international experiences and practices, as well as the tendencies and needs of the national education system. By implementing the most suitable European practices, the Ministry of Education, Culture and Research promotes the integration of higher education in the European learning space.

Another purpose of the document is the flexibility of undergraduate and integrated higher studies, which would ensure an effective reporting of the study process to the needs of the labor market and better mobility within the programs, institutions, possibly

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national or transnational consortia. These paradigm changes in the higher education process, means that the expansion of the areas of public responsibility of institutions offering bachelor and/or integrated programs and also a much more pronounced institutional involvement in the process of organizing studies.

Thus, in accordance with the Regulation on the organization of higher undergraduate (cycle I) and integrated studies (no. 1625 of 12.12.19), in article 10 - Form of distance education, the following aspects are specified:

1. Higher bachelor's studies in the form of distance education are defined by activities independent of the student within the training programs supported by a tutoring system and with the use of distance communication systems.

2. Distance learning can be carried out in higher education institutions only for the specialities that are also carried out in the form of full-time education, under the conditions of the law.

3. The organization of studies in the form of distance education is regulated by the Framework Regulation on the organization and conduct of higher education at a distance, approved through an Order by the specialized central public authority.

In accordance with the Framework Regulation on the organization and conduct of distance higher education (order no. 474, 24.05.2016), higher education institutions will develop their own Regulations regarding the organization and conduct of distance education at the university level, which will be approved by the University Senate and will be published on the institution website. The following terms are specified in this document:

- distance education – is an institutionalized flexible form of education mainly carried out in a virtual learning environment with the help of distance education technologies;
- higher education at a distance - distance education carried out within higher education institutions;
- distance training - distance interaction process within the teaching staff with the learners (beneficiaries) that reflects all the internal components of the

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training process (objectives, content, methods, forms of organization, training tools);

- distance learning technology - learning technology carried out mostly with the help of information and communication technology through the indirect synchronous and/or asynchronous interaction between the beneficiaries and the teaching staff;
- virtual learning environment - virtual space in which teaching, learning and assessment activities are carried out using a variety of tools and information resources.

The Framework Regulation regarding the organization and conduct of higher distance education establishes the way of organization and conduct of Higher Distance Education at cycle 1 - bachelor's and cycle 2 - Master's and continuing training of adults in higher education institutions. The purpose of implementing higher distance education within the education system of the Republic of Moldova is to diversify and develop quality educational programs through the use of ICT and to satisfy the preferences of the beneficiaries and the demands of the labor market through the flexibility of the higher education process and increasing its efficiency.

Given the epidemiological situation around the world, but also in the Republic of Moldova, starting from March 2020, the Technical University of Moldova (UTM) and the Moldova State University (MSU) as well - teaching staff, students, members of the administration, representatives of the engineering department - all passed to the educational experience in a regime that could be called conventional, mixed didactic format. The notion of mixed didactic format gained a wider applicability, but also more operationalization in both universities at the beginning of the 2020-2021 academic year, when after an entire online semester of the 2019-2020 academic year (semester II, spring), but also because the population of our country had already formed a behaviour corresponding to the level of epidemiological risk, the TUM administration decided that in the new academic year it will go for the option of starting a mixed didactic process. The mixed didactic format implied that theoretical lessons, consultations and evaluations will take place online, predominantly in a synchronous

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mode, and practical lessons, such as seminars and laboratories, will take place in a traditional, classroom and synchronous mode, obviously, in compliance with the norms sanitary regulated by the Commission for Exceptional Situations of the Ministry of Health of the Republic of Moldova. Thus, it became necessary to immediately solve the problem of the digitization of courses by university teaching staff. In the circumstances, it was decided that the Moodle platform, abbreviated from Modular Object-Oriented Dynamic Learning Environment, will be used at TUM and MSU to transpose the courses into digital format.

Teaching staff, researchers, developers of IT products in whose area of interest are the application aspects of the Moodle platform, from the perspective of its use in education and training, note that the basis of the development of the given platform are capitalized on principles such as: collaboration between the parties involved, activities of collaboration, the participative work of the actors who want to come up with effective contributions in the course of the didactic process.

Based on the manner in which (form, frequency, complexity, etc.) an e-Learning platform is used, in our case Moodle, some categories of that ICT-mediated didactic process can be nominated, as follows:

1. The traditional ("face-to-face") didactic process mediated by ICT (in a broad sense, through the support of information and communication technology products) is characterized by a role attributed to the e-Learning platform, namely it consists of serving in a straight static regime:

– Didactic interaction tool that offers a suite of computer facilities with educational purpose, perfectly adjustable to the contents and purposes of learning, capable of diversifying the traditional teaching-learning-evaluation process.

– Space for storing / exchanging digital didactic resources, whether they are (1) didactic contents selected / elaborated / systematized / organized according to a certain didactic approach by the teacher, (2) whether they are products of the learning activity of students (elaborated / organized / presented), in the ideal way, depending on the teacher's requirements. Since it is about such an applicability of the courses, delivered through Moodle-type applications, we distinguish the mode of synchronous or

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asynchronous exploitation of an e-Learning platform by the actors of the didactic process.

2. The ICT-mediated didactic process now, in the 21st century, is organized and operate exclusively online and is characterized by an imperative role of the e-Learning platform which, in particular, offers the possibility of a permanent interaction of the actors of the teaching-learning-evaluation process with each other through the tools incorporated in the system.

3. The mixed teaching process which is a symbiosis of traditional and online formats or, more precisely, an ICT-mediated format. In all three cases, described above, the content and quality of the course developed on the e-Learning platform are essential.

2.2. ORGANIZATIONAL COMPONENT

The COVID-19 pandemic had a major impact on the organization of teaching activities in educational institutions, including the Technical University of Moldova and Moldova State University. The shift to online activities compared to traditional face-to-face activities highlighted both a range of advantages and opportunities offered by distance learning, and revealed certain limits, dysfunctions and difficulties, specific to engineering education. University didactic activities can be classified into several categories: lectures, seminars, practical work and laboratory work. For all types of activities, various ICT tools can be used to make the teaching process and knowledge assimilation by students more efficient.

Given the fact that TUM and MSU is extremely interested in the development of valuable courses by the course holders and their assistants, the university administration came up with the idea of organizing a biannual edition of the Digital Course Competition (CCD) where the authors of the courses of this type to compete with each other to obtain distinct places, noted with a string of prizes. For the CCD in question, the university courses placed on one of the Moodle platforms of TUM that are in progress in the respective semester are eligible. The CCD runs according to the provisions of the TUM regulation that covers the aspects of organization and

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deployment; evaluation of digital courses; the method of determining the winners, the activity of the Competition Committee, etc.

Any online course can be analyzed in terms of three types of interactions: student-information, student-student, and student-teacher. In traditional education, student-information interaction has the greatest relevance. In asynchronous online education, student-student and student-teacher interactions take on a much more significant weight. This is largely due to the need to reflect, search, comment or understand an issue, so that the quality of dialogue is often superior to a traditional course.

The organization of online teaching of various forms of didactic activities: lectures, seminars, practical activities and laboratory work at an engineering university has its own specifics. In the case of lectures, classic online teaching methods, widely described in the specialized literature, can be successfully used. Practical and laboratory activities, in the case of technical disciplines, involves the study of certain technologies, the implementation and design of electronic devices and circuits, the use of specialized devices to carry out measurements, modelling and verification of the correctness of the analyzed devices' operation. Precisely because of this, the implementation of online education for engineering disciplines requires the use of advanced technologies that allow the creation of virtual laboratories.

2.3. REGULATORY COMPONENT

Distance education refers to any form of education where students and instructors are physically separated, and instruction and learning take place remotely. It has evolved over the years, and two important aspects related to distance education are the methods of distance education and the technologies used to facilitate it.

Methods of distance education refer to the instructional approaches used to deliver education remotely, while technologies of distance education encompass the tools and platforms that support the implementation and facilitation of these methods. As technology continues to advance, distance education is likely to become even more innovative and effective in reaching learners worldwide.

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Methods of distance education refer to the various approaches and instructional strategies employed to deliver education to remote learners. These methods have evolved from traditional correspondence courses to more interactive and engaging online formats. Some common methods of distance education include:

Correspondence Courses: In the past, distance education relied heavily on correspondence courses, where study materials were sent to students via mail, and assignments were completed and returned through the same medium.

Online Learning Platforms: Online learning platforms have become popular for delivering distance education. These platforms host a wide range of courses and programs, catering to various subjects and skill levels. Learners can access multimedia content, interact with instructors, participate in discussions, and complete assignments and assessments through these platforms.

Virtual Classrooms: Virtual classrooms replicate the traditional classroom experience in an online environment. Using video conferencing tools and collaborative platforms, teachers and students can interact in real-time, enabling live lectures, discussions, and group activities. This method allows for a more synchronous learning experience.

Blended Learning: Blended learning combines both traditional classroom instruction and online learning components. Students might attend some in-person sessions while completing other parts of the course online. It allows for greater flexibility and personalized learning experiences.

Massive Open Online Courses (MOOCs): MOOCs are large-scale online courses designed to be accessible to a large number of learners. They are typically free or low-cost and offer a flexible learning experience. MOOCs often feature video lectures, interactive quizzes, automated assessments and discussion forums, allowing learners to engage with course material and other students from around the world.

In the Republic of Moldova, in accordance with Article 78 of the EDUCATION CODE OF THE REPUBLIC OF MOLDOVA (Education Code no. 152), higher bachelor and master studies are organized in the following forms of education:

- with frequency;

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- with reduced frequency;
- at a distance.

Full-time education involves the student's constant personal participation in all training activities. Part-time studies consist of independent student activities, with personal participation in a limited number of training activities, organized as study and examination sessions.

Distance education is a flexible form of education that is characterized by the flexibility of the study program and by the use of modern technologies to replace part of the face-to-face meetings that are specific to frequent education. The training process is mainly carried out through self-study activities, tutoring activities and assisted application activities. The student can train at his own pace, according to his needs and availabilities, which is really important in an age where training is continuous, throughout life. The framework regulation regarding the organization and development of distance higher education in higher education institutions approved by the order of the Minister of Education no. 474 of 24.05.2016.

Monitoring the record of student attendance in educational institutions is an important and necessary criterion, and research has shown that regular student attendance and academic results are closely related. Carrying out systematic records allows the identification of students who need support, at an early stage, thus making it possible to address the necessary measures that will help them continue their studies. Within the MSU from 2021 and within TUM from 2023, electronic registers are being implemented to monitor academic groups. The Moodle e-Learning platform has implemented an easily scalable and flexible record management system through the Activity-Presence (Attendance) Module element. The Activity-Attendance (Attendance) module allows teachers to keep a record of students' attendance at classes, replacing or supplementing a paper attendance record. It is mainly used in blended learning environments where students attend seminars, lectures, labs, giving the teacher the ability to track and optionally grade student attendance. The teacher can set the timetable for the activities or create specific sessions. The default options provided are: Present, Absent, Late and Excused. The module also allows the possibility to

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download the list of course participants in Excel or text format. Sessions can also be set up to allow students to record their own attendance and a number of different reports are available for either the whole group or individual students (Moodle Guide, Moodle Moldova).

2.4. TECHNICAL COMPONENT

Technologies of distance education encompass the tools and platforms that enable the delivery of educational content and support communication and collaboration in remote learning environments. These technologies have advanced significantly in recent years, making distance education more effective and accessible.

Some common technologies used in distance education include:

Learning Management Systems (LMS): LMS platforms are the backbone of distance education. They provide a virtual environment for students and instructors to interact, share resources, submit assignments, and take assessments. The most popular LMSes used by educational institutions include Moodle, Anthology's Blackboard Learn and Power School's Schoology Learning (Kirvan and Brush 2023).

Web Conferencing Tools: Web conferencing software enables real-time communication and collaboration between instructors and students. Tools like Zoom, Microsoft Teams, Google Meet, and Adobe Connect facilitate virtual lectures, webinars, and interactive discussions. The effectiveness of these video conferencing platforms was demonstrated during the spread of the pandemic and provided a suitable solution to the challenges of online learning in emergency situations (Pal and Vanijja, 2020).

Online Content and Multimedia: Distance education often relies on various multimedia elements to enhance the learning experience. These may include video lectures, interactive simulations, podcasts, e-books, and other digital resources.

Virtual Reality (VR) and Augmented Reality (AR): Some educational institutions have started experimenting with VR and AR technologies to create immersive learning experiences. These technologies can simulate real-world scenarios and enhance understanding in subjects like science, engineering, and medical training.

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They allow students to explore virtual environments, conduct simulations, and engage in hands-on activities, even when physically distant.

Gamification: Gamification uses game design elements in non-gaming contexts, including education. It can motivate students by introducing challenges, rewards, and a sense of achievement in their learning journey. Gamification techniques, such as badges, leaderboards, and rewards, make learning more interactive and enjoyable, encouraging students to actively participate. The most obvious benefits of using gamification in distance learning platforms in higher education are that it helps to achieve the desired learning objectives, measures students' weaknesses and strengths, improves students' learning and motivates them to learn, and helps students to adopt the gamification methodology and engage in the learning process (Alzahrani and Alhalafawy, 2022).

Artificial Intelligence (AI) in Education: AI-powered tools and algorithms are being used to personalize learning experiences, offer adaptive learning paths, provide intelligent tutoring, and automate administrative tasks.

Mobile Learning (M-learning): With the widespread use of smartphones and tablets, educational content and applications are increasingly accessible on mobile devices. M-learning allows students to learn on-the-go and provides greater flexibility. With the proliferation of smartphones and tablets, mobile learning has become increasingly popular. Educational apps and mobile-friendly platforms allow students to access course materials and engage in learning activities on the go.

Social Media and Online Communities: Social media platforms and online communities have become a part of modern distance education. They offer spaces for students and instructors to collaborate, share ideas, and engage in discussions beyond the formal learning environment.

Data Analytics and Learning Analytics: Educational institutions use data analytics to monitor student progress, identify learning trends, and optimize course delivery for better learning outcomes. Learning analytics can help educators understand student behavior and optimize instructional strategies.

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Online Assessment and Proctoring: Advanced online assessment tools, combined with remote proctoring technologies, help ensure the integrity of exams and assessments in distance education settings.

Higher education institutions in general and the actors of the educational process in particular have felt the negative impact of the crisis caused by the COVID-19 pandemic, being strongly influenced by both personal and professional experiences, as well as the related components of the educational process. The transfer of theoretical and applied didactic activities in the virtual environment constituted a challenge for higher education, directly influencing the efficiency of didactic activities.

Within the TUM, the Regulation on the organization and conduct of distance education was developed, approved at the TUM Senate on 22.12.2020. In the section regarding general conditions for the organization of DE (Distance Education), the basic requirements in this context are specified:

Basic documents. The educational plans for DE are drawn up based on those approved for full-time education by adapting the way of distribution of the total number of hours provided for the study of the subject, keeping intact the list of subjects and the number of credits allocated to them. The curriculum of the subjects/modules for the form of distance education are developed separately, taking into account the specifics of DES by placing the emphasis on the detailed description of the activities carried out through individual study, based on the requirements established in the Regulation on the organization of higher undergraduate studies (cycle I) and integrated at TUM, and the Regulation on the organization and conduct of higher master's studies (cycle II) at TUM.

For the study programs within the DES, the Student Guide is developed, which represents an informative support regarding the particularities of the activities within the DES, in which the didactic activities, the academic calendar and other necessary information are described. DES is carried out on the basis of didactic-methodical materials, which form the Digital Information Resource (DIR).

For disciplines that additionally require the consultation of reference titles — textbooks, treaties, documents, etc. The university will provide students with

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documentation conditions in their own libraries or in those with which they are in partnership.

Within the MSU, in 2022 the Regulation on the organization and conduct of distance education in the Moldova State University was approved. This Regulation was drafted on the basis of the Framework Regulation on the organization and conduct of distance education in higher education institutions, approved by the Order of the Ministry of Education no.474 of 24.05.2016. The Regulation mentions several aspects of distance education: student admission, the study process, which provides for both asynchronous activities using the study platform, as well as synchronous online activities and face-to-face guidance and mentoring activities; examination and program completion.

Teachers. Staff insurance. The scientific-didactic staff that provides training within the DE is made up of course holders, teaching staff who carry out practical activities and tutors. The course holders have the role of coordinating the study of the topics from the curriculum, of developing didactic materials and evaluating the academic results of the students.

The teaching staff who carry out applied (practical) activities, provided in the education plans, ensure their realization in the format provided by the education plan and the course curricula, as well as participate in the evaluation of the academic results of the students. The tutor in distance education has the role of guidance and counseling, as well as mediating communication between students and the course holder/teaching staff.

Teaching staff involved in the DE process must have specific skills for this form of training, proven by training in the program "Using informational and communication tools in education" or another similar program. If necessary, the University can attract guest teachers in the training process, developing the relationship with them through ICT.

Regulation of didactic activities is carried out on the basis of the normative acts in force, taking into account the particularities of DE (the additional effort put into the

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development of digital informational resources, their maintenance and updating, online communication with students).

Informational assurance of DE. The informational assurance of DE is based on the use of digital information resources (DIR), but not only, which must ensure the efficiency of student training within all types of activities planned for the study program. The design of the digital content and the development of the digital informational resources are carried out by the teaching staff involved in the DE process who carry out different types of didactic activities with the students, regardless of their location. The digital informational resources are located on the official platforms and in the electronic library of the University.

The choice of information technologies for the publication of didactic materials will be made depending on the level of equipment, the access possibilities of the students, but in no case will it exclude the possibility of publishing on paper. DIRs must be updated permanently, no less than once every 3 years or as necessary. To ensure the appropriate level and the scientific and psycho-pedagogical quality of the materials (DIR, printed materials) the main responsibility lies with the course holders, being responsible for the design of the course/module content.

Technical assurance of the DE. In order to carry out distance education, the technical and material base at the University level consists of the following components:

- study spaces of the faculties, simulation centers, research centers, centers of training, consulting centers and other structures necessary to ensure DE;
- technical-material means: audio/video equipment, computer technology and other specific materials provided for the creation of digital educational resources;
- specialized software necessary for the development of DE;
- storage equipment for digital educational resources (electronic libraries, repositories, servers, and if necessary, server clusters, cloud computing centers, etc.).

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According to the methodology for the organization of the exam for the completion of bachelor's, integrated and master's higher studies in online format at the Technical University of Moldova, approved at the TUM Senate on 26.05.2020, the process of taking the exams is regulated. Therefore, according to the 3rd part, The Conduct of the Examination Procedure with a Synthesys Character stipulates the full examination procedure including the tasks of all the representatives involved in the process. Thus, the specialized Departments responsible for organizing the examination test will approve the tool used for support in accordance with the specifics of the test, so that students' knowledge and skills can be effectively assessed, in optimal audio and video conditions (MS Teams, CiscoWebex), including the specification that at least 1 day before the date of the test, the CEL secretary will send electronic slips in word format to the committee members. 30 minutes before the start time of the assessment test, the secretary of the committee or another person appointed by the head of department will ensure access to the instrument and check the technical aspects. Also, in annexes 1 and 2 of this regulation, students are given the possibility of choosing the form of support (Regulation of TUM, 2020).

2.5. METHODOLOGICAL COMPONENT

Within any educational process, either traditional or in distance format, didactic communication between the actors of the teaching-learning-evaluation process is absolutely indispensable. It is clear that if we are in "face-to-face" learning conditions and, above all, in a synchronous work regime, the problem of implementing tools that would facilitate the communication. As we are talking about the ways of implementing distance learning through the Moodle platform, it allows to achieve didactic communication by applying the following tools:

1. The chat is a tool for launching some discussions that can be triggered by the author of the digital course to immediately clarify some particular topics that are taught-learned in the course delivered through the Moodle platform. The interaction offered by this tool is free; both teacher and student can initiate a discussion topic.

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Communication can take place either between teacher - student, teacher - students, and from student - student or student - students.

2. The forum, a tool that is somewhat similar to the chat, in that it is also created with the aim of triggering some discussions on some questions / issues that need to be solved very frequently in the lessons of the discipline data. By implementing that tool, the teacher will minimize his time consumption, as well as that of some students, by approaching the topic of the discussion (for example: installing an application, etc.). The property of the forum to save the discussion between users, allows the subsequent documentation and / or consultation of the content of the discussion by those interested. It should be noted that during the course configuration process the teacher can set conditions such as: course format, course duration, the calendar terms for starting / finishing the course, etc. After the course has been placed / developed by the teacher, it can be changed again by removing some content or adding valuable elements in the teaching-learning-assessment of the subject present on Moodle, etc.

However, for the correct running of the platform, as well as the proper access to the course, it is necessary to classify the users of the platform, according to their roles. This will differentiate between students and teachers so that only teachers are allowed to make changes to the course. In general, all the courses present on a single Moodle platform can also be classified according to various criteria accepted at the institution level. Here it is valid to organize them according to the programs and / or years of study, group them according to the type of subjects or even according to the specific roles of the teachers.

Finally, we must highlight that a Moodle course can be developed over time and must be updated over time. Changes will be made, emerging from the teaching-learning dynamics of it. Some teachers prefer to come up with transformations before and/or after each lesson and/or study unit etc. A Moodle course is a structure that can be improved both quantitatively and qualitatively by the author(s).

Given the fact that a digital course on the Moodle platform is developed to serve the beneficiaries and support them in the assimilation of the study material, it is obvious that at the beginning of the teaching of the course by the teacher it will be necessary to

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enroll the students on the platform. That moment will allow students to access the teaching activities, study the contents placed by the teacher, interact, as necessary, with colleagues and the teaching staff(s) who teach the course, show themselves as active users of the platform Moodle, responsible for his professional training.

2.6. PERSONNEL COMPONENT

Digital skills are indispensable to the digital invoicing society, a fact that everyone accepts without hesitation. The arguments, for the most part, reside in the levels of knowledge of the new digital world. Mainly, the educational agenda of learners is determined either by how technologies are used or how these technologies are created.

Successful implementation of distance learning requires academic staff to meet specific criteria and possess relevant competences. Here are some key criteria, competences, and ways in which Higher Education Institutions (HEIs) can support the development of these competences:

Criteria for Academic Staff in Distance Learning. Subject Matter Expertise: Academic staff should have a deep understanding of the subject they are teaching. This includes staying updated with the latest developments in the field.

Technological Proficiency: They must be comfortable with the technology and tools used for distance education, including learning management systems, video conferencing, and online assessment platforms.

Effective Communication Skills: The ability to communicate clearly and effectively through written and verbal means is crucial for online instruction.

Adaptability: Distance learning environments can change rapidly. Staff should be adaptable and open to trying new teaching strategies and technologies.

Accessibility Awareness: Staff should ensure that course materials and activities are accessible to all students, including those with disabilities.

Time Management: Managing online courses often requires more time and organization. Staff should be adept at managing their time effectively.

Feedback and Assessment: They should provide timely and constructive feedback to students and be skilled in creating fair and effective assessments.

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Student-Centered Approach: Fostering a student-centered learning environment, where students are active participants in their learning, is important in distance education.

Competences for teachers in Distance Education. Online Course Design: Lecturers should be able to design engaging and interactive online courses that promote active learning.

Facilitation Skills: They should facilitate online discussions and activities effectively to keep students engaged and foster a sense of community.

Tech-Savvy: Proficiency with online teaching tools and platforms is crucial for creating a seamless learning experience.

Multimodal Teaching: The ability to use a variety of teaching methods, such as video lectures, discussion boards, and live webinars, to cater to diverse learning styles.

Assessment and Feedback: Skill in creating online assessments and providing timely, meaningful feedback to students.

Digital Literacy: Understanding the digital landscape, including issues related to online privacy, security, and digital ethics.

Cultural Sensitivity: Sensitivity to the cultural and geographical diversity of the student body and adapting teaching methods accordingly.

Support for Developing Competences. Training and Workshops: HEIs can offer regular training sessions and workshops on online teaching methods, technology usage, and best practices.

Mentoring: Experienced online instructors can mentor newer faculty members, sharing insights and strategies.

Access to Resources: HEIs should provide access to instructional designers, multimedia specialists, and tech support to assist in course development and troubleshooting.

Professional Development Funds: Allocating funds for instructors to attend conferences and workshops related to distance education can promote ongoing learning.

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Peer Collaboration: Encouraging collaboration among faculty members for sharing experiences and innovative teaching methods.

Quality Assurance: Implementing a quality assurance process to review and improve online courses.

Feedback Mechanisms: Gathering feedback from both instructors and students to continuously improve the distance learning experience.

Research Opportunities: Encouraging and supporting faculty to engage in research related to online pedagogy and distance education.

Taking into account the significant importance of the well-prepared personnel for the DE what will respond to the above-mentioned criteria and in order to achieve the above-mentioned competences the universities make efforts in this regard. The USM Continuing Education Centre runs continuing education courses for all teachers: courses for digitising content, courses for advanced use of the MOODLE platform, courses for digitising interactive activities. Courses are provided on various psycho-pedagogical and technical aspects. Courses are available throughout the academic year. Certificates are issued on completion of the programmes.

Moreover, in order to be prepared for distance education purposes MSU and TUM personnel can use the courses developed within Erasmus+ project CONNECT on the educational platform https://smartchannel.digital/. Teachers can access a wide range of courses in the asynchrony form:

– Introduction to the digital teaching in university environment https://smartchannel.digital/course/Introduction-to-the-Digital-Teaching-in-University-Environment-course

– Modern technologies and digital tools for teaching https://smartchannel.digital/course/Modern-technologies-and-digital-tools-for-teaching

– Digital teaching in university environment https://smartchannel.digital/course/Digital-Teaching-in-University-Environment

– Digital platforms Module https://smartchannel.digital/course/Digital-platforms-Module

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– Digitalization Module

https://smartchannel.digital/course/Digitalization-Module

– Photography module

https://smartchannel.digital/course/Photography-Module

– Film module

https://smartchannel.digital/course/Film-Module

– Acting module

https://smartchannel.digital/course/Acting-Module

– Movement model

https://smartchannel.digital/course/Movement-Module

These courses will allow them to produce course content for distance education master program avoiding the common mistakes.

In conclusion, the successful implementation of distance learning relies on a combination of criteria, competences, and institutional support. HEIs play a crucial role in providing the necessary resources and professional development opportunities to empower academic staff to excel in the realm of distance education.

Therefore, interest in the study of programming is on the one hand a natural stage of the development of knowledge-based society, on the other hand a necessity for the development and application of modern IT means in human activities, including everyday ones. In the online space, one can easily find multiple sources for studying programming, which include either complex MOOC platforms such as Coursera, EdX and Udacity, or specialized platforms such as Codecademy or Free Code Camp (Bradford, 2021). Learning approaches are, for the most part, induced by the computer system, focused on well-defined directed processes and based on the self-determination and self-motivation of the enrolled student. Despite the accessibility and advantages offered by online programming learning platforms presented positively and in various perspectives, including to the general public in media sources (White et al. 2015), research shows the indispensability of innovative methods in modern education. These involve, especially in online (or distance learning) environments, collaboration, teamwork and problem orientation (Kalaian, 2021), but also adaptation to the social

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and cultural context (Ruipérez-Valiente et al., 2020) to guarantee success at the level of the entire educational system (not just individually). Likewise, there is research suggesting that informal interactions in online and distance learning can enhance learning, considering a "formalized" MOOC platform equivalent to a traditional LMS system with formal learning/teaching/assessment activities (Fidalgo-Blanco et al., 2014).

2.7. WORKS CITED CHAPTER 2

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CHAPTER 3.
DISTANCE EDUCATION IN GERMANY, SPAIN, AND ITALY. CURRENT STATE

Over the years, globalization, the spread of knowledge and ideas, and the development of digital technologies have made distance learning one of the most important tools for contemporary education. During times of evolving needs of labor market, global geopolitical challenges and worldwide pandemics, the demands for continuous and uninterrupted learning process led to the search for solutions to provide distance learning on different level of knowledge acquisition. The COVID-19 pandemic has brought significant changes in the way European educational institutions organize their educational process. Nowadays, distance learning seems to be not only temporary solution for critical situations but represent a powerful tool for the systematic development of education and the dissemination of knowledge in the global community. The purpose of this paper is to provide an overview of main components and tendencies of distance education in the partner universities in order to provide a space for discussion and exchange of best educational practices.

3.1. INSTITUTIONAL COMPONENT

Distance education in the European Union (EU) has gained significant recognition and popularity in recent years. With advancements in technology and increased access to the internet, the EU has witnessed a surge in the development and utilization of distance education methodologies. According to Eurostat, an official website of the European Union, more and more people in different age categories within the EU are interested in distance learning courses which impacts the development of national educational systems of the states-members of the European Union (Eurostat, 2022). The EU has been at the forefront of promoting distance education to maximize educational opportunities and facilitate lifelong learning. The European Commission, along with various EU institutions, has actively supported the development and implementation of distance education programs across member states and beyond

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borders of the EU. Every country has a range of educational institutions of open, distance and lifelong learning, private and public, the activities of which are regulated by national norms and demands of higher education. The European Union also has institutions and bodies that promote and support distance education initiatives. For example, the European Commission provides funding and support for innovative distance education projects through programs such as Erasmus+.. In addition, there exist different international organizations that foster the development of distance education. Among them, it is worth mentioning the European Association of Distance Teaching Universities (EADTU) which consists of 25 European countries represented by online universities, open and distance learning universities, university assemblies or individual universities. Recent efforts of the network are aimed at the continuing professional development of university staff and leadership, implementation of hybrid, blended and online on campus education; development of open education and MOOCs and at deepening of course and curriculum cooperation and mobility between counties-partners. These collaborative initiatives within the EU aim to promote and enhance distance education, bring together institutions involved in distance education to share best practices, collaborate on research, and advocate for policy developments.

The concept of distance education in Germany is commonly referred to as "Fernstudium." It offers opportunities for individuals who are unable to attend traditional on-campus classes due to various reasons such as work commitments, family responsibilities, or geographical constraints. One of the key institutions promoting distance education in Germany is the FernUniversität in Hagen. Established in 1974, it is Germany's public largest distance learning university and offers a wide range of accredited degree programs, including bachelor's, master's, and doctoral degrees across various disciplines. A total of 88 thousand students study at the university. The university provides training in four main areas: humanities and social sciences, mathematics and information, economic sciences, jurisprudence. The platform offers a full set of online courses for obtaining working specialties free of charge, but the university collects fees of 200-400 euros per semester for administrative and student needs. Saarland University, European partner of the DEFEP project, does

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not offer online degrees programs, but has a reach experience in blended and online teaching as an important element of traditional and blended teaching process.

The Ministry of Education in Spain has recognized the importance and effectiveness of distance education, especially in light of the COVID-19 pandemic. During the pandemic, many educational institutions in Spain shifted to online learning as a measure to ensure the continuity of education. This experience has led to an increased emphasis on incorporating distance education into the overall education system even after the pandemic. But, except for the UNED (Universidad Nacional de Educación a Distancia), 100% online higher education has been developed mainly by private universities. After the crisis resulting from Covid-19, public universities have taken up the challenges generated by this situation and have begun to develop degree programs that are taught exclusively online or in blended learning format. As Hodges et al. (2020) point out, we are dealing with ERT or Emergency Remote Teaching (ERE), an alternative way of teaching due to crisis circumstances that contrasts with other educational experiences designed from the outset to be online. It is worth noting, that UNED, representing one of the most important Spanish distance learning institutions was founded in 1972 and now has its centers in 13 countries in Europe, America and Africa with 150 thousand students. The university ranks second in the world in terms of student enrollment. With more than 50 years, it is the only public university designed for distance education, more recently online and blended learning. In fact, it would be the largest public university in Spain (more than 200,000 students per year, 1000 professors and 80 sites in 75 cities in 17 countries). Its activity is concentrated in the Faculties and Schools of the different campuses in Madrid, from where they design the programs of the subjects, the materials and activities necessary for the training of students and the different assessment systems, which combine the PECs or Continuous Assessment Tests that are carried out throughout the course with the final face-to-face tests that are distributed over three terms (February, June and September). UNED students have a limited number of exam dates to complete their studies, although for these purposes only the September and end-of-degree exams will count. Thanks to the UNED's extensive network of centers and its presence in 17

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countries, students can sit the exams in 80 centers, located in more than 75 different cities. Although students usually sit the exams at the centers where they are enrolled, there is the possibility of taking them at any other center if necessary for personal and/or professional reasons. It is only necessary to inform the center where the student intends to sit the test at least 15 days in advance. Moreover, The UNED publishes RIED (Revista Iberoamericana de la Educación Digital), a reference publication for an in-depth study of numerous topics related to online higher education. Among other institutions, it is worth mentioning, Universitat Oberta Catalunya, Universidad a Distancia de Madrid and International University of La Rioja.

Italian universities offer a range of online degree programs and courses across various disciplines, including business, humanities, engineering, and more. Students can pursue undergraduate, postgraduate, and doctoral degrees through distance education. Among the most famous distance learning institutions is International Telematic University UNINETTUNO which was founded in 2005 and now unites 43 Italian and foreign universities. The online distance courses are available in different languages (Italian, English, Arabic, French) at 8 faculties: the Faculty of Communication, Media and Advertising, the Faculty of Economics, the Faculty of Engineering, the Faculty of Modern Languages, the Faculty of Law, the Faculty of Literature, the Faculty of Psychology and the Faculty of Professional Education for Adults. The platform contains about 1000 online courses, distributed by specialties and areas of training.

3.2. ORGANIZATIONAL COMPONENT

The organizational aspect of distance education refers to the structures and processes that are in place to facilitate the delivery of distance education programs. This includes the following aspects: organization of teaching activities in the institutions, program development, learning management systems, course delivery, assessment and evaluation, student support services and quality assurance.

The University of Palermo consistently promotes the enrichment of its conventional training offer, integrating it with the establishment and activation of new study

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programs delivered mainly or entirely remotely and adopting, for this purpose, remote tools for organization of teaching and training service (mostly on the Master's level). The target audience of these courses are Italian and foreign students who are unable to attend in person the conventional classes. The university uses e-learning platform which contains the lessons of the teachers, teaching materials and other materials to facilitate students' learning which is based on the learning management system Moodle 4.1. Currently University of Palermo offers Master's online courses in Electronics and Telecommunications Engineering, Management Engineering, International Relations, Politics and Trade, Digital Humanities for Research and Cultural Industry. In the University of Palermo, the teaching and program/curriculum development is implemented through the interaction of several organizational units – Center for the Innovation and Enhancement of University Teaching, Open Educational Resources repository and Mentor for teaching program. The Center for the Innovation and Enhancement of University Teaching introduces innovative approaches to teaching within the university and conducts courses, workshops, master classes for lecturers. Institutional Open Educational Resources repository helps to store and share course content developed by faculty members and facilitate access to the teaching content from different devices. The "Mentor for teaching" program, which started in 2013, currently involves in innovation of the university education over one hundred teachers from various faculties of the University. The program is based on two main activities: tutoring and participation in methodological meetings aimed at the innovation of teaching. Both CIMDU and Mentor for Teaching program have special financial support from the University in order to engage high-level experts to train teachers and young researchers.

In the Spanish partner, University Rey Juan Carlos, online and blended learning degrees has served as an instrument of educational innovation and a driving force in the introduction of transformative dynamics since the 2005. The design and implementation, in 2013, of a new program aimed at incorporating improvement processes in these degrees, and the subsequent creation of the URJC's Center for Education in Digital Innovation, have made it possible to establish a working model

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with significant results. Up to 5,300 students from 92 countries benefit from the URJC's face-to-face and online teaching and research. As a result, a distinctive brand has been created, URJC Online, which has positioned itself within the offer of the Spanish university system, with competitive degrees, bachelor's degrees and official master's degrees. This restructuring of the degrees in blended and online mode has been accompanied by a new open training offer under the format of massive open online courses (MOOC) taught on two platforms: MiriadaX and URJCx, a space specifically developed to promote this model of open learning on the URJC platform. This Center for Teaching Innovation and Digital Education, which reports to the Vice-Rectorate for Transformation and Digital Education, is key to innovation in eLearning and to the provision of technical-pedagogical services aimed at meeting the needs of teaching and training in educational technology, both internal to the URJC and its socio-economic environment.

The activities of the Center for Teaching Innovation and Digital Education include:

1. Support for formal teaching in all modalities through the Virtual Classroom.
2. Pedagogical improvement and innovation, through the identification of educational technology needs and opportunities that promote processes of pedagogical improvement and innovation.
3. The design and production of materials, resources and digital content (audiovisual and multimedia) for blended and distance learning.
4. The implementation of initiatives and actions for the promotion of training and open education (MOOCs, SPOCs, OER).
5. The promotion and development of research projects in the field of ICT in education, in everything related to blended learning and distance learning.
6. Technology consultancy and the provision of technical, educational and academic services.

The URJC's Strategic Plan 2020-2025 envisages the implementation of a general plan for the continuous training of teaching staff that is even more ambitious in the use of new technologies for teaching and research, as well as a system for accrediting this

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training. For the digital transformation of the training process and teaching itself, different digital competences have been established in area 4 of the Competence Framework (MACOMPdi) and their corresponding training actions in the Training Plan necessary to develop the different functions of all lecturers (teaching, research and academic management) with quality. It should be noted that the construction of MACOMPdi has made it possible to organize the training offered to teaching and research staff according to individual needs, favouring a Personal Training Itinerary (PTI) and constructing some Recommended Training Itineraries (RTI) to help the training of new teachers and teachers who teach blended learning. The aim of incorporating these Personal Training Environments (PTEs) is to provide teachers who need them with a tool that they can use as a guide for selecting their training (CFR. MACOMPdi English version 2021–2023).

In addition to numerous online degree programs, University also offers a long list of MOOCS and face-to-face courses that are offered openly online. Also, there exist support services to ensure the high quality of learning material. The Academic Content Production Unit (UPCA) produces audiovisual teaching materials for the different blended degree courses and online masters taught at the Universidad Rey Juan Carlos. One of the fundamental objectives of the UPCA is to innovate in the creation of audiovisual resources by applying the potential of emerging technologies in the learning process: in this way, the search for new ways of generating and sharing content in virtual teaching or the incorporation of the narrative or aesthetic transformations that are taking place in the current audiovisual and hypermedia culture plays an important role. In addition to producing educational videos of all kinds, UPCA organizes audiovisual technique workshops for students and teachers on how to write scripts, act for the camera or edit images and sounds in order to be able to integrate and use the different audiovisual languages in their educational activity.

At Saarland University, there is no special organizational units responsible for distance education, as university does not offer online degrees. However, several university units are responsible for the strategic development of teaching and studies with regard to digitalization and further training of the staff members. Among them are

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Digitalisation and Sustainability unit and the the Digitization Team (DigIT). The main task of Digitalisation and Sustainability is to build a bridge between two future-oriented fields in order to initiate the transformations of the existing system of education and launch overarching projects to provide a high-level university education. DigIT team is formed from members from each department and from various central institutions and faculties to work together with the employees of the Office for Digitalization and Sustainability on the implementation of the digitalization strategy and to advance the digitalization projects within the institution.

3.3. REGULATORY COMPONENT

Distance education in European countries is structured and regulated on the level on national/federal Ministries of Education, ensuring the quality and rigor of the programs. Institutions offering distance education adhere to guidelines set by accreditation bodies to maintain high educational standards. This ensures that students receive a comparable level of education as their on-campus counterparts. But the focus of distance education program goes beyond traditional academic programs. It also includes vocational training and continuing education courses, providing opportunities for individuals to gain practical skills and enhance their employability. Technological advancements have played a vital role in the growth of distance education. Online learning platforms, video conferencing, and interactive multimedia tools have enabled students to actively engage with course materials, participate in discussions, and collaborate with other learners and instructors. In Germany, every federal state has the power to regulate its respective education systems, and there exists different educational laws and regulations depending of the federal land. Among the 16 federal state documents on university laws, 13 explicitly mention distance education as a possible mode of teaching without precising which program can be offered in distance format. For now, Saarland University does not offer any programs in entity distance format and uses a blended learning approach as a framework for its online offers. In Spain and Italy, the regulations of distance education are approved and implemented on the level of Ministry of Education and Science. In Spain, a separate Center for

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Innovation and Development of Distance Education (CIDEAD) was established in 2015 with the Royal Decree 789/2015 in order to systematically provide distance learning throughout the national territory of the country and regulate the distance learning educational initiatives. In Italy, The Ministry of education and merit and the Ministry of university and research are jointly responsible for the general administration of education at national level, including general regulations of distance learning, but universities and other institutions of higher education also have certain regulatory, teaching and organizational autonomy.

3.4. TECHNICAL COMPONENT

The technical component of distance education in the EU institutions encompasses various tools and systems such as learning management systems, online course content, communication tools, assessment and grading tools, multimedia tools, technical support, accessibility features, and data management and security. Furthermore, there are specific regulations and standards that distance education programs must adhere to. The EU General Data Protection Regulation (GDPR) governs the collection and processing of personal data, including data related to distance education. This ensures that students' personal information is handled securely and with consent of the participants of learning process. Adhering to regulations and standards such as the GDPR is also important to ensure the privacy and security of student information.

Learning Management System (LMS): An LMS is a software platform that is used to deliver educational resources, track student progress, and facilitate communication between students and instructors. It serves as a central hub for all coursework and activities in a distance education program. In the university of Palermo and Saarland University, the main platform used to provide online courses is a Learning Management System (LMS) based on Moodle, the de-facto standard system for online course management. In the University of Palermo, the access to all services is provided on the Student Portal through the unique Unipa Single Sign-On system. Both universities use Microsoft Products (MS Teams) as standard communication tool for

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the students, teachers and lecturers. Such functions of MS Teams as chats, channels, groups, video-meetings are utilized to teach classes in distance format. In addition, in the Italian partner university, there exist a special online platform for virtual mobility, online courses, collaboration and networking of the staff members called Digital Academy. Its goals are to exchange knowledge and experience, develop new approaches learning and elaboration of modules, reframe teaching and learning to be more inclusive and sustainable. At Saarland University a special system of digital testing with detailed instructions was elaborated to help students to pass successfully their exams online independently of time and location. The University Juan Carols has a special online platform for distance and blended learning called URJC Online with a university virtual campus which allows to enroll into difference courses and programs with individual pace and from different devices. It also offers a variety of open training courses under the format of massive open online courses (MOOC) taught on two platforms: MiriadaX and URJCx, a space specifically developed to promote this model of open learning on the URJC platform. The Academic Content Production Unit (UPCA) of the Universiy Juan Carlos produces audiovisual teaching materials for the different blended degree courses and online masters taught at the institution. One of the fundamental objectives of the UPCA is to innovate in the creation of audiovisual resources by applying the potential of emerging technologies in the learning process: in this way, the search for new ways of generating and sharing content in virtual teaching or the incorporation of the narrative or aesthetic transformations that are taking place in the current audiovisual and hypermedia culture plays an important role. In addition to producing educational videos of all kinds, UPCA organizes audiovisual technique workshops for students and teachers on how to write scripts, act for the camera or edit images and sounds in order to be able to integrate and use the different audiovisual languages in their educational activity. As other partner universities, the Rey Juan Carlos University has chosen Microsoft products during its digital transformation process and organized its internal collaboration and communication processes of the teaching and administrative staff via Microsoft Teams.

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3.5. METHODOLOGICAL COMPONENT

The methodological component of distance education involves the strategies and approaches used to facilitate effective learning in a remote setting. It includes the design, organization, and delivery of educational content to ensure meaningful learning experiences of the students. Distance education comprises both distance learning (activity performed by the student) and distance teaching (activity performed by the teacher). Some key elements of the methodological component of distance education include pedagogical approaches to distance education, effective course design and implementation, instructional and assessment management, quality assurance and continuous improvement of existing programs etc.

The partner universities follow the most established models for distance learning and combine synchronous mode (videoconferencing, interactive lessons, guided interactions, collaboration with the students and the lecturer) and asynchronous mode of education, which are implemented via virtual campuses of the institutions. The virtual campuses of the universities are available 24 hours a day for all training activities that can be used in asynchronous, but some of the activities are scheduled for certain time in order to organize the pace of the students. All didactic activities are coordinated by the lecturers of the course or by the didactic tutor. Moodle platform that is used by the partner universities offers a user-friendly interface for instructors to design and structure their courses. It allows to create modules, arrange learning materials, and set clear learning objectives for students enrolled in the program. The course design features in Moodle facilitate logical sequencing of content and provide a coherent learning pathway for students. The platform Moodle also offers a variety of communication tools to foster interaction among students and lecturers such as discussion forums, messaging systems, and chat rooms. The communication and videoconferencing system MS Teams that was chosen by the partner universities to implement synchronous teaching activities also encourages collaborative learning and knowledge sharing via rich functionality of the platform. Moreover, universities offer different methodological innovations to foster the development of distance educations. For example, the University of Palermo organized didactic activities within four main

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learning environments. The Video Library includes a rich collection of the lessons, the video lessons and the relative slides. All the activities carried out on the educational platform are recorded to be shared with other students and processed in periodic reports in order to monitor / evaluate the educational performance of the staff and improve the quality of online classes. The Media Library includes the didactic materials (Learning Objects) relating to the video lessons (for example, handouts, videos, images, diagrams, animations, bibliographic references) which represent in-depth analysis for each topic of the video lessons and are collected within an Intelligent Bibliographic System. The Virtual Laboratory is the environment available to students for the deepening of their knowledge through the "learning by doing" tool. In this environment, learners find the exercises linked to the video lessons in order to practice during the course. Furthermore, they are assisted in a certain itinerary by a Tutoring system, in two distinct ways: individual exercises and collaborative exercises. The Online Tutoring environment includes all the tools for carrying out remote tutoring activities and allows to access collaborative and cooperative online learning environments and to establish a dialogue with a tutor for guidance and support in training process. These diversified systems of learning environment allow to achieve the learning goals of the educational programs. And Saarland University has elaborated a set of detailed instructions for lecturers in online environments to facilitate the design and innovation of the learning process. The special focus is on the concept of blended learning and its didactic integration to face-to-face and online teaching with synchronous and asynchronous phases within the institution. The instructions and support are elaborated to design synchronous and asynchronous classes and the concept of the "flipped classroom" is given particular importance (Digital Learning, Saarland University). The Rey Juan Carlos University has a special university unit, Center for Teaching Innovation and Digital Education, responsible for support for teaching via virtual classroom, pedagogical improvement and innovation and design and production of didactic materials. The Center for Teaching Innovation and Digital Education comprises a special subunit of Training, Innovation and Communication which helps

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the academic staff to master educational technologies and introduce methodological innovations in their teaching.

3.6. PERSONNEL COMPONENT

Faculty members and teaching staff compose a vital component of distance education. They are responsible not only for designing, but also for delivering the course content, and assessment of the students' progress. In distance education, faculty members need to adapt their teaching methods to the online environment and to the needs of the students. In European Higher Institutions several teaching competencies are considered important to assure high quality teaching in virtual environments. Except general competencies such as subject matter and teaching experience, good communication and interpersonal skills, the expertise in designing and delivering online courses, the effective use of technology tools and technological proficiency are crucial while delivering distance learning courses. Proficiency in using online learning platforms, multimedia tools, and other technology resources can guarantee a is crucial. Academic staff should be comfortable and competent in navigating and utilizing various technology tools and resources for teaching and learning purposes.

European partner universities have elaborated different approaches to developing and improving the necessary skills and competences among their academic staff. For example, at Saarland University, a special internal team Digital Teaching UdS was organized to coordinate distance learning and training of the academic staff of the university. One of the responsibilities of this group is to deliver online weekly lectures on the subject of e-learning "Best practice for e-learning at the UdS" during academic year for all teachers who want to learn more about distance learning, new technologies of education or wish to discuss some challenges of their personal teaching experience. These regular lectures focus on different aspects of teaching in digital environment and the recordings are available for everybody who are interested on the USS-internal stream channel Best Practice "Digital Teaching". Also, to improve the quality of teaching, the competences of the academic staff and to innovate the learning process, Saarland university implements two interuniversity projects Digital Teaching-Plugin

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(DaTa-Pin) and Transform for Europe (T4EU) within the institution. The DaTa-Pin project is funded by German Ministry for Research and Education serves to evaluate current predisposition for digital/hybrid teaching and develop best-practice concepts for digital/hybrid teaching and develop new ways of teaching together with faculties, lecturers, and students. It serves as a motor for the further development of digital/hybrid teaching in the HEI and implements systematic approach to staff training by synergizing existing support structures of the university in three hubs - Innovation (laboratory for new teaching methods), Knowledge (research management), Competence (didactic/technical support). Transform 4 Europe project unites 10 partner universities from different European countries with the aim to innovate teaching and learning environments as well as create new learning programs. One of the actions of the project consists in organizing a regular Innovative Teaching Conference. The Conference is held by field professionals and covers the current groundbreaking topics on the development of innovative learning methods and teaching competencies, as well as the design and implementation of innovative teaching methods, including distance learning. It is open to all the academic community.

University of Palermo actively implements the training and mentoring programs for the academic staff in order to develop knowledge, skills and competencies necessary for distance learning. On of the most successful initiatives is called Mentor for teaching program. The program unites more than a hundred active teachers and lecturers from different departments who work on the development of distance learning within the university. They regularly offer training and tutoring activities to other staff members as well hold regular meetings to discuss innovation in online teaching or potential challenges of the university academic and teaching personnel. Moreover, at the University of Palermo, the Center for the Innovation and Enhancement of University Teaching) was organized to introduce new practices and technologies within the university, to deepen the connections between research, teaching and innovation, to exchange of "good practices" of teaching between staff member and better organize mentoring activities. The center also organized workshops and master

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classes for lecturers on a regular basis. The attendance for the teachers is not compulsory, but strongly recommended.

At the university of Juan Carlos, the Center for Teaching Innovation and Digital Education was created to promote the development of the skills of the teaching staff, as well as to support teaching and help to use technical-pedagogical and educational technology by the teachers and lecturers. The center helps to elaborate best practices on use of virtual university environment and available digital resources. It provides trainings and consulting on how to conduct classes, design and produce materials or use available resources and digital content on university platform of distance learning. The center works in four main directions – Training, Innovation, Communication and Educational technologies and also has separate units responsible for technical teaching advice, technical consulting in e-learning environments and multimedia production of the learning materials.

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CONCLUSIONS

The analytical report has explored key trends in the reformation of distance education in Europe, Moldova, and Ukraine, specifically focusing on institutional, organizational, normative, personnel, methodological, regulatory, and technological aspects. The current state of distance education, its challenges and opportunities were analyzed in order to define best approaches to distance education and find the ways of its implementation in Ukraine and Moldova. Although the general development of new technologies fostered the transition from traditional in-person teaching to remote learning modalities and diversification of learning models in the analyzed countries, it is possible to single out different factors that have recently accelerated the implementation of distance learning in higher educational institutions. The COVID-19 pandemic has disrupted education systems globally, many universities have been forced to close their doors to prevent the spread of the virus. In response to this unprecedented situation, educational institutions in the European Union, Ukraine and Moldova have rapidly adopted distance education as a means to ensure continuity in learning. Some of the practices turned out to be useful and productive for further development of distance education in the analyzed countries. The pandemic has accelerated the general shift towards distance education. Educational institutions have employed various remote teaching methods, such as online classes, video conferencing, and digital learning platforms, to ensure continued access to education. It also highlighted the importance of digital infrastructure and technological readiness in supporting distance education. In Ukrainian contexts, the beginning of Russia's full-scale invasion in February 2022 arose new challenges for the national educational system, making it impossible to continue in-person or online education in many regions of Ukraine and leading to deeper transformations of models and methods of teaching in times of crisis.

At the institutional and organizational level, educational institutions in the European union, Moldova, and Ukraine have established different approaches to the implementation of units or departments to oversee distance education initiatives. These

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units play a crucial role in developing new educational programs and courses, elaborating instructions and procedures, providing support and training for students and lectures, and ensuring the quality of distance learning. Institutions have also employed technological infrastructure, learning management systems, and digital resources to facilitate online learning. It is necessary to note that in Moldova and Ukraine, there is still a need to elaborate a unified approach to the institutional and organizational structure of distance education, as well as to establish generalized requirements for distance learning programs and environments. In terms of policies, the EU and national Ministries of Education have established frameworks to guide institutions in implementing distance education. Moldova and Ukraine have also developed strategic plans and regulations to promote online and blended learning. Institutional strategies and approaches to distance education vary across the regions. Analyzed European Union institutions have adopted diverse models, including fully online programs, blended learning, and MOOCs. Moldova and Ukraine have also embraced online learning, although there is still a need to elaborate and innovate new distance learning programs in accordance with the resource availability and infrastructural peculiarities of national educational systems.

In terms of personnel, it is possible to see a shift towards the professionalization and intensification of training in distance education in European countries, Moldova and Ukraine. Higher educational institutions are recognizing the importance of equipping educators with the necessary skills and knowledge to effectively facilitate online learning experiences. This includes providing professional development opportunities, mentoring and tutoring programs, promoting collaboration and networking among academic staff, and ensuring ongoing support for their professional growth. It is worth noting that in European institutions the training programs are more systematic and institutionalized: separate departments, centers or units responsible for professional development of the staff in distance education are created in order to insure the sustainable development of education. Moreover, in European Union institutions, there exist interuniversity alliances, projects or organizations that facilitate the innovation in distance education and systematic training of the university staff.

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Methodologically and technologically, there has been a move towards more learner-centered approaches in distance education in the analyzed countries. In European institutions, the traditional education forms are replaced by more flexible and adaptive learning programs and platforms to provide access to wider categories of students from different countries. This includes the integration of interactive and multimedia resources, the use of new learning technologies, and the embracing learning management systems (Moodle), video conferencing software (MSteams), and other virtual collaboration tools to create productive online learning environments.

Overall, the current developments of distance education in Europe, Moldova, and Ukraine reflect the ongoing efforts of higher educational national systems to improve the quality and accessibility of the distance programs and provide learners with more opportunities of transformative educational experiences. The innovative approaches to the transformation of education analyzed in this report and exchange of best practices during the implementation of the DEFEP project will contribute to the further advancement and success of distance education innovation in Ukraine and Moldova.

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