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**SUSTAINABILITY MANAGEMENT OF UNIVERSITIES VIA
CAPITALIZATION OF HUMAN POTENTIAL IN THE
CONTEXT OF INNOVATIVE CHANGE**

**521.03 ECONOMICS AND MANAGEMENT IN THE FIELD OF
ACTIVITY**

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CONCEPTUAL FRAMEWORK OF THE RESEARCH

The actuality and the importance of the research topic. The dynamism and turbulence that characterizes the activity environment of higher education institutions require the application of safe, tangible measures in order to achieve sustainability through the prism of harnessing human potential, in the context of innovative changes. The need for higher education institutions to be competitive, sustainable, derives from the increase in competitive pressure, from the need to align with international standards, in order to attract students and face the new challenges of postmodern education (PME). Consequently, sustainability in higher education institutions must be cultivated at a fast pace, ensuring the promotion of economic, social, and environmental equilibrium.

The actuality of the research topic derives from the need for universities to guarantee a safe route to their sustainability, which can only be ensured by applying university sustainability management in the context of the innovative changes punctuated by postmodern education. The universities of the Republic of Moldova are confronted, along with other higher education institutions in the country, with multiple problems and challenges that they must deal with on a daily basis, finding concrete solutions that could provide them with a firm path towards the competitiveness of higher education institutions.

This paper represents a theoretical-practical substantiation of the defining aspects of university sustainability management, focused on human potential as a decisive factor in ensuring sustainability within higher education institutions.

We believe that the main tool that higher education institutions can use to achieve university sustainability is the development of the human potential of teachers, students, researchers and of the awareness of the connection of educational institutions to the new demands of postmodern society.

In this paper, the concept of sustainability is used in the same context as that of sustainable development. Although, analyzing the specialized literature, researchers believe that both concepts include ensuring economic, social, environmental balance, a friendly approach of society towards the environment. However, in the paper, we opted for the concept of sustainability given the fact that sustainability denotes an “output” of sustainable development, a finite result, on the one hand. Another reason for using the concept of sustainability is that the thesis is based, for the most part, on foreign literature, where specialists opt for the concept of sustainability.

For this reason, we consider it necessary to urgently solve the **research problem**, which consists in *the theoretical and methodological substantiation of university sustainability*

management through the prism of capitalizing on human potential, in the context of innovative changes.

The subject of achieving sustainability has been cultivated and developed in numerous studies, carried out internationally by: S. Abdul-Wahab, H. Alshuwaikhat, T. Bandoophanit, B. Bero, K. Biedenweg, C. Boks, L. Cole, A. Cortese, D. B. Dalal-Clayton, R. Fisher, P. James, P. Kolenick, L. Newman, A. Dale, M. Nora, S. Margarita, J. Quist, D. Richards, T. Gladwin, S. Savely, A. Carson, G. Delclos, I. Thomas, J. Vann, L. Velazquez, J. Taddei, P. Viebahn, H. Von Blottnitz, R. Adams, S. Martin etc. Each of these authors, as well as other authors from around the world, through their researches, have highlighted the need to ensure economic efficiency along with social and environmental equity within universities.

In this sense, it is worth pointing out the valuable contribution of researchers from Romania, such as D.-T. Agheorghiesei (Corodeanu), I. Popa, C. Dobrin, D. Zaiț, I. Pohoăț, C. Popescu, A. Prodan, M. Talmaciu, B. Rădulescu, D. Miron, R. Popa, M. Tătărușanu, A. Constantinescu, C. Gănescu etc., who contributed to the realization of various conceptual, empirical, methodological research on the need to achieve sustainability.

Research carried out in the Republic of Moldova by researchers such as: A. Cotelnic, L. Covaș, N. Platon, A. Litvin, L. Bugaian, A. Popa, I. Dorogaia, G. Belostecinic, A. Solcan, C. Tcaci, L. Babii etc., have elucidated various aspects of the need to develop and cultivate sustainability.

The purpose and objectives of the research. The purpose of the research is the development of theoretical-methodological approaches to human potential as a basic element of university sustainability management, in order to form sustainable universities, in accordance with the innovative changes in the Republic of Moldova.

Therefore, it is worth demonstrating the approach to achieving sustainability through the prism of the correct and optimal exploitation of human potential within universities, in the context of various innovative changes that the academic environment is facing in the 21st century and which require universities to be creative, to generate new approaches to achieving sustainability, thus joining international standards, and becoming competitive, attractive for their students.

The application of university sustainability management within higher education institutions becomes a necessity of modern universities, of competitive universities focused on sustainability principles, capitalizing on the principles of postmodern education.

In order to achieve the purpose of the research, we outlined several **research objectives**, such as:

O1: research and theoretical interpretation of the concepts, theories, principles and methods of university sustainability management through the exploitation of human potential;

O2: evaluation of the human potential of the Republic of Moldova and Romania, on the one hand, but also of higher education institutions, on the other hand, from the perspective of achieving sustainability;

O3: evaluating the impact of innovative changes on higher education institutions on the way to achieving sustainability;

O4: analysis of the innovative culture of universities in the Republic of Moldova and Romania;

O5: improving university sustainability management;

O6: assessment of the sustainability of higher education institutions;

O7: development of the university sustainability management model.

Research questions:

Depending on the research objectives, the research questions were established, substantiated by the level of development of university sustainability management based on the exploitation of human potential within higher education institutions:

- How sustainability can be implemented and assessed within universities?
- What is the involvement of higher education institutions in capitalizing and developing human potential in the context of achieving sustainability?
- How the human potential of higher education institutions can be capitalized on to achieve sustainability?
- What is the level of development of higher education institutions on the way to achieving sustainability?
- What changes must higher education institutions apply so that they can achieve sustainable development in the context of innovative changes?
- What is the methodology for implementing university sustainability management in the context of the effective utilization of human potential?

Research hypotheses:

Based on the established questions, but also in order to achieve the research objectives, we established the following research hypotheses:

Hypothesis 1: human potential is the main factor in the implementation of university sustainability management;

Hypothesis 2: the level of exploitation of the human potential of the Republic of Moldova and the higher education institutions in the country is lower than that of Romania and of the higher education institutions in Romania;

Hypothesis 3: innovative changes contribute to the development of human potential within universities;

Hypothesis 4: the innovative culture of universities in the Republic of Moldova and Romania is at an average level of development;

Hypothesis 5: the development of a sustainability strategy in universities contributes to the improvement of university sustainability management;

Hypothesis 6: the level of sustainability of higher education institutions in the Republic of Moldova is lower than that of universities in Romania;

Hypothesis 7: university sustainability management positively influences the economic, social and environmental performances obtained by higher education institutions.

The informational support of the paper:

During the research, various sources were used, such as: the specialized literature, being consulted and analyzed both the sources in Romanian, as well as those in English and Russian from the last 10-15 years. In addition laws, decisions, materials, reports of organizations were used, such as: of the Government of the Republic, the Parliament of the Republic of Moldova, the reports of international organizations: the Council of Europe, the UN, GRI, GII, HDR, etc., the statistical data of the National Bureau of Statistics and other institutions, the information obtained from the participating universities, within the study, such as: the activity reports, the science reports of the universities; own research.

Research methodology:

The research methodology is based on structural analysis. The research carried out in this paper is centered on a complex approach, respecting the principles and categories of research logic. The research methodology focuses on the use of different methods, such as: analysis, synthesis, scientific abstraction, induction, deduction, abduction, comparative analysis. The epicenter of the research was based on theoretical research, supplemented by qualitative and quantitative empirical research, using systemic analysis, but also documentary analysis, observation supplemented by statistical analysis and opinion polls, mathematical modeling.

The scientific approach carried out in this work includes 7 stages, such as:

1. *At the first stage of the research*, the problem and research questions were identified.
2. *At the second stage of the research*, we focused on the documentation and analysis of bibliographic sources on the research topic.
3. *At the third stage of the investigation*, the research hypotheses were formulated, according to which we chose optimal methodological strategies to continue the investigation.
4. *At the fourth stage*, the data were collected. In this paper, two studies (quantitative research) were carried out, which gave us the opportunity to achieve the research objectives,

through the prism of a double perspective: the development and valorization of human potential within the universities, but also the achievement of sustainability within them.

The first empirical study (S1) was focused on the elucidation of the factors, elements, criteria, principles of achieving the sustainability of universities. In this sense, the theoretical and methodological basis of achieving sustainability in higher education institutions in the context of innovative changes was substantiated.

In the second empirical study (S2), carried out based on the interview guide, had as research subjects teaching staff from higher education institutions in the Republic of Moldova and Romania (USARB, ASEM, UAIC, USM), aimed at evaluating the measures, indicators, solutions applied by higher education institutions in Moldova and Romania in order to achieve sustainability.

In the third empirical study (S3) carried out based on a questionnaire, the research targeted students from the universities of the Republic of Moldova and Romania (USARB, ASEM, UAIC, etc.), its purpose being to identify the possibilities of reaching of sustainability through the lens of capitalizing on human potential. The study was carried out through quantitative research, using the survey as methods, the research instrument constituting the questionnaire.

5. *At the fifth stage*, the data were analyzed and processed. In order to carry out the data analysis and interpretation process, the econometric model was developed through the MatLab mathematical program. With the help of this program, we had the opportunity to establish the correlation between the research variables, but also to test the predetermined research hypotheses. In this context, we researched the correlation between the development of human potential and the sustainability of higher education institutions.

6. *At the sixth stage* of the research, the research hypotheses were tested and validated.

7. *At the seventh stage*, the data were interpreted and relevant conclusions were drawn.

Scientific novelty and originality of the thesis reside in:

- ♣ Development of the complex conceptual approach regarding university sustainability management;

- ♣ Evaluation of the utilization of the human potential of teaching staff in universities (USARB, ASEM, USM, UAIC);

- ♣ Outlining the correlation between developing human potential and achieving university sustainability;

- ♣ Assessment of the sustainability of higher education institutions (USARB, ASEM, USM, UAIC);

- ♣ Developing our own model of achieving the sustainability of universities (USARB, ASEM, USM, UAIC);

- ♣ Identifying directions for improving university management in order to achieve sustainability;

- ♣ Development of a mathematical model regarding the interpretation of the correlation between the development of human potential at the level of universities and their sustainability;

- ♣ Elaboration of the action plan regarding the alignment of the higher education system in the Republic of Moldova with the principles of sustainability.

New results for science and practice.

- For the first time, the management of university sustainability is approached in a complex manner, through the prism of elucidating the importance of developing human potential on the sustainability of universities in the country;

- Were outlining some recommendations, aimed at simplifying the process of implementing the principles of sustainability;

- At the same time, for the first time an integrated system of indicators is developed to help higher education institutions evaluate their level of sustainability but also to publish their registered sustainability efforts;

- As a result of the studies carried out in this paper, we developed a methodology for evaluating the exploitation of human potential within higher education institutions.

Theoretical importance and applicative value of the thesis. The research carried out represents a valuable contribution for managerial science on the dimension of university sustainability, in the context of innovative changes, through a complex, multilateral approach of the sector, through the prism of completing the theoretical and conceptual framework. Thus, we reiterate, the theoretical research carried out amplifies the conceptual framework of university sustainability management, as well as the concept of human potential, elucidating valuable theoretical approaches regarding the correlation between the development of human potential and the achievement of university sustainability, outlining the particular importance of the commitment of universities in achieving sustainability through the implementation an efficient management model. The highlighted recommendations find their applicability in any higher education institution. At the same time, the recommendations formulated in order to achieve the sustainability of universities are intended to improve and increase their efficiency and competitiveness. In the same vein, their use is also reflected in the business environment, given the fact of identifying the possibilities of increasing sustainability through a cooperation between universities and the business environment.

Applicative value of the thesis is rendered through the prism of the fact that research has allowed the identification of ways to achieve sustainability within higher education institutions through the harmonious integration of the development of human potential in an effective sustainability management, intended to contribute to increasing the competitiveness of higher education institutions, in the context of innovative changes in the 21st century, which drastically, rapidly and comprehensively affect the higher education sector.

The methodology for evaluating the exploitation of human potential in higher education institutions, elaborated in this paper, helps higher education institutions to evaluate the potential of teaching staff and to motivate them to exploit their human potential.

The action plan for achieving sustainability, elaborated in the paper, comes to help the central bodies, on the one hand, and the higher education institutions, on the other hand, to identify effective solutions to achieve sustainability by harmonizing its policies and strategies to achieve of sustainability.

The innovative changes offered in this work help higher education institutions adapt to the principles of sustainability. Each innovative change comes with tangible activities that must be carried out by higher education institutions in order to achieve sustainability.

The research results were implemented in higher education institutions in Moldova (ASEM, USCH), Vladimir Andrunachevici Institute of Mathematics and Informatics, but also within Romanian universities (UAIC), Research Institutes of Romania (Gh. Zane Economic and Social Research Institute, National Institute of Inventions of Romania).

Approval of scientific results. The results obtained during the research were reflected in the 55 published works, with a total volume of over 48,21 c.a., which include: 7 articles in ISI, WoS, BDI journals and volumes; 10 articles – in foreign journals; 5 articles – in journals from the Republic of Moldova; 15 articles – in proceedings of international conferences abroad, 12 articles – in proceedings of international conferences (with international participation) in the country, 3 theses – at national and international conferences, 1 manual – published by a recognized publishing house from abroad. Also, the scientific results were disseminated within 28 national and international scientific-practical conferences, etc. At the same time, the author published the monography *“The Model of Sustainable University Innovative Development”*, being also the co-author of the collective monography *“Priority Areas for Development of Scientific Research: Domestic and Foreign Experience”*. A substantial part of the aspects approached in the thesis were reflected in the research undertaken in the scientific project *“Elaboration of the model of sustainable innovative development of universities based on the research of young specialists’ innovative culture”*, code 16.80012.08.17.A, where the author of the thesis was the director of the project.

Key words: sustainability, higher education institutions, university sustainability management, Sustainable Development Objectives, human potential, sustainable innovations, innovative changes, sustainability strategy, innovative culture.

THESIS CONTENT

The first chapter of the thesis, entitled „ *Theoretical-methodological approaches regarding sustainability management applied in universities*”, contains an analysis of the theoretical benchmarks of the concept of sustainability, sustainable education, sustainable universities. A significant part of the first chapter is dedicated to the analysis of university sustainability management, focusing on the analysis of the principles and functions that define it. In the same context, a screening of the curricular situation regarding sustainable education was carried out within higher education institutions in the Republic of Moldova. Particular attention in the first chapter was directed to the process of analyzing the sustainability strategies of Scandinavian universities. At the same time, based on the research carried out, a conceptual model of university sustainability management is developed.

In the 21st century, the phenomenon of globalization has increasingly taken over all sectors of activity, often disrupting the balance of consumption of resources on the entire planet. Thus, with the development of society, the need to ensure a balance on the entire planet increases, including the various sectors as levers, which can contribute to the eradication of the imbalance and the normalization of the system.

Although it seems to be easy to achieve, this phenomenon is an extremely complex one, because it involves the efforts of all the countries of the world that must focus on ensuring balance, it involves all sectors of activity. So that the economies of the countries of the world work differently, having various national interests, achieving balance is often difficult to accomplish.

Sustainability is a concept focused on achieving human development goals and simultaneously sustaining the capacity of ecosystems by providing natural resources and protecting life and nature, without diminishing the chances of future generations.

Analyzing the specialized literature, we can note that there are several conceptual confusions regarding the terms used in defining the process of achieving the Sustainable Development Goals. In this sense, researchers use such concepts as sustainability, sustained development, sustainable development.

Researchers from the specialized literature from the Republic of Moldova, Romania, use all three concepts to define the approach to achieving the 17 Sustainable Development Goals.

In the specialized literature in English, researchers opt for the concept of sustainability, which most often emerge in the works of researchers from Great Britain, Denmark, the Scandinavian countries, the Netherlands, the USA, Canada, Australia, etc.

In this sense, in order to shed light on the essence of the concepts of sustainability, sustained development, sustainable development, we consider it useful to present the essence of the concepts in Table 1.

Table1. Defining the concepts of sustainability, sustained development, sustainable development

Sustainability	Sustained Development	Sustainable Development
“Sustainability is the concept that boils down to carrying capacity and has long been used by biologists, but until now has only rarely been considered by economists” (Simonis, 2008).	“Sustainable development includes all socio-economic development methods that focus on ensuring a balance between economic, social and environmental aspects and natural capital elements.” (ONU, 2019)	“Sustainable development includes three components: environment, society and economy” (UNESCO, 2006).
“Sustainability is achieved when all people on Earth can live well without compromising the quality of life for future generations” (Jucker, 2006)	“Sustained development is a concept that rather refers to ensuring a balance between the economic-social-environmental environment at the level of a region, country” (DEX online, 2022).	“Sustainable development is development that protects the environment, because a sustainable environment enables the achievement of sustainable development (Duran, 2015).
“Sustainability is a process that helps create a circular economy and a high quality of life, respecting the need to sustain the consumption of natural resources and protect the environment” (Clough, 2011).	“Sustained or sustainable development is the development that meets the needs of the present, without compromising the ability of future generations to meet their own needs.” (WCED, 1987).	
“Sustainability is the ability to ensure its continuity over a period of time: to do little or no harm to the environment, and consequently to last for a long period of time” (Cambridge Dictionary, 2022)	“Sustainable development or sustained development designates a way of using resources, which tends to satisfy human needs simultaneously with the preservation of the environment, so that these needs can be satisfied not only in the present but also in the future” (Maxim, 2010, p. 75).	
“Sustainability is ensuring the economic-social-environmental balance” (Agheorghiesei, 2019).	“Sustainable or sustained development involves achieving a long-term balance in terms of simultaneous progress on three dimensions: economic, social and environmental” (Covas, 2020, p. 26)	

Source: elaborated by the author based on the authors’ definitions

Interpreting the data of Table 1, we can see that there are no significant differences between the concepts of sustainability, sustained development, sustainable development, each of these concepts refers to the development of society in order to ensure an economic, social, environmental balance, in order to create a sustainable environment, without compromising the development possibilities of future generations.

The researcher Costel Istrate, professor at the UAIC university of Iasi, in his work “Sustainability in higher education – models, declarative intentions, achievements, evaluation and proposals for action”, mentions that sustainability and sustainable development are terms that he will use in the same context in his work (Istrate, 2019, p. 37).

According to the expert on sustainability, the director of the Institute of Corporate Governance and Sustainability, within the UAIC, Agheorghiesei-Corodeanu, D-T., the concept of sustainability, originating from the English language, was adapted in the Romanian space with the notion of “sustainable development”. According to the researcher, “sustainable development is a dynamic process, achieving balance on the 3 dimensions: economic, social, environmental, while sustainability is an “output” of sustainable development, a result obtained by companies/institutions that align to the process of sustainable development” (Agheorghiesei, 2019, p. 13).

If we were to make an analysis of the practical applicability of the concepts of “sustainability”, “sustained development”, “sustainable development”, in the higher education system, then we can note that all the committees, centers, institutes, student associations that are concerned of the problems of aligning higher education institutions to achieving the Sustainable Development Goals, from higher education institutions abroad, they took over the concept of sustainability.

At the same time, analyzing the alignment of the Babeş-Bolyai University in Romania, we can note that the university uses the concept of Sustainable Development to report the efforts made by the university in the alignment of achieving the Sustainable Development Goals. Thus, within the university, both the section on the university website and the report published by the university use the concept of “sustainable development” (UBB, 2022).

Therefore, sustainability measures the results obtained by different entities/higher education institutions as a result of carrying out the sustainable development process.

In Table 2, we considered relevant the presentation of the applicability in practice of the concept of sustainability, as an output of the sustainable development process in the higher education system.

Analyzing the data in Table 2, we notice that in evaluating the efforts of universities in aligning with the process of sustainable development, the concept of sustainability is used, which is found in higher education institutions abroad, but also in many universities in Romania. Different tools for measuring the efforts to achieve sustainability at the level of higher education institutions in the world, use the concept of sustainability.

Table 2. Sustainability – An Output of Sustained Development in the University

Environment

<i>Tools for assessing sustainability in higher education</i>	
AISHE	Tool for ensuring sustainability in the higher education system (Netherlands)
AMAS	Adaptable model for ensuring sustainability in the higher education system (Chile)
CSAF	Framework for Assessing the University Campus Sustainability (Canada)
STARS	Sustainability assessment model in higher education (USA)
<i>Institutes/ committees/ centers for sustainability assessment in higher education</i>	
CORP	Institute of Corporate Governance and Sustainability (Romania)
SDGKP	The platform for achieving sustainability (Denmark)
CS	Sustainability committees of higher education institutions (France, Great Britain, Netherlands, Sweden, Norway, Finland, etc.)
OSS	Sustainability Student Organizations (Denmark, Great Britain, Netherlands, etc.)
Embassy of sustainability	Body created in Romania to support the achievement of the National Sustainable Development Strategy

Source: elaborated by the author

Observation: In this paper, we will use the concepts of sustainable development, sustained development, and sustainability in the same context. However, since the topic of the paper is one focused on the management of university sustainability, more often, in the paper, we will use the concept of sustainability with the meaning of the output of the sustainable development process.

This concept is perceived as a significant one in ensuring social and economic development, as it was first defined by the UN WCED in 1987. The report “Our Common Future” defined sustainability as “one that strives to meet the needs of present generations and future in accordance with the capitalization on the environment” (Brundtland, 1987).

In the same context, sustainability researchers Erpenbeck and Rosenstiel point out that “sustainability requires a change in people’s consciousness and provides a framework for further decisions and actions”. In accordance with this, a “new learning culture” is required (Erpenbeck et al., 2003).

In our opinion, sustainability represents the process of ensuring development and progress in the context of guaranteeing a balance between ecological security, social equity and economic well-being, through which present generations do not disrupt future generations’ access to resources and demonstrate responsible behavior towards the future.

At the same time, according to the sustainability specialist, Urbaniec, “education should focus on self-organization and competence. The purpose of education is to support the development of the personality, with the intention of managing complex situations and making appropriate decisions, to respond and to have high ethical standards in accordance with the requirements of sustainability” (Urbaniec, 2018).

In our opinion, sustainable education is based on changing the mentality of the present generation in order to ensure an economic, social and environmental balance, in order to give

future generations access to the planet's resources, using a culture of sustainability, through modern teaching methods focused on the cultivation of sustainability and of postmodern education.

One of the basic pillars of sustainability is university education, namely higher education institutions that are the main players, those that contribute to the dissemination of the culture of sustainability in society, train students' skills and abilities related to sustainability and the coherence between the social, ecological and economic areas.

The issue of the need to achieve balance is addressed in universities, since courses, seminar classes and laboratories oriented towards sustainability topics help to train and shape competences slanted towards achieving sustainability.

Higher education institutions educate generations and contribute to the development of modern society oriented towards sustainability. Universities are not only educational institutions, they concentrate cultural and intellectual potential, serving as a platform for the development and implementation of innovative ideas.

In a paper by Velazquez et al. (2006), the authors focused on the fundamental rules of sustainability in higher education (Velazquez et al., 2006). The authors used an empirical model to describe the basic needs that are important for maintaining sustainability on campuses.

On the other hand, according to the assessments of the researcher Alshuwaikhat (2008), "an institution's campus is called sustainable when it does not have a negative impact on the environment, stimulates economic growth and helps the progress of society" (Alshuwaikhat et.al., 2008). In the research carried out by Cortese (2003), we notice highlighted the critical role of higher education in sustainability, which can help the authorities to solve the corresponding challenges (Cortese, 2003).

Higher education institutions cannot only promote sustainability by adopting its characteristics on their campuses, but also develop the culture of sustainability in the society. Therefore, universities can be considered small cities, which have a direct and an indirect impact on society and the environment, based on the size, population and activities that are carried out in the universities.

Furthermore, researcher Lozano (2011) conducted a literature review and identified the following synthesis of sustainability competencies: systemic thinking; interdisciplinary work; anticipatory thinking; justice; responsibility and ethics; critical thinking and analytical work; interpersonal relationships and collaboration; empathy and changing perspectives; communication and use of media tools; strategic thinking; personal involvement; measurement and evaluation; tolerance for ambiguity and uncertainty (Lozano et al., 2011).

In this context, in order to achieve sustainability, students must be trained in sustainability skills, such as:

- a. *learning and innovation skills*: critical thinking and problem solving, creativity and innovation, systems thinking, communication and collaboration;
- b. *information, media and technology skills*: information literacy, media literacy, ICT literacy;
- c. *life and career skills*: flexibility and adaptability, social and intercultural skills, productivity and responsibility, leadership and accountability (Agheorghiesei, p. 20).

According to P. Thomson, President of the United Nations General Assembly, “sustainability has entered the university door and taken its place in the classroom” (Agheorghiesei, 2019, p. 20).

On the other hand, J. Newman, executive director and general secretary of the Association of Commonwealth Universities, mentions that “without the contribution of universities, the 17 sustainability goals cannot be achieved” (Agheorghiesei, 2019, p. 21).

The *sustainable university* was defined by Velazquez et al. as: “a higher education institution, as a whole, or as part of it, which addresses, involves and promotes, at the national or global level, the minimization of the economic, social, environmental, negative impact and health effects generated in the use of their resources, through the possibility of carrying out the functions of teaching, research, information and administration, but also providing help to society in making the transition to sustainable lifestyles” (Velazquez et al., 2006).

The researcher Cole notes that “a university has a responsibility to protect the health and well-being of people and ecosystems and to use the knowledge produced in the university to address the ecological and social challenges we face now and in the future” (Cole, 2003).

According to the previously stated steps, we can conclude that the *University Sustainability Management represents the management of the complex university system in the direction of ensuring the economic, social, environmental, educational balance in a sustainable campus, oriented towards the formation of sustainable skills integrated through curriculum, values, practical activities.*

The university sustainability management is a new field of study, recently emerged, as a result of the researchers’ concerns on the topic of sustainability, which, at the moment, is an extremely necessary field to withstand the challenges regarding the exploitation of resources in the most rational way, ensuring economic growth, in the context of social and environmental pressures.

The object of study of university sustainability management are the levers, opportunities, problems, challenges existing in the process of ensuring sustainability in the university environment.

In order to be able to carry out an evaluation of the efforts to achieve sustainability at the level of higher education institutions, we consider it useful and relevant to analyze the sustainability strategies of higher education institutions, with a developed educational system, with consolidated concerns in the field of sustainability.

In this sense, researching the sustainability strategies of several well-known universities, large European university centers with more than 30 thousand students, we selected, however, 3 strategies of higher education institutions in the Scandinavian countries: KTH University, Sweden, University of Helsinki, Finland, Norwegian University of Science and Technology, Norway.

Getting to the bottom of the sustainability strategies of the large university centers in the Scandinavian countries, we can observe certain *similarities*, such as:

- university centers incorporate the Sustainable Development Goals in the everyday activity of the university;
- university centers have a strategy for ensuring sustainability (action plans), based on which sustainability is achieved;
- university centers have bodies responsible for sustainability management through collaboration with the university administration;
- university centers have focused their sustainability objectives on each individual field: research, teaching, cooperation, sustainability management;
- university centers evaluate the efforts to achieve sustainability by means of the reports elaborated annually.

Another successful experience is the creation of the “EQPES UAIC Quality Circle” by UAIC, which was created on September 24, 2019, in order to achieve sustainability within this university center. The EQPES UAIC Quality Circle is formed of teaching staff, students, members of the university management, but also members of the business environment, members of civil society, who come together in order to jointly carry out support activities, to carry out research in field, debates on the identification of modern didactic evaluation mechanisms, teaching from the perspective of sustainability objectives (Agheorghiesei, 2019, p. 288).

A special place in the research was carried out by the screening regarding the curricular situation of sustainable education in university centers (ASEM, USARB, USAM). As a result, we can mention that only within ASEM the course “Sustainable development management” is

included in the education plans for students from the 2nd cycle – master’s studies, where the SDGs are addressed, but also the need to connect the business environment, higher education institutions to the Sustainable Development Goals. At the same time, such course units as “Community Management”, “Environmental Economics” are not included in the educational plans of the universities projected for analysis.

Following the research carried out on the side of sustainability, we developed our own *Conceptual Model of achieving sustainability in higher education institutions*. The model highlights the possibilities of connecting universities on the dimension of achieving sustainability through the prism of the application of university sustainability management, having as a basic pillar the capitalization on human potential.

In this context, the model proposed by us points out the need to achieve university sustainability management, which must be cultivated by the higher education institution, in its connection to achieving sustainability. Thus, according to the model, it is necessary to follow the following steps:

1. *Developing a sustainability Vision for the university;*
2. *Creating a Mission in the context of achieving sustainability;*
3. *Appointing a sustainability Committee within the university.*

The proposed model does not intend to have a rigid structure, since sustainability is a complex issue and is approached differently by various researchers. However, the model aims to be a guiding tool for exploring strategies for making the university sustainable.

The model focuses on several important aspects, which will help universities to direct their work towards achieving sustainability. In order to have a successful implementation of the model, the route to a sustainable university, a holistic vision should be adopted.

The second chapter of the thesis, entitled “Capitalization on human potential as a factor of university sustainability in the context of innovative changes” contains an analysis of the possibilities of capitalization on human potential as a decisive factor in sustainable university innovation development. A significant part of the second chapter is dedicated to the analysis of human potential as a primary source in the formation of sustainable universities.

The source of the training of “a modern employee” is based on knowledge, skills, values, capabilities that accumulate with the passage of time, with the work performed by the employee – i.e., acquired skills or the human potential (Sveiby, 2016).

The specialized literature abounds with a lot of definitions regarding human potential, which is addressed through different terms, such as: human potential, work potential, employee potential, scientific potential, creative potential, intellectual potential, entrepreneurial potential, innovation potential, etc. In the process of modernizing the economy based on smart

technologies, new requirements for employee training are also emerging. Based on these processes, new characteristics emerge, which make up the human potential.

In the same vein, Ericsson, 2006 mentions that human potential can be developed through practice combined with the educational process, along with training and technology in a fundamental way (2006, p. 281). In short, facilitating these conditions lead to various manifestations of individual differences in a wide range of cognitive, affective and motivational variables, such as differential rates of learning and different skills, different levels of interest and persistence, differential propensities to seek out certain environments of learning.

Consequently, the human potential of an organization's employees is the fundamental element of the organization's human capital formation. The researchers concluded that through the lens of capitalizing on and developing the human potential of the organization's employees, the process of human capital accumulation takes place (Davidova, 2019).

In our opinion, *human potential in the university environment represents the set of knowledge, skills, competences, know-how, patents, intellectual property, as well as the physiological potential of members of the academic environment actively participating in the process of education, research, focused on achieving university sustainability.*

From a modernist perspective, the role of education is to help students understand their potential as self-directed and self-motivated agents so that they become fully autonomous and capable individuals (Lash, 1990). This involves modeling from the subjective perspective of students.

From the postmodernist perspective, this role of education is a problematic one. As a result, postmodernism influences discussions and decisions about curriculum, pedagogy, structural organization, and the role of the teacher, but it does so in ways that are often unseen or subtle. Therefore, postmodernist ideas become embedded in debates from the educational domain.

Postmodern education is influenced by a multitude of external factors, such as:

1. *Innovative changes in the educational process* – postmodern education is an adaptive education, to a multitude of factors such as: distance education, online education, cross-disciplinary research, focusing on the global problems of society, the need to provide prompt and efficient solutions to overcome challenges. Postmodern education tries to elucidate tangible ways to overcome the main challenges faced by the society. Therefore, ensuring the economic-social-environmental balance becomes a preoccupation of postmodern education that requires changes within modern educational systems.

2. *Information technologies* – information technologies have made a special contribution to the educational system, but being the fact that as a result of the implementation of different information technologies, elements of postmodern education emerged such as: e-learning, e-tutoring, intercultural education, etc., which broke stereotypes and required urgent remodeling.
3. *The motivation of educational actors* – if decades ago educational actors were motivated by the need to study, discover new things, to get involved in research activities, at the moment, as a result of the development of society, educational actors become motivated with difficulty, they being offered different perspectives in other fields.
4. *The context created at the country level* – each country, depending on the level of macroeconomic development, on the educational policies implemented, tries to adapt to the new contexts and generate new models of postmodern education, which differentiates majorly from the principles of modern education.

Another factor that had a decisive impact on the educational system was the pandemic. The post-modernization of the educational space during the pandemic has led to a mixed type of domestic and European education models, pointing to the need for new reforms, the loss of the values of modern education, the professional crises of the teaching staff and the crises of the professional development of future specialists.

The systematic and timely introduction of modern information technologies in online education, including social information communication networks, the availability of computer testing of the cognitive abilities of educational actors, conducting distance courses, electronic textbooks and online scientific conferences or interactive communication between students and teachers on the MOODLE platforms, via e-mail, the SKYPE program, or the tools of the ZOOM platform, GOOGLE MEET, CISCO WEBEX and the constant updating of various methodological technologies for the implementation of distance education, are integral components of the *postmodern model of education*.

In our opinion, *innovative changes are that category of changes that involve the implementation of new methods, technologies, learning platforms, innovations, in higher education, in order to increase the competitiveness and sustainability of universities, based on an innovative culture, through the involvement of all members of the academic community.*

The pandemic changed stereotypes, changed values, pointed out the need to adapt higher education institutions to a new context. The implementation of online education has become a lifesaver for universities across the country. Researching the results of a study conducted within the Academy of Economic Studies of Moldova during October 2021, among 221 students from

the specialty Business and Administration, the students, for the most part, are satisfied with online education, a fact noted by 42% of respondents. At the same time, 81% noted that they easily adapted to the new demands brought by the pandemic, but also to the new changes in the higher education system (Solcan, 2021).

In the same context, a significant part of the research in the second chapter was directed towards the analysis of indicators regarding the progress of the research and development sector in the Republic of Moldova. From the research carried out, we note that, in the analyzed period 2015-2021, there is a reduction of approximately 20% in the total number of employees who were active in research and development. If in 2015 there were 5033 employees working in this sector, then in 2021 only 4157 employees were waged. At the same time, there is a reduction in the number of researchers from the Republic of Moldova. Thus, if in 2015, 3368 researchers were active, then in 2021 only 2950 were employed.

At the same time, analyzing the distribution of researchers according to age groups, in 2021, we can mention that the age group over 65 has the largest share, which recorded the value of 21.60%. This category is followed by the researchers who are in the 35-44 years old category, which registered a share of 21.20%. On the other hand, 20.20% of all Moldovan researchers are in the 45-54 age category, and 17.7% are in the 55-64 age category. The lowest share – 2.6% of the total number of researchers in Moldova is in the age group up to 25 years old. This denotes the fact that, in Moldova, the research activity is carried out by experienced people, who know the field and who want to make their contribution to the development of this field (NBS, 2021).

For the analyzed period, 2015-2021, in the field of natural sciences, 1165 people or 35.6% of the total number of researchers were employed, in 2015 and 941 people or 31.9% in 2021. In the field of social and economic sciences and sciences engineering and technology, 14.7% and 14.5% were working, respectively, in 2015, while at the level of 2021, in these fields, 18.1% and 11.50% were employed, correspondingly. We note that fewer specialists work in the field of humanities – 8.49%, in 2021 (NBS, 2021).

A special place in the research carried out in the second in chapter of the thesis was dedicated to the first empirical study (S1), which focused on elucidating the factors, elements, criteria, principles of achieving sustainability within higher education institutions. *The general objective of the research* was to evaluate the innovative activity within the higher education institutions projected for analysis, highlighting the possibilities of its development, modeling and improvement.

The study was carried out within ASEM, USARB, USM, UAIC, using the quota sampling method. To carry out the study, the survey was used as a method, using the questionnaire as an instrument. The research instrument included questions from simple to

complex in order to achieve the purpose and objectives of the research. The subjects of the research were the teachers and students from the higher education institutions selected for the research.

The general hypothesis from which we started our research is: H0: The innovative culture of young specialists positively influences the sustainable innovative development of higher education institutions.

The subjects of the research were the students and teaching staff from the higher education institutions selected for analysis, who were surveyed, in order to verify the hypotheses and achieve the research objectives. In total, 504 respondents participated in the research (380 from higher education institutions in the Republic of Moldova and 124 respondents from UAIC, Balti Branch).

The results of the study point out that most respondents from Moldovan universities (49.7%) highlight an increase in innovative activity in their universities and an oscillating tendency to change this indicator (34.2%). However, 7.4% of respondents appreciate a decrease in innovative activity within universities, but 8.7% noted a situation without changes in this field. On the other hand, UAIC university respondents noted an increase in the innovative activity of the university (64.5%), an oscillating trend (25.0%), no change (7.3%), and a decrease was observed by 3.2% among the research respondents.

On the other hand, analyzing the problems faced by universities during the implementation of innovative activity, we must note that, if the respondents from Moldovan universities highlighted a problem, the insufficient funding of the innovative activity of teachers or students, then the respondents of the UAIC university mentioned that a problem is the lack of centers for the development of students' creativity and innovative potential. The data of the study points out that 23.3% of USARB respondents and 31.4% of ASEM respondents pointed out insufficient financing of the innovative activity of universities from the state as a basic problem. This was also remarked by UAIC respondents (13.7%), but it ranked third, while USM respondents consider this issue insignificant, as only 6.3% of USM respondents mentioned it.

The third chapter of the thesis, entitled ***“The resizing of higher education to ensure sustainability”*** contains an analysis of the higher education sector from both a macroeconomic and a microeconomic perspective on the path to achieving sustainability.

In recent years, the higher education sector has undergone major changes. A first change that was made in the higher education system in the Republic of Moldova is the implementation of the Bologna system. The Bologna Declaration of 1999 laid consolidated foundations for the realization of a Common Space of Higher Education in Europe by promoting common strategic directions at the national and institutional level (Education Code, 2014).

With the passage of time, the dynamics of higher education institutions in Moldova have undergone changes. In the last 12 years, there is a trend of reducing universities, from 33 institutions in 2011 to 24 institutions in 2022. State institutions have decreased from 19 units in 2010 to 16 in 2022, and the private ones have decreased from 14 institutions, in 2010, to 9 in 2022, or by 35%.

Analyzing the dynamics of students from the Republic of Moldova, enrolled in the period 2011-2022 in state universities, we notice a negative trend for the entire analysis period. Thus, if in 2010-2011 88,791 students studied in state institutions, then in 2014-2015 their number decreased by 18.4%, reaching 72,474 students, as in 2021-2022 their number to reach 57,228 students, registering a decrease of 35% compared to 2014-2015 and 36% compared to 2010-2011 (NBS, 2022).

In the period of 2010-2021, the dynamics of graduates of higher education institutions in Moldova registers a negative trend, from 28,408 graduates in 2010 to 24,274 graduates in 2015, to reach 14,084 graduates in 2021. This shows that the number of graduates decreased in 2021 by approximately 40% compared to 2015 and by approximately 50% compared to 2010.

Most students perform their studies following full-time education, registering a positive dynamic in the period 2010-2021, from 69.20% in 2010, to 75.7% in 2015, to subsequently register a slight decrease, reaching the value of 72% in 2021. On the other hand, during the analysis period, there is an insignificant decrease in the number of students studying part-time, from 30.80% in 2010, to 29.8% in 2017, to reach the value of 28% in 2021.

The total number of graduates of higher education institutions in Moldova who studied at the first cycle registered a downward trend for the period 2010-2021. If in 2010 the share of students studying at the 1st cycle was 79.50%, then in 2015 it reached 74.30%, so that in 2021 the share will be 62%. On the other hand, the share of students from the second cycle registers a positive dynamic, from 29.70% in 2010, so that in 2021 their share will reach 38%. So, in the last 2 years, there is a tendency to increase the weight of master's students, this fact is due to the pandemic, online education, and the possibility to combine professional, personal life with studies.

Higher education institutions in Moldova are currently in a critical situation, facing several problems. One of the most serious problems is the negative influx of potential students, who would come to higher education institutions in Moldova, to perform their studies. This problem influences the activity of universities, which try to survive, to ensure the continuity of their education and research activities.

In order to evaluate the capitalization on human potential within the universities, we considered relevant the evaluation of the higher education institutions ASEM, USARB, USM,

UAIC, in order to be able to point out the problems that universities encounter in capitalizing on the human potential of teaching staff, but also the development of its prospects. Two university centers from the capital city were selected: ASEM and USM, centers that enjoy increased notoriety, USARB – the university center in the north of the country, with the aim of identifying similarities and differences between peripheral universities and those in the capital; and UAIC, because it represents a notorious university, the first in Romania, in order to identify comparative analyzes with Moldovan universities. The data were calculated per teacher.

Interpreting the obtained data, we can highlight the following:

- *the total number of publications* of the teaching staff from the four analyzed higher education institutions, in the period 2016-2021, shows an oscillating trend with an increasing trend in the last two years. Thus, of the 3 higher education institutions selected for analysis in the Republic of Moldova, USM recorded the most publications per teaching staff with 3.5 publications, at the level of 2021, followed by USARB, with the value of 2.82 and ASEM with the value of 0.82 publications per teacher. At the same time, we can note that UAIC teaching staff, in 2021, published 1.01 publications, down from 2016, when the recorded value was 1.25.

- *the total number of monographies* published by teaching staff of the higher education institutions selected for analysis, in the period 2016-2021, shows an increasing trend in the last two years, compared to UAIC, where the number of monographies published per teaching staff, in the last 2 years, shows a downward trend. Thus, at the level of 2021, the highest value of monographies reported per teaching staff was registered by USARB and ASEM with values of 0.08, followed by USM and UAIC, with values of 0.07.

- *the number of valuable publications, indexed in international databases, ISI, WoS, SCOPUS*, published by teaching staff of higher education institutions, in the period 2016-2021, shows an increasing trend, with insignificant increases within the universities USARB, ASEM, USM, and a downward trend, with a preponderance in 2021, within the UAIC. Thus, the highest value of valuable, indexed publications, registered within Moldovan universities, in 2021, was achieved by teaching staff from USARB and ASEM institutions, with the value of 0.05 publications per teaching staff. At the same time, UAIC registers an increasing trend in the period 2016-2020, where the value of indexed publications registers an increase, from 1.03, in 2016 to 1.62 in 2020, and in 2021, there is a decrease, registering the value of 0.35.

- *the number of projects* implemented within the higher education institutions selected for analysis, in the period 2016-2021, records a positive dynamic within Moldovan universities and a negative one, attested within the UAIC university. Thus, the highest value of projects implemented by higher education institutions is attested within ASEM and USM, with a value of

0.18 projects per teaching staff, followed by USARB with a value of 0.07 and UAIC with a value of 0.06.

In the same context, a cross-border analysis of the positions recorded by the Republic of Moldova, Romania, Ukraine according to the Global Innovation Index was carried out, we note that the Republic of Moldova followed practically the same evolution trend as Romania and Ukraine, occupying close positions of the Global Index of Innovation, in the period 2014-2021. Thus, analyzing the positions of Moldova, we can see that, in 2021, occupying the 64th position, it lost 21 positions, compared to 2014. On the other hand, Romania during the period 2014-2021, improved its position, climbing 7 positions in this period, from position 55 in 2014 to position 48 in 2021.

On the other hand, Ukraine, in the period projected for analysis, 2014-2021, climbed 14 positions in the ranking from position 63 in 2014 to position 49 in 2021. In this context, we note that the neighboring countries of Moldova had a positive jump, climbing positions in the overall ranking of the Global Innovation Index. While Moldova, in recent years, due to the instability of policies applied at the state level, has lost several positions, registering a downward trend in the period 2014-2021.

As a result, we focused our attention on the comparative analysis of all these 3 components of the “human and research capital” sub-index. Thus, we can highlight that in the “education” component, the best placed in the ranking, in 2021, is Ukraine with position 23 and the weakest position is Romania, with position 90.

At the same time, in the “tertiary education” component, in 2021, of all the 3 analyzed countries, the best position was Ukraine, with the 33rd position, and the weakest position is Moldova, with the 80th position. In addition, in the “research-development” component, in 2021, of all the 3 analyzed countries, Ukraine was the best positioned, with the 58th position in the ranking, and the worst positioned is Moldova, with the 84th position in the ranking.

Making a comparative analysis of the positions of Moldova, Romania and Ukraine, in the “ecological sustainability” component of the Global Innovation Index, from the period 2014-2021, we can note that Moldova, during this period, registered a drop in the ranking by 4 positions, of to position 101 in 2014, to position 105 in 2021. On the other hand, Ukraine during this period recorded a slight improvement in its position from 122 in 2014 to 106 in 2021, climbing 16 positions. It should be highlighted the spectacular growth sustained during the 2014-2021 period of Romania, which climbed 19 positions, being one of the leaders in the ranking occupying, in 2021, the 9th position in the ranking.

Following the research carried out in this chapter, we observe that in the 21st century, a new University, a “*Sustainable University*” was born. The new university, in our opinion, is a university different from others by:

- *innovative university* – is a university that generates sustainable innovations, innovations that contribute to ensuring equal opportunities for everyone, that respects ethical standards and corporate social responsibility, that involves stakeholders in the innovative process and reduces the negative impact on the environment. An innovative university must adapt the process of creation, generation, implementation of innovations to the principles of sustainability.

- *future-oriented university* - is the university that focuses on the global objectives of the development of society and higher education. Thus, a sustainable university is one focused on the future to improve the access of future generations to the resources currently available to society.

- *university with public responsibility* – is the university that is concerned with showing a social responsibility towards students, teaching staff and its collaborators, as well as towards all the stakeholders involved.

- *global university* – is the university that offers a quality education and is a competitive one for students from all over the globe. This university stimulates mobility and offers students the opportunity to have access to quality university studies. Higher education development trends can be found in the curricula, courses, teaching methods and management methods applied in this type of university.

- *flexible university* – is the university that continuously adapts, that implements new forms of international collaboration, new principles of working with students, new ways of training and accumulating human capital within the university. Innovation, creation, dissemination and implementation of innovations feel at home in this type of university, in the context of achieving sustainability.

The fourth chapter of the thesis, entitled “The integrated model of indicators for the assessment of the sustainability of higher education institutions” contains an assessment of the sustainability of higher education institutions in the Republic of Moldova. At the same time, based on the results obtained, a mathematical model was developed that points out the interconnection between human potential and the sustainability of higher education institutions. At the same time, the methodology for evaluating human potential in higher education institutions was developed. As a result, a model for assessing the sustainability of higher education institutions in the Republic of Moldova was developed, but it was also tested based on ASEM, USARB, USM, UAIC higher education institutions. Towards the end, a complex model

and action plan was developed, regarding the connection of the higher education system to achieving sustainability.

In the 21st century, a century of dynamism, a century marked by major changes that also affected the higher education sector, which became extremely vulnerable in the face of multiple challenges, the most pronounced of which proved to be the COVID-19 pandemic, which upset, modified and redefined both principles and policies in higher education, as well as future development perspectives.

The pandemic has changed visions, uprooted stereotypes and helped intensify collaboration and partnership. In the context of the pandemic, both students and the academic environment were hit by major changes, to which they had to adapt at the moment, in order to ensure quality in the educational process.

At the same time, the pandemic required a quick reaction both from the management team of the higher education institution, in order to properly manage the pandemic crisis, and from the teachers, who were forced to diversify teaching methods and quickly absorb the new way of interaction with students in order to ensure quality in the educational process.

In order to carry out an radiography of the influence of human potential on the achievement of sustainability in higher education, we considered it necessary to promote a qualitative research (S2), which helped us to evaluate the real situation within the institutions of higher education in the Republic of Moldova and Romania in terms of the impact to the development of the human potential of students and teaching staff on the sustainability of higher education institutions, from the perspective of teaching staff.

The second empirical study (S2) was carried out on the basis of a semi-structured interview, which had as research subjects the teaching staff from the universities of the Republic of Moldova and Romania (USARB, ASEM, UAIC, USM, etc.), using the interview as the method, and the interview guide as the research tool.

The purpose of the research is to evaluate the measures, indicators, solutions applied by higher education institutions in Moldova and Romania in order to achieve sustainability.

The general premise of the research: P0: the sustainability of higher education institutions can be achieved through the application of university sustainability management focused on the cooperation of the entire academic community.

The results of the research show that higher education institutions in the Republic of Moldova carry out “cholic” measures to achieve sustainability that are not accounted for, are not evaluated and do not become part of a strategy to achieve university sustainability. Although each institution carries out specific measures such as the rational use of resources, the creation of better working conditions, attempts to achieve the circular economy, the connection of the

university curriculum, however, these activities are carried out randomly, without being evaluated and published, as a composite part of a strategies to achieve sustainability. The results of the study show a weak involvement of teaching staff in achieving sustainability, but also a low level of connection between universities in order to achieve sustainability. Lack of university sustainability management prevents universities from being sustainable.

On the other hand, according to the opinion of Romanian teaching staff, we can reiterate that UAIC has already passed the stage of awareness of the need to achieve sustainability and is already implementing policies, concrete measures to achieve university sustainability. Waste management, sustainable purchases, procuring non-polluting equipment and technologies, ensuring fairness and non-discrimination, partnerships with the business environment, projects and research on the side of sustainability, are just some of the activities that are already carried out within the UAIC.

However, we can mention that both Moldovan universities and UAIC do not have a strategic approach to achieve sustainability, they have not developed a strategy or a concrete action plan that would help them achieve sustainability, through the involvement and responsibility of each member of the academic community. The results point to the need for universities to start the process of achieving sustainability with the realization of university sustainability management, to develop an action plan in order to achieve university sustainability, to publish the results of the implementation of the actions, thus the universities will succeed in becoming sustainable.

In order to complete the complex methodological approach of the research, the third empirical study (S3) was promoted, carried out on the basis of a questionnaire, which had as research subjects, students from the universities of the Republic of Moldova and Romania, using as of method the investigation, and the research instrument being the questionnaire. The sampling method was simple random sampling.

The respondents of the research were the students of the universities of *the Republic of Moldova and Romania*. Students from the following higher education institutions participated in the research: *Alecu Russo* Balti State University, Academy of Economic Studies from Moldova, Agrarian University of Moldova, *Alexandru Ioan Cuza* University of Iasi, Balti Branch, *Valahia* University of Targoviste, *Stefan cel Mare* University of Suceava, University of Pitesti. *The research sample consisted of 192 students.*

The research was carried out online, via the outline of questions in Google-Forms, and the transmission of the link to the target group within the higher education institutions of the two countries.

According to the presented results, we note that the majority of the research respondents - 60.90%, are of the opinion that human potential contributes to the strategic development of the higher education institution. At the same time, 54.7% of respondents noted that the development of human potential contributes to increasing student satisfaction with the quality of studies in the higher education institution they belong to. The obtained results denote the significant role of the exploitation of human potential on the development of higher education institutions, but also the need for continuous improvement of the development of human potential in order to achieve sustainability.

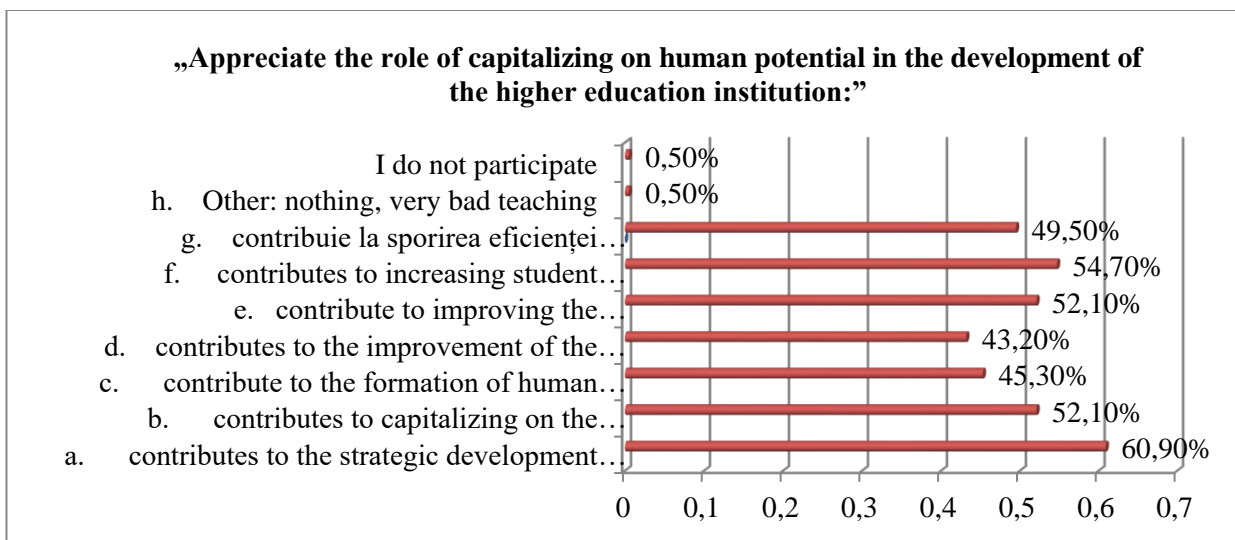


Fig. 1. The Role of Human Potential Development in the Development of the Higher Education Institution

Source: elaborated based on respondents' data

On the other hand, the results of the study (Table 1) show that higher education institutions focus on the economic dimension of sustainability, namely on the diversification of the educational offer.

At the same time, ensuring economic well-being remains important, noted by 42.71% of respondents. On the other hand, we can observe that the interest of higher education institutions towards the social dimension of sustainability is materialized by ensuring the health and safety at work of teaching staff and students, a fact noted by 53.13%, ensuring social responsibility, noted of 40.10%. Universities, to some extent, are oriented towards the environmental dimension of sustainability.

Thus, approximately one-fourth of the research respondents are of the opinion that universities show a neutral approach towards waste recycling, rational consumption of resources, increasing green spaces on the university campus, etc. Thus, although this dimension is of major importance and contributes to achieving the social-economic-environmental balance, it remains one neglected by higher education institutions.

Table 3. The Concerns of Higher Education Institutions regarding the Economic-social-environmental Dimensions in order to Achieve Sustainability

Elements of the economic dimension	1	2	3	4	5
ensuring economic well-being	6,25%	5,21%	12,50%	42,71%	33,33%
increasing the competitiveness of the higher education institution	3,65%	5,73%	15,63%	42,19%	32,81%
diversifying the offer of the higher education institution	3,13%	4,17%	18,23%	38,98%	37,50%
rational consumption of resources in the higher education institution	4,17%	5,21%	16,15%	41,67%	32,81%
Elements of the social dimension	1	2	3	4	5
ensuring the health and safety of teachers and students	6,25%	4,69%	5,21%	30,73%	53,13%
ensuring social responsibility	6,77%	3,13%	11,46%	38,54%	40,10%
creating a healthy social environment	4,69%	3,65%	8,33%	33,33%	50,00%
Elements of the ecological dimension	1	2	3	4	5
ensuring energy security principles	5,73%	4,17%	23,44%	35,41%	31,25%
using renewable energy sources	6,25%	4,69%	31,25%	30,21%	27,60%
using the possibilities to reduce water consumption	5,73%	6,25%	31,25%	31,25%	25,52%
increasing the green spaces in the university campus	6,77%	2,08%	20,31%	34,28%	36,46%
encouraging the use of green transport	5,73%	6,25%	25,00%	31,77%	31,25%
waste recycling	7,81%	5,73%	20,83%	29,17%	36,46%

Source: elaborated by the author based on respondents' data

The results of the study point to the fact that the promotion of “sustainable education” within the analyzed higher education institutions materializes through the prism of “encouraging the teacher-student partnership in achieving sustainability”, a fact mentioned by 41.67%. At the same time, 39.58% of the respondents noted that the higher education institution adapts its curricula to the needs of the labor market, and 38.54% noted that the higher education institution adapts its thematic content to sustainability objectives.

At the same time, we can reiterate the fact that 66.70% of the research respondents believe that the subject of the course units includes topics related to sustainability. Based on the results obtained, we can highlight that, basically, the teaching staff realized the need to connect their thematic contents to achieve sustainability.

According to the results of the study (Figure 2), 89.5% of the research respondents noted that the capitalization on human potential within higher education institutions has a positive impact in achieving their sustainability. At the same time, 82.30% of the respondents are of the opinion that “education” is the most important element that contributes to achieving sustainability in the university environment. This element is followed by “information”, noted by 71.4% and “research”, noted by 44.8% of respondents.

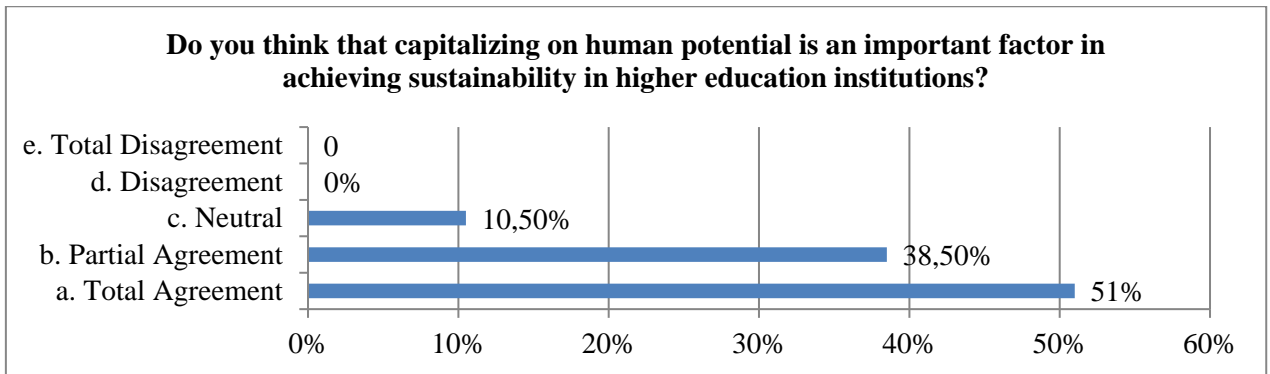


Fig. 2. The contribution of capitalization on human potential in achieving the sustainability of higher education institutions

Source: elaborated based on respondents' data

Based on the results obtained, we can note the fact that within the higher education system in Moldova it is necessary to resize the teaching process, through the prism of the integration of information technologies, innovative, modern teaching methods, in the context of postmodern education.

According to the presented results, we identify the main problem that higher education institutions encounter in achieving sustainability – “the lack of resources necessary to achieve sustainability”, a fact noted by 57.80% of the research respondents. Another important problem that universities encounter on their way to sustainability is the “lack of concrete measures to achieve sustainability”, noted by 55.20% of respondents. The obtained results show that the students believe that the lack of financial resources prevents Moldovan universities from connecting their activities in order to achieve sustainability, but also the lack of concrete measures that should be implemented in universities to achieve sustainability. From here, we can reiterate the need to identify concrete measures that could help universities achieve sustainable development.

Another part of the research carried out in the fourth chapter was directed towards the development of the *Human Potential Evaluation Methodology*. Therefore, based on Gasper's Model, we have developed our own *Human Potential Evaluation Methodology* that we recommend to be implemented in higher education institutions in the Republic of Moldova (Table 4.).

The Human Potential Evaluation Methodology is structured from 10 indicators that have a certain weight according to their importance in the development of the higher education institution. For each indicator, we proposed a calculation formula that includes concrete data obtained from each structural component of the higher education institution. The indicators can be calculated both for each department, faculty, in order to carry out comparative analyses, to

identify the evolution trend, and for the university as a whole, in order to compare the results obtained by higher education institutions.

Table 3. Indicators of Our Own Human Potential Evaluation Methodology

Levels of approaching the human potential	Indicator	Calculation formula	Explanation
Natural Potential	1. The health indicator – IS	$IS = \frac{NTA - (NAB + NAP + NAD)}{NTA}$	NTA – the total number of employees; NAB – the number of employees who are sick, or who have had medical leave; NAP – the number of retired employees per case of illness; NAD – the number of people who died per case of disease.
	2. Indicator of assurance with human resources – ID	$ID = \frac{(NAN - NPP) + NAA}{NTA}$	NAN- the number of new employees NPP – the number of leavings and retirements NAA – the number of associated employees NTA – the total number of employees
Professional Potential	3. Educational indicator – IED	$IED = \frac{NAD}{NTA}$	NAD – the total number of employees with a scientific title NTA – the total number of employees
	4. Professional and work indicator – IP	$IP = \frac{NTA - (NAE - NSD)}{NTA}$	NAE – the number of employees without disciplinary sanctions NSD – the number of employees with disciplinary sanctions NTA – the total number of employees
Intellectual Potential	5. Indicator of competitiveness and entrepreneurship – ICS	$ICS = \frac{(NADH + NAC + NAD + NAA)}{NTA}$	NADH – the number of employees with Habilitation Degree NAC – the number of employees with an attestation of associate professor NAD – the number of employees with a habilitation certificate NAA – numărul de angajați care au colaborat cu mediul antreprenorial NTA – the total number of employees
	6. Scientific performance indicator – IȘ	$IȘ = \frac{NTPI}{NTA}$	NTPI – the total number of scientific and scientific-methodical publications elaborated NTA – the total number of employees
	7. Indicator of research potential – II	$II = \frac{NTC}{NTA}$	NTC – the total number of researchers NTA – the total number of employees
Innovative Potential	8. Creative spirit evaluation indicator – IC	$IC = \frac{(NACR + NPA)}{NTA}$	NACR – number of employees who generated creative ideas (project proposals) NPA – the number of employees who won research projects NTA – the total number of employees
	9. Information indicator – IIF	$IIF = \frac{(NAT + NTI)}{NTA}$	NAT – the number of employees operating online educational platforms NTI – the number of employees applying interactive information technologies in the teaching process NTA – the total number of employees
	10. Indicator of innovative changes – ISI	$ISI = \frac{(NMT + NLV + NCO)}{NTA}$	NMT – the number of employees applying interactive methods of working with students NLV – the number of employees making video lessons NCO – the number of employees who have courses set for distance learning, online

Source: elaborated by the author

Depending on these components of human potential in higher education institutions, we suggest to calculate 10 indicators.

We believe that the evaluation of the human potential of the higher education institution must be carried out at four levels and for each of them we have identified reasonable indicators, through which to evaluate that potential of the employees of the higher education institution.

Based on the results obtained for the 10 indicators, we propose to calculate the integrated indicator of the human potential of the higher education institution (IIPU), according to the following formula:

$$IIPU = \sqrt[10]{IS * ID * IED * IP * ICS * IŞ * II * IC * IIF * ISI} \quad (1.)$$

Applying the formula will help us to multiplication up the values of the obtained indicators and to finally obtain the integrated indicator of the human potential of the higher education institution. Each of the 10 indicators has a weight of 0.1 in the formation of IIPU. This weight was determined according to the experts' method.

Following the calculation of the integrated indicator of the human potential of the higher education institution, in our opinion, it is relevant to compare the results obtained by different higher education institutions according to the potential of its employees, who can contribute to increasing the level of competitiveness and sustainability of the institution.

As a result, based on the critical analysis of the use of sustainability indicators in higher education institutions, our *own model* was developed, the *Integrated Model for the Evaluation of the Sustainability of Higher Education Institutions* from the Republic of Moldova and Romania. The model is made based on the analysis of the sustainability strategies of the Scandinavian countries, but also according to the Pinteia model, 2011, adapted for the higher education system.

The process of developing the Integrated Model of Indicators for the Evaluation of the Sustainability of Higher Education Institutions consists of a screening of the above-mentioned models and the selection of the most relevant indicators from the previous methodologies, but also the addition of new areas and indicators to make the model more efficient and improve its scope.

The model consists of 4 main areas: economic, social, environmental, educational dimension. Each of the previously stated areas includes basic indicators that help to assess the sustainability of the higher education institution. Each field, as well as a separate indicator, has a weight and can very easily be implemented in any higher education institution. Depending on the results obtained, the Integrated Sustainability Index of the Higher Education Institution is calculated.

The share of each field is different. Thus, the educational dimension has the greatest share (0.4), given the fact that any higher education institution must be concerned with harmonizing the educational system with the principles of achieving sustainability. This domain

is followed by the economic dimension (0.3) given the fact that universities must focus on achieving economic performance, being in a self-financing situation. The other dimensions, social and environmental, have a weight of 0.15, a fact that highlights the fact that higher education institutions must also focus on ensuring the equity and safety of educational actors, but also reduce the negative impact on the environment.

By calculating for each field separately the related sub-indicators, we will finally be able to obtain the value of the *Sustainability Indicator of the Higher Education Institution*, which will be included in the report prepared by the sustainability committee.

Interpreting the performances recorded by the higher education institutions on the economic dimension of sustainability, we can observe that the ASEM and USM higher education institutions register losses.

These data suggest the difficulties faced by higher education institutions in the Republic of Moldova, being financially autonomous, struggling to withstand multiple challenges. On the other hand, UAIC has multiple external funds, assistance from European funds, which ensure increased economic efficiency and the possibility of ensuring the coverage of expenses.

Analyzing the general liquidity recorded by higher education institutions, in 2021, we report that the lowest value is recorded by USM, with a value of 0.25%, followed by ASEM with a value of 0.49%, UAIC with a value of 0.61% and USARB with the value of 0.91%. These results suggest that higher education institutions have a good ability to cover their current liabilities based on inventories, receivables, etc. The best liquidity is registered by USARB, a fact that demonstrates an effective financial policy aimed at providing the necessary financial means and effective coverage of current debts.

On the other hand, analyzing the solvency registered by higher education institutions in 2021, we notice that each higher education institution taken for analysis registers good solvency, the highest value being recorded by the USARB with a value of 0.95, followed by UAIC, 0.81, ASEM 0.66 and USM 0.56.

Studying the rate of financial stability, for the year 2021, within the higher education institutions selected for analysis, we highlight that the best values are recorded by USM and USARB, with values of 97% and 95%, respectively, followed by UAIC with 86% and ASEM with 79%.

Based on the model developed by us, all higher education institutions are positioned at the *S2 level of sustainability (medium level)*, a fact that demonstrates special efforts to ensure economic growth at the level of higher education institutions, however, they still have work to do to be able ensure an efficient economic situation, with increased values of the economic-financial indicators.

In the same context, we present the results obtained by higher education institutions (ASEM, USARB, USM, UAIC) on the social dimension of sustainability. Of the four higher education institutions, taken for analysis, the best positioned in the social dimension is UAIC, with a total score of 76 points, due to the fact that the institution is focused on ensuring equality, equity, safety, equal involvement for every student and teaching staff, but also has a CSR strategy, well organized, focused on ensuring social responsibility towards all stakeholders involved.

Among the universities in the Republic of Moldova, the best positioned in this dimension is USM, with the value of the total accumulated score of 62 points, being well positioned, focused on respecting non-discrimination, equal involvement, but also ensuring equity and responsibility.

On the other hand, in the case of the other higher education institutions, USARB accumulated a total score of 59 points and ASEM 58 points.

Thus, based on the model developed by us, UAIC is positioned at the S3 level of sustainability (higher level), and the higher education institutions of the Republic of Moldova are positioned at the S2 level of sustainability (medium level), a fact that demonstrates the need to make consolidated efforts to be able to ensure an increase in performance on the social dimension of sustainability.

On the other hand, we present the results obtained by higher education institutions (ASEM, USARB, USM, UAIC) on the *environmental dimension of sustainability*. From the four higher education institutions taken for analysis, the most significant performances were recorded by UAIC, which recorded a total score of 64 points, followed by USARB with 55 points, USM with 52 points and ASEM with 46 of points. Based on the indicators analyzed from the environmental dimension, UAIC is directed to saving resources, but also to the involvement of students in the process of protecting the environment. On the other hand, among the institutions of higher education in the Republic of Moldova, the best system of greening the university campus, in order to create the green campus, a system of saving resources, saving electricity, water, gas, thermal energy, etc.) has USARB, followed by USM and ASEM.

The results of the evaluation of the universities' performances on the environmental dimension of sustainability point to the need for Moldovan universities to direct their attention to the environmental dimension, to the indicators taken into account on the environmental dimension of sustainability, in order to better position themselves in this section. It is necessary to introduce some methodologies to save resources, to use renewable energy, to install LED bulbs with sensors, to save paper, on the one hand, but also to involve students, partners, and all stakeholders in the process of greening, cleaning, use of eco transport, etc.

These measures will help higher education institutions to strengthen their positions in the environmental dimension, but also to demonstrate a culture of sustainability present within universities, through the prism of motivating students in creating a sustainable future.

In the same context, we present the results obtained by higher education institutions (ASEM, USARB, USM, UAIC) on the *educational dimension of sustainability*, proposed by us to be included as a useful dimension in order to evaluate the sustainability of higher education institutions.

Analyzing the performances recorded by higher education institutions in the educational dimension, it follows that the best positioned in this dimension is UAIC, with a total score of 21 points, which has multiple courses on sustainability, projects, articles on the theme of sustainability, but also participates active in concluding partnerships, agreements with the business environment, but also other stakeholders, in order to raise awareness of society in order to ensure sustainability. A project that brought substantial added value to the research dimension of achieving sustainability within UAIC is the project “Implementation within the university of some modern mechanisms for evaluating the quality of teaching and evaluation processes from the perspective of the principles of sustainability in *Alexandru Ioan Cuza* University of Iasi (CNFIS-FDI-20199-0540), with Dr. Agheorghiesei-Corodeanu Daniela-Tatiana as the coordinator, as well as other projects aimed at helping the university connect its activities in the direction of ensuring sustainability. Researching the report of rector Toader Tudorel, PhD, university professor, submitted annually for the dissemination of the development of the UAIC university, we identified the publication of an impressive number of articles, monographies, by UAIC academics on the dimension of sustainability. This contributed to obtaining a higher net score, compared to universities in the Republic of Moldova.

Among the universities in the Republic of Moldova, the best positioned is USM, which has accumulated, based on the model developed by us, a total score of 18 points, which indicates well-directed efforts to ensure sustainability through the prism of courses, learning units, projects, publications aimed at cultivating sustainability performance among students, but these efforts are not enough, given the fact that there is no sustainability strategy within the higher education institution.

On the other hand, ASEM registered a total score of 16 points, a fact that demonstrates concerns for achieving sustainability, directed by the higher education institution, they are not evaluated, accounted for.

At the same time, USARB obtained a total score of 13 points, which demonstrates insignificant concerns of the university in achieving sustainability, on the educational dimension. Following the analysis of the didactic, research and collaboration activities carried out by the

university in 2021, we can observe weak concerns of the university towards achieving sustainability. Very few courses and learning units on the theme of sustainability in the study programs, few projects and scientific manifestations on the theme of sustainability, which led to a low score obtained by the higher education institution.

The final scores obtained by higher education institutions for all 4 dimensions of sustainability are shown in the table below.

Table 4. The final score obtained by the universities (ASEM, USARB, USM, UAIC) in the sustainability assessment

Indicators	ASEM	USARB	USM	UAIC
Economic dimension	7	7	7	7
Social dimension	58	59	62	76
Environmental dimension	46	55	52	64
Educational dimension	16	13	18	21
Total score:	127	134	139	168

Source: elaborated by the author

Based on the model developed by us, UAIC is positioned at the sustainability level S1 (higher level), while the other universities in the Republic of Moldova are positioned at the medium level of sustainability S2, a fact that requires the application of urgent measures, aimed at helping institutions of higher education in the country to connect its activity to the dimension of achieving sustainability.

As a result, we will calculate the Integrated Sustainability Index of the Higher Education Institutions analyzed. The bed formula we will apply is (we determined by surveying experts and processing data by the rank ordering method):

Integrated Index of University Sustainability = 0,30* the score of the economic dimension + 0,15* the score of the social dimension + 0,15* the score of the environment dimension + 0,40* the score of the educational dimension.

Applying this formula, we get the following situation:

$$IISU_{(ASEM)} = 0,30*7+0,15*58+0,15*46+0,40*16 = \mathbf{24,1}$$

$$IISU_{(USARB)} = 0,30*7+0,15*59+0,15*55+0,40*13 = \mathbf{24,4}$$

$$IISU_{(USM)} = 0,30*7+0,15*52+0,15*62+0,40*18 = \mathbf{26,4}$$

$$IISU_{(UAIC)} = 0,30*7+0,15*76+0,15*64+0,40*21 = \mathbf{30,3}$$

According to the analysis of the Integrated University Sustainability Index, the highest value of the index is recorded by UAIC, with a value of 30,3, followed by USM with a value of 26,4, USARB with 24,4 and ASEM – 24,1. Thus, among the universities in Moldova, the university most focused on sustainability is USM, followed by USARB and then ASEM. Following the study carried out by us, we presented the main conclusions and recommendations

of the study carried out, evaluating the sustainability of higher education institutions (ASEM, USARB, USM, UAIC).

Table 5. Conclusions and recommendations following the sustainability assessment study of ASEM, USARB, USM, UAIC

Conclusions:	Recommendations:
The universities of the Republic of Moldova register an average level of sustainability	Appointment of a Sustainability Committee (sustainability achievement committees) that would deal with sustainability management within the higher education institution.
Universities in the Republic of Moldova focus more on the economic dimension of sustainability, to the detriment of the other dimensions	Balancing concerns of achieving sustainability across all four dimensions.
All analyzed universities do not have a sustainability strategy	Development of a sustainability strategy (action plan).
All the analyzed universities do not have a section dedicated to sustainability on the institution's website	Allocating a section to sustainability on the website of the higher education institution.
Moldovan universities show poorly directed concerns about achieving sustainability	Intensification and publication on the website of the efforts, concerns of the universities regarding the achievement of sustainability.
Moldovan universities have very few courses and course units on the subject of sustainability	The inclusion, in study plans, of course units/learning units focused on achieving sustainability.
Moldovan universities access few projects on the dimension of sustainability	Intensification of the submission of projects on the topic of sustainability.
Moldovan teachers publish a small number of articles on the dimension of sustainability	Increasing the number of articles, monographies, course materials on the topic of sustainability developed by university students from the Republic of Moldova.
Moldovan universities have a small number of collaboration agreements with the business environment on the dimension of sustainability	Signing agreements with the business environment regarding the performance of student internships (in the sustainability department), organization of joint scientific events on the topic of sustainability.
Moldovan universities pay the least attention to the environmental dimension of sustainability	There is a need for greening the university campus, involving students in cleaning the environment, but also saving resources (installing LED bulbs with sensors, reducing water consumption by reducing flow, etc.). The classrooms should be lit using 2-3 switches that would provide the possibility to connect the electricity to certain areas (in the country, in the hall), thus saving electricity.

Source: elaborated by the author

Another suggestion, as a result of the study carried out, is the inclusion in the curricula of course units on the topic of sustainability (Management of sustainable development/Sustainability) which would help cultivate sustainability skills among students. From the beginning, this course can be introduced to students from economics, law, pedagogy specialties, with the possibility of extension to other specialties, in the 2nd cycle – master's studies. Later, these courses can also be included for students from the 1st cycle – undergraduate studies.

On the other hand, it would be beneficial to introduce more learning units on the topic of sustainability, to students from economic specialties, law. It will help sensitize students on the need to ensure sustainability in the production/service delivery process, business management.

As a result of the complex methodological approach, the multiple qualitative studies complemented by the quantitative ones, we consider relevant the development of the *Action Plan for connecting the higher education system to the principles of sustainability* for the period 2023-2027. In this sense, the action plan developed by us is based on the sustainability strategies of the Scandinavian countries: KTH University of Sweden, University of Helsinki from Finland, Norwegian University of Science and Technology from Norway, University of Manchester from Great Britain, University of Eastern Finland from Finland, University of OULU from Finland.

The action plan developed by us includes **6 strategic objectives**:

1. The efficiency of university sustainability management through the prism of anchoring the educational system on the principles of sustainability, in the context of postmodern education.
2. Directing the research approach of the higher education institution towards cooperation with stakeholders in order to achieve sustainable research.
3. Capitalizing on sustainable teaching through the cooperation of the teaching-research approach.
4. Streamlining national and international cooperation on the dimension of sustainability.
5. Reshaping university management and anchoring it in creating the green campus.
6. Evaluation of results regarding the integration of sustainability concerns in university management.

In its commitment to alignment in achieving sustainability, higher education institutions in the Republic of Moldova should implement a set of *innovative changes* that will streamline and dynamize this process, thus contributing to achieving the predetermined objectives.

Table 6. The main innovative changes that need to be made in higher education institutions to achieve sustainability

The sustainability achievement dimension	Innovative changes	Actions to achieve innovative changes
Economic dimension	- Creating the institutional framework anchored to the principles of achieving sustainability	- Appointment of a commission/committee/center that will carry out the activities necessary to implement university sustainability management; - Elaboration of the evaluation methodology and the content of the sustainability report at the institutional level; - Development of sustainable procurement policy; - Integrating sustainability into the institutional strategic development plan; - Publication of the higher education institution's sustainability report.
	- Financing sustainable innovations	- Development of institutional policies to support/finance sustainable innovations; - Encouraging students and teachers to generate sustainable innovations.
	- Attracting investments in increasing sustainability	- Accessing funds to achieve sustainability; - Participation, together with students, in sustainability funding programs.
Social dimension	- The development of social policies	- Development of non-discrimination policies; - Elaboration of ethics/social responsibility policies;

	focused on the principles of sustainability	<ul style="list-style-type: none"> - Development of policies to ensure safety and health at work; - Elaboration of social protection policies.
Environmental dimension	<ul style="list-style-type: none"> - Creating the green campus 	<ul style="list-style-type: none"> - Elaboration of the green campus creation policy; - Awareness of the use of the academic environment in the use of eco transport; - Involvement of students in university campus greening actions; - Involvement in the waste recycling process; - Development of policies for the rational use of resources; - Implementation of strategic energy efficiency actions in the university campus.
Educational dimension	<ul style="list-style-type: none"> - Establishing the “culture of sustainability” on the university campus 	<ul style="list-style-type: none"> - Foundation of values focused on the principles of sustainability; - Infiltration of the culture of sustainability in all actions of the university; - Development of sustainable canteens; - Organization of “Sustainability Day” within the university;
	<ul style="list-style-type: none"> - Sustainability oriented teaching 	<ul style="list-style-type: none"> - Introduction of course units focused on the principles of sustainability into the educational plans; - Adapting curricula to sustainability principles; - Training of sustainability skills; - Launching of new study programs according to the principles of sustainability.
	<ul style="list-style-type: none"> - Sustainability oriented research 	<ul style="list-style-type: none"> - Accessing projects based on the principles of sustainability; - Attracting the business environment in the organized manifestations of the principles of sustainability; - Sensibilization of the teaching staff in increasing publications on the topic of sustainability; - Guiding students in publishing articles on sustainability.
	<ul style="list-style-type: none"> - Cooperation in the field of achieving sustainability 	<ul style="list-style-type: none"> - Creating student organizations focused on solving problems to increase sustainability; - Signing partnerships with stakeholders, other universities, national and international sustainability assurance institutes; - Inviting experts from abroad in the field of sustainability in order to intensify the exchange of experience; - Creating institutional structures dedicated to achieving sustainability objectives; - Creating a section on the institution’s website where efforts in achieving sustainability can be disseminated.

Source: elaborated by the author

Towards the end, we believe that the implementation of these innovative changes would help higher education institutions in the Republic of Moldova to step firmly on the path of sustainability, by establishing concrete objectives, by carrying out effective alignment actions to achieve sustainability in higher education institutions.

GENERAL CONCLUSIONS AND RECOMMENDATIONS

Sustainability has become a concern of the 21st century, although its roots are implanted from distant times. In the field of higher education, sustainability has become a pillar of the institution’s success and a force in ensuring its viability. Human potential has become the main factor in achieving sustainability in higher education institutions through the prism of skills, competences, skills, aptitudes that can be formed in the academic environment.

The study carried out as part of the habilitation thesis allows the following **relevant conclusions** to be outlined, depending on the research objectives:

➤ *O1: research and theoretical interpretation of the concepts, theories, principles and methods of university sustainability management through the capitalization on human potential - we reiterate the following conclusions regarding the achievement of this objective:*

1. A new field of study was defined, *University Sustainability Management*, which, in our opinion, *represents the management of the complex university system in the direction of ensuring the economic, social, environmental, educational balance, through the penetration of a sustainability-oriented culture of teaching and research in a sustainable compound, oriented towards the formation of sustainable skills integrated through curriculum, values, practical activities.* At the same time, the purpose, principles, component elements of university sustainability management were established (paragraph 1.1.).

2. Studying the multiple approaches of the sustainable university, its own approach was outlined in defining the sustainable university, which represents *that university that harmoniously combines education, research through a complex process of ensuring balance in the context of the optimal use of the social, economic and environmental environment, through achieving a collaboration with the stakeholders involved in this process* (paragraph 1.1.).

3. Researching the various approaches of the scholars in the field regarding sustainable education, we have scored our own opinion on this concept, thus, *sustainable education is consolidated by changing the mentality of the present generation in order to ensure an economic, social and environmental balance, in order to provide future generations access to resources the planet, using a culture of sustainability, through modern teaching methods, focused on cultivating sustainability in educational institutions* (paragraph 1.2.).

4. *The sustainability strategies of the Scandinavian countries were researched* (paragraph 1.3.) and based on their research, an action plan was developed regarding the achievement of sustainability in the higher education system of the Republic of Moldova (paragraph 4.4.);

5. *The own conceptual model of university sustainability management was developed.* In our opinion, the presented model can be a starting point for defining a sustainable university. Guidelines for its implementation could be important tools for managers of future sustainable universities (paragraph 1.4.).

6. *A screening of the curricular situation regarding the alignment with the Sustainable Development Objectives of university centers in the Republic of Moldova was carried out* – from the research data, we can reiterate that there is a need to introduce into the education plans of higher education institutions in the country course units such as “Sustainable development management” and “Intercultural management”, which will help to cultivate values, identify solutions to capitalize on the approach of achieving sustainability at the level of society (paragraph 1.3.).

O2: the evaluation of the human potential of the Republic of Moldova and Romania, on the one hand, but also of higher education institutions, on the other hand, from the perspective of achieving sustainability – in achieving the objective, we draw the following conclusions:

7. *The concept of human potential related to the university environment was defined. In our opinion, human potential in the university environment represents the set of knowledge, skills, competences, know-how, patents, intellectual property, as well as the physiological potential of members of the academic environment actively participating in the process of education, research, focused on achieving university sustainability (paragraph 2.1.);*

8. *The factors of capitalization and development of human potential in higher education institutions were traced - capitalization and development of human potential is the desire of sustainable universities (paragraph 4.1., paragraph 4.2.). At the same time, the innovative changes affecting higher education institutions require universities to focus on university sustainability management (paragraph 2.3.).*

9. *Higher education institutions in the Republic of Moldova were evaluated – researching the dynamics of higher education institutions in Moldova, but also that of students, graduates, we pointed out a multitude of problems and challenges facing higher education in Moldova: the dramatic reduction in the number of students and graduates of higher education institutions, the poor insertion of students, the problematic cooperation of higher education institutions with the business environment (paragraph 3.1.).*

10. *The assessment of the potential of higher education institutions ASEM, USARB, USM, Republic of Moldova and UAIC, Romania was carried out – an assessment of the potential of higher education institutions in the Republic of Moldova and Romania was carried out on the dimension of achieving sustainability (paragraph 3.2.).*

11. *The human potential of the Republic of Moldova and Romania was evaluated from a macroeconomic perspective (paragraph 3.3.).*

➤ *O3: evaluating the impact of innovative changes on higher education institutions on the way to achieving sustainability – the objective was achieved, reiterating the following conclusions:*

12. *The main innovative changes within higher education institutions were identified – the main innovative changes that significantly affected the higher education system in the country were scored (paragraph 2.3.).*

13. *The main challenges of higher education institutions in Moldova were highlighted - in the research carried out we highlighted the most significant challenges that universities face in achieving sustainability (paragraph 3.5.).*

➤ *O4: the analysis of the innovative culture of universities in the Republic of Moldova and Romania - the objective was achieved. We highlight the following conclusions:*

14. *The concept of innovative culture was defined – according to our opinion, innovative culture represents a set of values created and implemented in the university environment, in order to stimulate the innovative activity of teachers and students, in order to develop the sustainable innovative development of the university (paragraph 2.1.).*

15. *The empirical study (S1) was carried out – conducting the S1 study allowed us to highlight the basic problem – the lack of the university’s strategic vision in the direction of innovations and innovative activity (14.3%), which comprehensively affects the innovative strategic development of higher education institutions (paragraph 2.4.).*

➤ *O5: improving university sustainability management – the objective was achieved and we draw the following conclusions:*

16. *Empirical studies were carried out (S2, S3) – the empirical studies carried out through the prism of qualitative and quantitative research helped us to identify the fact that the most important problem on the way to achieving sustainability that universities encounter is the lack of resources necessary to achieve sustainability fact noted by 57.80% of respondents (paragraph 4.2.).*

➤ *O6: assessment of the sustainability of higher education institutions – the objective was achieved and we draw the following conclusions:*

17. *The own Methodology for the Evaluation of the Capitalization on Human Potential in higher education institutions has been developed – the methodology involves the analysis of all 4 basic components of human potential. In total, 10 indicators were proposed for calculation. Finally, the Integrated Index of Valorization of Human Potential within the higher education institution was calculated (paragraph 4.3.).*

➤ *O7: development of the university sustainability management model – the objective was achieved and we draw the following conclusions:*

18. *Our own University Sustainability Evaluation and Reporting Model was developed – following the analysis, we developed our own University Sustainability Evaluation and Reporting Model applicable to higher education institutions (paragraph 4.3.).*

➤ *Our own Model of Sustainable University Development (MDSU) was developed in the context of innovative changes – researching the multiple studies dedicated to achieving and evaluating sustainability in higher education institutions (paragraph 4.4.), we developed our own Model of University Sustainability Management.*

19. *An action plan was developed regarding the alignment of the higher education system to achieve sustainability.* The action plan includes tangible measures for each of the four dimensions of university sustainability.

We are aware that the present study has several **research limits**. One of them is the quantitative research sample (the 3 empirical studies conducted), which can be amplified in order to increase its representativeness. At the same time, we specify that the methodology applied by us in carrying out quantitative research can be easily applied to a larger sample of higher education institutions in the country, but also from abroad.

Suggestions for potential research directions focus on the development of scientific and multilateral substantiation of the capitalization and development of human potential as a decisive factor in achieving sustainability within higher education institutions. At the same time, sustainability must capture the entire society and become a pillar of the development of postmodern society, encompassing research both at the level of universities and within the business environment, NGOs, public institutions, etc. Research can be completed with qualitative research, conducting semi-structured interviews among the administrative staff of higher education institutions.

Following the theoretical-practical study carried out in this paper by the author, we can come up with the following **recommendations**:

To the Government of the Republic of Moldova

1. Adapting the national policy agenda to the demands of sustainability – achieving sustainability can be accomplished through joint efforts, which would include the whole society. Thus, in order to ensure a sustainable development of the Republic of Moldova, in our opinion, it is necessary to include the Sustainable Development Goals in all national, sectoral and local policies and strategies (paragraph 4.1., paragraph 4.3.).

To the Ministry of Economics

2. Encouraging the business environment to achieve sustainability – there is a need to grant certain facilities to economic agents that adopt a behavior towards achieving sustainable development.

To the Ministry of Education and Research

3. Elaborating the Higher Education Development Strategy 2021-2030 – the strategy must be a viable one, which would base the higher education system on international values and standards, which would take into account the documents developed by the UN, the Council of

Europe, the European Union, the OECD, which would contribute to the achievement of the Sustainable Development Goals, stipulated in the “Agenda-2030”, and which would contribute to the achievement of competitiveness and sustainability in higher education (paragraph 4.2.).

4. Elaborating a methodology for assessing the sustainability of higher education institutions – following the research carried out in the paper, there is a need to develop a strategy for reaching, assessing sustainability, valid for all higher education institutions (paragraph 4.2.).

5. Creating the National Agency for Sustainability in Higher Education (ANS) – the agency will help to consolidate, plan, monitor, evaluate and report the efforts made by higher education institutions in order to achieve sustainability (paragraph 4.4.).

6. Implementing the Action Plan regarding the alignment of the higher education system in the Republic of Moldova to achieve sustainability – the implementation of the action plan will allow obtaining multiple advantages, both at the macroeconomic and microeconomic levels.

To ANACEC

7. *Revising of the external evaluation methodology of the universities* – in order to raise awareness of the universities’ record on the path of sustainability, it would be beneficial to include in the evaluation grid of the study programs within the universities sustainability indicators (the number of courses/learning units related to sustainability, teacher training on sustainability, scientific events on sustainability). This will raise awareness of teaching and research in the context of sustainability.

To the Business Environment

8. Establishing partnerships with the university environment in order to achieve sustainability – the collaboration between the university and the business environment has proven to be a successful example in achieving sustainability. In our opinion, it will be easier for students to get a job once they graduate from university, having already formed the necessary skills to be able to ensure sustainable development (paragraph 2.1.).

9. Active participation in scientific events organized by the university environment – in order to raise awareness of issues related to ensuring sustainability through the lens of capitalizing on human potential, there is a need to involve the business environment in promoting conferences and forums, round tables and workshops organized by universities (paragraph 2.4.).

To higher education institutions

10. Implementing the University Sustainable Development Model – the implementation of the model will help higher education institutions to achieve an increased level of sustainability through policies and strategies focused on assuming the principles of sustainable development in the context of innovative changes (paragraph 4.4.)

11. Implementing the Human Potential Evaluation Methodology – in our opinion, the implementation of the methodology will help higher education institutions to evaluate the potential of their teaching staff, but also to elucidate the problems and challenges they face in the given field (paragraph 4.3.).

12. Evaluating the teaching and didactic evaluation process at the level of the higher education institution – higher education institutions must evaluate their teaching and didactic evaluation processes with modern tools in order to investigate the extent to which the taught course units and thematic contents form students' competences for sustainability. It would be beneficial to conduct quantitative research, where students are exposed to this topic.

13. Systematic evaluation and publication of efforts to achieve sustainability by the higher education institution – in order to achieve sustainability within higher education institutions, it is necessary to permanently evaluate the efforts made by higher education institutions on the path to achieving sustainability, preferably once a year and their publication.

14. Including, in the assessment sheet of the teaching staff's performance, the indicators related to the achievement of sustainability – in order to motivate the teaching staff to adapt their thematic content to the requirements of achieving sustainability, in our opinion, would be beneficial, as every higher education institution to include sustainability indicators in the teacher performance evaluation form.

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ADNOTARE

Suslenco Alina. „Managementul sustenabilității universitare prin valorificarea potențialului uman în contextul schimbărilor inovaționale”.

Teză de doctor habilitat în științe economice, Chișinău, 2022.

Structura tezei: adnotare, introducere, patru capitole, concluzii și recomandări, bibliografie din 403 de titluri. Conținutul lucrării este expus în 284 de pagini text de bază până la bibliografie, 68 tabele, 67 figuri, 24 anexe.

Rezultatele obținute au fost publicate în 55 de lucrări științifice.

Cuvinte-cheie: sustenabilitate, sustenabilitatea instituțiilor de învățământ superior, managementul sustenabilității universităților, potențial uman, capital uman, inovații, schimbări inovaționale, proprietate intelectuală, modelul sustenabilității universitare, cultură inovațională.

Scopul cercetării constă în dezvoltarea abordărilor teoretico-metodologice ale potențialului uman ca element de bază al managementului sustenabilității universitare, în vederea formării universităților sustenabile, în contextul schimbărilor inovaționale în Republica Moldova.

Obiectivele cercetării: cercetarea și interpretarea teoretică a conceptelor, teoriilor, principiilor și metodelor managementului sustenabilității universitare prin intermediul valorificării potențialului uman, evaluarea potențialului uman al Republicii Moldova și României, dar și a instituțiilor de învățământ superior, din perspectiva atingerii sustenabilității, evaluarea impactului schimbărilor inovaționale asupra instituțiilor de învățământ superior pe calea atingerii sustenabilității, analiza culturii inovaționale a universităților din Republica Moldova și România, evaluarea sustenabilității instituțiilor de învățământ superior, elaborarea modelului managementului sustenabilității universitare.

Noutatea și originalitatea științifică: dezvoltarea demersului conceptual complex privind managementul sustenabilității universitare; evaluarea valorificării potențialului uman în cadrul universităților; conturarea corelației dintre dezvoltarea potențialului uman și atingerea sustenabilității universităților; evaluarea sustenabilității instituțiilor de învățământ superior; elaborarea unui model propriu al atingerii sustenabilității universităților; identificarea direcțiilor de perfecționare a managementului universităților în vederea atingerii sustenabilității; elaborarea unui model matematic privind interpretarea corelării dintre dezvoltarea potențialului uman la nivelul universităților și sustenabilitatea lor.

Rezultatele noi obținute constau în dezvoltarea unei noi direcții de cercetare științifică a managementului sustenabilității universitare, care cuprinde o abordare complexă și sistemică a potențialului uman drept component fundamental al asigurării sustenabilității în cadrul sistemului de învățământ superior din Moldova; elaborarea modelului integrat de indicatori utilizați în evaluarea sustenabilității universităților.

Semnificația teoretică: cercetarea dată reprezintă o contribuție valoroasă pentru știința managerială pe dimensiunea sustenabilității universitare în contextul schimbărilor inovaționale prin intermediul unei analize complexe și multilaterale a sectorului, prin îmbogățirea cadrului teoretic și conceptual. Modelul conceptual al atingerii sustenabilității în cadrul instituțiilor de învățământ superior, metodologia de evaluare a valorificării potențialului uman, planul de acțiuni în sporirea sustenabilității instituțiilor de învățământ superior.

Valoarea aplicativă: este redată prin prisma faptului că, metodologia de evaluare a valorificării potențialului uman în cadrul instituțiilor de învățământ superior, vine în ajutorul instituțiilor de învățământ superior să evalueze potențialul cadrelor didactice și să-i motiveze să-și valorifice potențialul uman. Planul de acțiuni în atingerea sustenabilității, vine să ajute organele centrale, și instituțiile de învățământ superior să identifice soluții eficiente de atingere a sustenabilității prin armonizarea politicilor și strategiilor sale demersului de atingere a sustenabilității. Schimbările inovaționale propuse în prezenta lucrare, vin să ajute instituțiile de învățământ superior în adaptarea pe principiile sustenabilității.

Implementarea rezultatelor științifice: rezultatele obținute în cadrul lucrării au fost implementate în cadrul instituțiilor de învățământ superior, instituțiilor de cercetare-inovare, din Republica Moldova și România.

ANNOTATION

Suslenco Alina. "Sustainability Management of Universities via Capitalization of Human Potential in the Context of Innovative Change". Habilitation Thesis in Economic Sciences, Chisinau, 2022.

Structure of the thesis: Annotation, introduction, four chapters, conclusions and recommendations, bibliography including 403 sources. The content of the paper is presented in 284 pages of main text to the bibliography, 68 tables, 67 figures, 24 annexes.

The results of the thesis have been reflected in 55 scientific papers.

Key words: sustainability, sustainability of higher education institutions, sustainability management of universities, human potential, human capital, innovations, innovative changes, intellectual property, the model of university sustainability, innovative culture.

The purpose of the thesis lies in the development of theoretical-methodological approaches to human potential as a basic element of university sustainability management, in order to form sustainable universities, in the context of innovative changes in the Republic of Moldova.

The objectives of the research: research and theoretical interpretation of the concepts, theories, principles and methods of university sustainability management; identifying the components of human potential and their influence on sustainability in higher education; assessment of the human potential of universities in the Republic of Moldova and Romania; capitalizing on the impact of innovative changes on higher education institutions on the way to achieving sustainability; analysis of the innovation culture of the universities of the Republic of Moldova and Romania; improving the management of university sustainability; development of the system of indicators regarding the evaluation of human potential within the universities of the Republic of Moldova.

The scientific novelty and originality of the thesis: the development of the complex conceptual approach regarding university sustainability management; evaluation of the exploitation of human potential within the universities; outlining the correlation between the development of human potential and achieving the sustainability of universities; assessment of the sustainability of higher education institutions; developing an own model of achieving the sustainability of universities; identifying directions for improving university management in order to achieve sustainability; developing a mathematical model regarding the interpretation of the correlation between the development of human potential at the level of universities and their sustainability; the development of the action plan regarding the alignment of the higher education system in the Republic of Moldova with the principles of sustainability.

New results obtained: consist in the development of a new scientific research direction of university sustainability management, which includes a complex and systemic approach to human potential as a fundamental component of ensuring sustainability within the higher education system in Moldova; developing the integrated model of indicators used in the evaluation of the sustainability of universities.

Theoretical importance: this research represents a valuable contribution for managerial science on the dimension of university sustainability in the context of innovative changes through a complex and multilateral analysis of the sector, by enriching the theoretical and conceptual framework. The conceptual model of achieving sustainability within higher education institutions, the evaluation methodology of the exploitation of human potential, the action plan to increase the sustainability of higher education institutions.

Applicative value: is rendered through the prism of the fact that, the methodology for evaluating the exploitation of human potential within higher education institutions, comes to the aid of higher education institutions to evaluate the potential of teaching staff and to motivate them to exploit their human potential. The plan of actions in achieving sustainability comes to help central bodies and higher education institutions identify effective solutions to achieve sustainability by harmonizing its policies and strategies to achieve sustainability. The innovative changes proposed in this work help higher education institutions adapt to the principles of sustainability.

Implementation of scientific results: the results obtained during the research were implemented in higher education institutions and in research-innovation institutions of the Republic of Moldova and Romania.

АННОТАЦИЯ

Сусленко Алина. „Менеджмент устойчивого развития университетов за счет использования человеческого потенциала в контексте инновационных изменений”.
Диссертация доктора хабилитат экономических наук, Кишинев, 2022.

Структура диссертации: аннотация, введение, 4 главы, выводы и рекомендации, библиография – 403 источников. Содержание диссертации представлено на 284 страницах основного текста до библиографии, 68 таблиц, 67 фигур, 24 приложений.

Результаты исследования отражены в 55 научных работах.

Ключевые слова: устойчивое развитие, устойчивое развитие высших учебных заведений, менеджмент устойчивого развития университетов, человеческий потенциал, человеческий капитал, инновации, инновационные изменения, интеллектуальная собственность, модель устойчивого развития университетов, инновационная культура.

Цель исследования заключается в разработке теоретико-методологических подходов человеческого потенциала как базового элемента управления устойчивого развития университетов с целью формирования устойчивых университетов в контексте инновационных изменений в Республике Молдова.

Задачи исследования: исследование и теоретическое осмысление концепций, теорий, принципов и методов менеджмента устойчивого развития университетов; выявление компонентов человеческого потенциала и их влияние на устойчивое развитие высшего образования; оценка человеческого потенциала университетов Республики Молдова и Румынии; капитализация влияния инновационных изменений на высшие учебные заведения на пути к достижению устойчивого развития; анализ инновационной культуры университетов Республики Молдова и Румынии; совершенствование менеджмента устойчивого развития университетов; разработка системы показателей оценки человеческого потенциала в университетах Республики Молдова.

Научная новизна и оригинальность исследования: заключаются в разработке комплексного концептуального подхода к управлению устойчивостью университета; оценка использования человеческого потенциала в университетах; выявление взаимосвязи между развитием человеческого потенциала и достижением устойчивости университетов; оценка устойчивости высших учебных заведений; разработка собственной модели достижения устойчивости университетов; определение направлений совершенствования управления университетом для достижения устойчивости; разработка математической модели интерпретации зависимости между развитием человеческого потенциала на уровне университетов и их устойчивостью.

Полученные новые научные результаты: заключаются в развитии нового научно-исследовательского направления управления устойчивостью университетов, которое включает комплексный и системный подход к человеческому потенциалу как фундаментальному компоненту обеспечения устойчивости в системе высшего образования Молдовы; разработка интегрированной модели показателей, используемых при оценке устойчивости университетов.

Теоретическая значимость диссертации: данное исследование представляет собой ценный вклад в управленческую науку о измерении устойчивости университетов в контексте инновационных изменений посредством комплексного и многостороннего анализа сектора, путем обогащения теоретической и концептуальной базы. Концептуальная модель достижения устойчивости в высших учебных заведениях.

Прикладная ценность: методология оценки использования человеческого потенциала в высших учебных заведениях приходит на помощь высшим учебным заведениям для оценки потенциала профессорско-преподавательского состава и мотивации их на использование своего человеческого потенциала. План действий по достижению устойчивости призван помочь центральным органам и высшим учебным заведениям определить эффективные решения для достижения устойчивости путем согласования своей политики и стратегий для достижения устойчивости.

Внедрение научных результатов: результаты, полученные в диссертации, были внедрены в высшие учебные заведения и в инновационных научно-исследовательских институтах Республики Молдова и Румынии.

SUSLENCO ALINA

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CAPITALIZATION OF HUMAN POTENTIAL IN THE
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