

Evaluation of the Potential of Higher Education Institutions in the Context of Achieving Sustainability

Alina SUSLENCO¹

¹ Associate Professor, PhD, Alecu Russo Balti State University, Balti, Republic of Moldova, alina.suslenco@mail.ru

Abstract: This paper represents a theoretical-methodological incursion on the requirements of higher education institutions to achieve sustainability. The relevance of the topic derives from the need to assess the potential of higher education institutions in order to achieve sustainability. The aim of the research is to assess the potential of universities in the context of sustainability. The paper focuses on making an approach to achieving educational performance, in terms of assessing the human, innovative potential of higher education institutions which represents a vital factor in achieving university sustainability. Universities as active actors in sustainable development must demonstrate the necessary training, competent human potential, viable educational policies, and effective tools to achieve sustainability. The research methodology focused on the use of the following methods such as: analysis, synthesis, qualitative research, scientific abstraction, which contributed to a comprehensive and complex study on the training of Moldovan universities to achieve sustainability. In conclusion, we reiterate that universities as “vectors of change” are demanded to develop successful strategies to achieve sustainability, in terms of certain effective activities that would ensure their sustainable development. The undertaken research allowed us to elucidate that Moldovan universities do not have a model for achieving university sustainability. In this context, we can point out the need to develop a viable tool for assessing the steps taken by universities to achieve sustainability.

Keywords: *Sustainability; higher education institutions; human potential; innovative potential; competitiveness.*

How to cite: Suslenco, A. (2022). Evaluation of the Potential of Higher Education Institutions in the Context of Achieving Sustainability. *Postmodern Openings*, 13(2), 118-142. <https://doi.org/10.18662/po/13.2/446>

Introduction

Moldovan higher education institutions are currently in a critical situation facing several problems. One of the worst problems is the negative influx of potential students who would get enrolled in higher education institutions in Moldova to perform their studies. This problem drastically influences the activity of higher education institutions that try to survive and ensure the continuity of their education and research activities.

This problem has several roots, including the penetration of the phenomenon of globalization in education of the Republic of Moldova, but also the reduction of the birth rate, which has reduced the number of children. Along with these problems, higher education in the Republic of Moldova struggles daily with the need for self-financing because higher education institutions in Moldova are self-financing which is difficult to achieve in the context of a declining number of potential students.

The dynamism and turbulence that characterize the business environment of higher education institutions require the application of safe, tangible measures to achieve sustainability in terms of capitalizing on human potential in the context of innovative changes that occur daily. The need of higher education institutions to be competitive, sustainable, derives from increasing competitive pressure, from the need to align with international standards in order to be attractive for students. Therefore, sustainability in higher education institutions must be cultivated with a fast pace, ensuring the promotion of economic, social and environmental equity.

Although initially aimed at ensuring economic, social and environmental balance within the society, at present, sustainability approaches have been attributed to various sectors, both the business environment and higher education institutions, which represent “knowledge workshops”, the institutions that generate new methods and techniques, that cultivate the thirst to research and to discover. Higher education institutions constitute true “artisans of new visions”. These are the institutions that must inspire, create, plant correct visions, based on balance, fairmindedness and strategic visions for the development of society.

This paper represents a theoretical-practical incursion into the defining aspects of achieving sustainability by higher education institutions, based on human potential as a decisive factor in ensuring sustainability within higher education institutions.

Or, sustainability in higher education institutions can be ensured through the cultivation of postmodern education, which focuses on several directions such as: ethical education, environmental education, education for

skills training in order to integrate students into the society of the future, education for integration into the informational society, distance learning, e-Learning technologies, e-Learning for sustainable development.

Only educational institutions that stimulate postmodern education are able to be competitive, to meet the new challenges of present society, to adapt to new and innovative changes.

The need to involve students in activities to achieve sustainability (growing trees, sorting waste, saving resources, using bio-transportation, landscaping green areas) can help the higher education institution to achieve sustainability.

Postmodern education with its directions (e-learning, e-tutoring, lifelong learning, responsible education, sustainable education, distance education, etc.) can break stereotypes, stimulate the generation of innovations, facilitate the educational process and increase the efficiency of the educational process, but also, the competitiveness of higher education institutions.

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

Thus, we must mention that universities are currently the artisans of knowledge, the probes of cultural values and the sources for generating innovation. Within the universities, next to the university campuses, amid the lecture halls, research laboratories, creative centres, research incubators, there is a dominant favourable atmosphere for generating innovations.

In order to meet the challenges, but also the demands imposed by the innovative changes in higher education, higher education institutions must focus on cultivating the directions of postmodern education capitalizing on the human potential of teachers, researchers, students, who, as a whole, will be able to change stereotypes, achieving sustainability in higher education.

Therefore, there is a need to carry out research in order to identify the best measures applied by higher education institutions in the country to achieve sustainability.

Literature Review

The most important component of country's national wealth in the 21st century is *human potential*. In the age of globalization, a factor of success in any company and institution constitutes the process of fundamental

expansion of human competences, capitalizing on employees' *human potential*, which includes the ability to set goals, often complex, along with preparing employees for a modernized thinking, in the field of geo-cultural, geo-economic and artificial capacity, designing attitudes towards one's own perspectives (Suslenko, 2021, pp. 240-242).

Human potential represents both an explicit and implicit aptitude, along with the ability to work efficiently in the modern organizational context of enterprises and institutions, in development and adaptation to changing conditions, which leads to the long-term sustainable development of the organization.

In modern society, the economic, material foundation of enterprises is constantly changing – there are “new technologies” of industrial nature, which, however, often give way to “smart technologies”, developing new approaches to solving technical, economic and social problems. In such an economy, a special role in achieving the competitiveness of the organization is played by its staff as one of the main factors in increasing organizational performance.

The staff of the organization has certain skills. The initial source for educating the organization's staff is crystallized by: the employee's individual characteristics, innate strength, character, ability.

The source of a “modern employee” training is based on knowledge, skills, values, abilities that accumulate over time with the employee's performed work – i.e., the acquired skills, or human potential (Iliina, 2012, pp. 79-80).

The specialized literature abounds with a lot of definitions regarding the human potential, which is addressed via various terms, such as: human potential, work potential, employees' potential, scientific potential, creative potential, intellectual potential, entrepreneurial potential, innovative potential, etc. In the process of modernizing the economy, based on intelligent technologies, new methods and techniques of work organization, new requirements for employee training are crystallizing. Based on these processes, new characteristics emerge, which make up the human potential.

The qualitative human potential, or those qualitative characteristics of the organization's staff are formed under the influence of increasingly different, complex and sophisticated requirements put forward in relation to employee training. Based on this fact, an important criterion in assessing the human potential of organization's employees is the degree of compliance of the natural, personal, intellectual, professional and qualification characteristics of organization's staff with the level of scientific and technical progress, modern economic conditions and market requirements. The issue

of capitalizing on and developing the human potential of the organization should become a priority strategic task for any modern organization (Suslenco, 2021, p. 248).

The human potential of the organization is a complex category as it forms a system consisting of a set of elements, which must fulfil its function of increasing the competitiveness of the company, and which involves other elements, systematically affecting the efficiency of the entire system.

According to researcher D. Dai, 2020, *human potential* is defined as any latent qualities that can be achieved or developed via experiences, leading to some definable success and achievements (Dai, 2020, p.48).

Although traditional conceptions of human potential vary, they tend to provide feature-level explanations. A trait is an individual who has a characteristic that is functional in a set of situations. For example, talent, however definite it may be, is often considered a personal trait or something made up of a set of traits (Dai, 2020, 49).

In the same context, the researcher Terman used the intelligence test to identify perceptions about talent traits as a foundation of educational practice (e.g., placement strategy) (Terman, 2005, p.53).

On the other hand, Goddard tried to identify the “weak mind” (Hall, 2003, p. 42). Although personal traits may be a valid explanation of human potential for some, while for other categories of staff, the level, characteristics of human potential suffer from several limitations. First, contemporary models tend to perpetuate a fixed interpretation of human potential as a static and capacity-like element, as if the potential to learn and grow is somehow limited which indicates trait measurements or test scores.

Second, trait patterns have an individualistic tendency, what one is able to do and achieve is attributed exclusively to one’s own characteristics, such as gifts and talents, rather than learning experiences and active participation in socially organized activities, including formal education (Plucker, Beghetto, & Dow, 2004, p.92).

Third, trait models are prone to reifying psychological abstracts, transforming constructs such as “gifts” and “talents” into “real entities” that have explanatory power, leading to tautological reasoning: a person acts intelligently because the person is intelligent or has a high intelligence or, a person is skilled or possesses extra-talent if he is “gifted”; nothing is really explained (Dai, 2020, p. 51).

An alternative perspective on ability is articulated by Bandura (1993), who argued that “ability is not a fixed attribute in the behavioural repertoire of the individual. Rather, it is a generative capacity in which social,

motivational, and behavioural skills must be organized and orchestrated effectively to serve many purposes” (Dai, 2020, p. 52).

Over the last two decades we have witnessed changes in conceptions of human potential in general, especially in terms of talent. In developmental psychology, a doctrine of genetic determinism is replaced by a perspective on human potential as interactively modelled at several levels (genetic, neuronal, behavioural, and environmental) by the development, in a probabilistic manner, rather bidirectional than unidirectional (Gottlieb, 2007, p. 8).

In the psychology of education, Snow (1992) redefined aptitude as a close term in respect of potential, defining it as a situational element (Snow, 1992, p. 12). For him, skills are always relative to current opportunities and contemporary challenges, indicating the extent to which he can benefit from them (Lohman, 2005, p. 338).

Research Methodology

The goal of this study is focused on the need to assess the potential of higher education institutions in Moldova on the way to achieving sustainability. Therefore, in the context of major disruptions in the Moldovan education system in recent years, there is a need to assess the potential of universities in the country on the path to sustainable development.

In this context, the study helps us to reiterate the problems, challenges but also the difficulties faced by higher education institutions in the country. We also considered it useful to conduct comparative research at the country level, the potential of higher education institutions of universities in the Republic of Moldova, but also in Romania.

The purpose of the research is the evaluation of the potential of higher education institutions in the Republic of Moldova and Romania on the way to achieving sustainability.

The research scientific objectives:

O1: evaluation of the potential of universities in the Republic of Moldova from a macroeconomic point of view;

O2: evaluating the potential of universities following the example of USARB, USM, ASEM, UAIC;

O3: highlighting the similarities and differences identified in the evaluation innovative potential of the 4 higher education institutions;

O4: evaluation of the human potential of the selected institutions.

Research questions:

Q1: the potential of higher education institutions in Moldova is strengthen?;

Q2: the human capital of higher education institutions in Moldova contributes to achieving sustainability?;

Q3: the innovative potential of higher education institutions in Moldova deserves to be boosted in order to achieve sustainability?;

Q4: the potential of Romanian institutions exceeds the potential of Moldovan institutions?.

Research method. In this context, in order to achieve the goal and research objectives, we considered it useful to conduct a qualitative research, based on the secondary data analysis from the reports of higher education institutions of research institutions USARB, ASEM, USM, UAIC, regarding the research activity, innovation.

Secondary data analysis was performed based on the science reports and activity reports of the higher education institutions selected for analysis from 2015-2019. These documents were analyzed because they allowed us to elucidate:

a. the human potential of the higher education institution (teachers, researchers, students involved in research, etc.);

b. identification of the centers where the research process is carried out in the higher education institution (evaluation of the potential of the higher education institution);

c. identification of the results obtained of the teachers (articles in indexed journals, monographs, textbooks for university course education, participation in the research projects, etc.) from the higher education institution.

The secondary data analysis was performed through the application of data analysis techniques such as:

- identification of the analysis criteria - the data analysis criteria were: the research potential of the research centers within the higher education institutions selected for analysis, the human potential of the research centers in the higher education institutions, the results obtained by the researchers capitalizing on human potential (published articles, monographs, course materials, project participation, etc.);

- content analysis - the data collected were interpreted regarding their contribution and significance to the development of the human potential of researchers in higher education institutions;

- comparison - the data followed a comparative analysis in order to identify the tangents and differences between higher education institutions in the country and those in Romania.

The potential of higher education institutions was evaluated from the perspective of the expenditures allocated by our country for the research and development sector, making an analysis in dynamics by highlighting the development trend. Furthermore, the potential for the development of human skills was assessed, by analysing the dynamics of the development of human potential in higher education institutions.

At the same time, the potential of higher education institutions in terms of performance development was researched, which, for a higher education institution, in order to achieve sustainability, represents a fundamental pillar. The articles Scopus, ISI, indexed in the international database of teachers from higher education institutions were reviewed.

In addition, a special place in the research was occupied by the evaluation of the potential of universities in terms of internationalization of research, where the potential for access to international projects, participation in bilateral projects was evaluated.

The research infrastructure, the innovative, human, research potential of the universities of Moldova but also of Romania were evaluated, on the example of 4 universities, of which 3 universities from Moldova: Alecu Russo Balti State University (USARB), State University of Moldova (USM), Academy of Economic Studies of Moldova (ASEM), as well as Alexandru Ioan Cuza University of Iasi (UAIC). In this context, comparative research on the development of universities on the path to sustainability was carried out.

Finally, relevant conclusions were drawn, which highlighted the main problems, challenges, but also opportunities of higher education institutions on the way to achieving sustainability.

Results

Next, we will focus on the investigation of research centres, in which the research is performed, in higher education institutions in Moldova, Romania, thus conducting a cross-border analysis in order to identify the innovative potential of higher education institutions in Moldova and Romania.

We can highlight that the following higher education institutions were taken from the Republic of Moldova for analysis: Alecu Russo Balti State University, State University of Moldova, Academy of Economic Studies of Moldova. The first university in Romania, a prestigious institution in the country, was analysed in Romania, Alexandru Ioan Cuza University of Iasi.

Based on the data we can see the following statistics:

a. In USARB the research is carried out in 4 main centres:

- The Humanities Research Centre which includes 7 scientific research laboratories, 2 of which are from the Faculty of Philology, and 5 from the Faculty of Education, Psychology and Arts Science;
- Exact and Economic Sciences Research Centre – this centre includes 7 laboratories of the Faculty of Exact, Economic and Environmental Sciences;
- Natural Sciences Research Centre which includes the Department of Natural Sciences and Agroecology;
- Resonant Nanotechnologies Interuniversity Innovation Centre.

Within Alecu Russo Balti State University on 24.08.2020 was opened the only Moldovan Centre for Innovation and Technology Transfer funded by the National Fund for Regional Development, which will help the university to become a leader in the field of innovation and it will certainly put it on the path to sustainability.

b. In ASEM the research is carried out in 14 research centres and laboratories, from different fields of science, where the researchers from the given institution carry out their research and obtain notorious results;

c. In USM the research is carried out in 23 laboratories and research institutes from different fields of science, but it should be noted that the institution has an Innovation Incubator “Inventica USM”;

d. In UAIC the research is carried out in 20 departments and research centres in different fields of science that help the researchers within the institution to carry out the research activities and to obtain notorious results.

It should be noted that the main components of the research activity within USARB are shown schematically in Figure 1.

Research components in USARB			
the University's accession to the consolidated partnership of the European Space of Research Center for Excellence and Growth;	increasing the effectiveness of research and innovation of major societal challenges, approach based on challenges, bringing together resources and knowledge for different fields, technologies and disciplines;	increasing the scientific potential of Alecu Russo Balti university and the quality of their scientific products;	ensuring the visibility and dissemination of the results of the research.

Figure 1. The main components of the research activity in USARB, 2021

Source: elaborated based on USARB Scientific Activity Report, 2021

In addition to this research, USARB has an imperative priority to be accredited until 2021 on several profiles such as:

1. Physics and the technology of material environments;
2. Educational curriculum technology;
3. Linguistic and literary phenomena in/ from a diachronic and synchronic perspective;
4. Modern philology in the context of cultural dialogue;
5. The socio-legal dimension of the European integration of the Republic of Moldova;
6. Models of sustainable development in economics and management.

At these profiles, USARB researchers write and develop research projects that they submit for competitions. Thus, in 2019 within USARB there were 12 research projects in which researchers had the opportunity to research and capitalize on their potential to ensure the sustainability of Alecu Russo Balti State University. In this context, we must point out that 14 researchers from USARB participated in research projects in other institutions. The result of the research activity ensures the sustainability of the university and the path to a sustainable development. In this regard, we must point out that USARB researchers have achieved important results. Therefore, the scientific products of the University collaborators were reflected in 368 publications, including monographies – 19, 281 articles; manuals/ guides /supports/ dictionaries – 30 (The scientific report of USARB, 2019).

However, the most important component of USARB human potential remains human resources, i.e., teachers and researchers who participate in the university research and innovative development.

In this context, we consider it useful to present this component within USARB. Accordingly, the synthetic data are presented in Table 1, the human potential of USARB, in the period 2015-2019.

Table 1. The human potential of USARB, in the period 2015-2019

Researchers	2015	2016	2017	2018	2019
Total	261	242	214	231	208
Full Professors	12	12	13	13	12
PhD in Science	104	78	87	109	103
Lecturers and Assistants	162	152	114	109	93

Source: elaborated by the author based on USARB Scientific Activity Reports, 2015-2019

From the analysis of Table 1, we notice that in the research they are involved from habilitated doctors (Full Professors) to university assistants. However, most of the human resources in USARB that are involved in research hold PhD degrees in science. In the period 2015-2019 their number slightly decreased from 104 people in 2015 to 103 people in 2019. The number of lecturers and assistants in 2015 -2019 registered a decreasing evolution from 162 people in 2015 to 93 people in 2019. This is fuelled by the provisions of the Education Code which stipulates that in universities, only people with a scientific degree must hold lectures.

In the same context, it should be noted that USARB has an enormous innovation potential so that the university has the material, human, financial and informational resources necessary to develop the research activity within USARB. Another channel, which contributes to the substantiation of the innovation potential of USARB is the opening of the Centre for Innovation and Technology Transfer of the North Development Region, the total sum of the project constituting over 16,859,800 lei.

In Table 2, we presented the dynamics of the results from the research activity in USARB during the period of 2015-2019.

Table 2. Dynamics of the results from the research activity in USARB, 2015-2019

Year / results	2015	2016	2017	2018	2019
Patents	1	1	1	1	1
Total publications	531	585	527	568	368
Total monographs	7	20	8	18	19
Total articles	484	519	477	324	281
of which ISI, WoS, SCOPUS	3	5	6	13	5
Textbooks for university course education, guides, course notes, books	40	35	29	26	30
Auto-reports	-	-	-	-	1
Participation in national and international projects	10	11	9	10	12
USARB position in webometrics	11	8	8	5	5

Source: elaborated by the author based on USARB Scientific Activity Reports of 2016-2019

Based on the charts presented in Table 2, we can see that in the period 2015-2019 within USARB the research activities focused on the publication of articles, monographs, on participation in research projects.

The total number of publications of researchers within USARB in the period 2015-2019 registered an oscillating trend of reduction from 531 publications in 2015 to 368 publications in 2019, or we attest a decrease of 30% compared to 2015. This phenomenon is extremely negative and

contributes to the reduction of the visibility on the international level of the results obtained by researchers from the higher education institution.

If we are to make an analysis of the research directions within the State University of Moldova, then we must highlight the fact that USM focuses its attention on several research directions shown schematically in Figure 2.

Research directions in USM				
National heritage and the development of society	Innovative materials technologies and products	Health and biomedicine	Biotechnology	Energy efficiency and capitalization of renewable energy sources

Figure 2. Research directions in USM, 2020

Source: developed based on USM information, available at: <http://usm.md/wp-content/uploads/2015/03/Direc%C5%A3ii-de-cercetare-la-USM.pdf>

The State University of Moldova is accredited as an organization in the field of science and innovation with all related rights to carry out research activities, innovation and technology transfer at the following research profiles:

1. Mathematical sciences: theoretical and applied aspects.
2. Current issues in computer science and economics.
3. Physics and engineering of materials, nanostructures and devices.
4. Materials chemistry and non-polluting technologies.
5. Biodiversity and the rational use of bioresources in ensuring biological security.
6. Theoretical and applied linguistics; history and theory of literature.
7. Unity and historical-cultural diversity in civilizing processes.
8. Social, political and demographic sciences - support in the development of contemporary society.
9. National law and the judiciary in line with international standards.
10. Education sciences and psychology in the modernization of national education (USM, 2019)

In this context, we consider it useful to present this component at USM. Thus, the synthetic data are presented in Table 3, the human potential of USM, in the period 2016-2019.

Table 3. The human potential of USM, in the period 2016-2019

Researchers	2016	2017	2018	2019
Total	264	277	236	203
Scientific Researchers	211	216	195	163
Ful Professors	33	32	32	29
PhD in Science	107	117	106	100

Source: elaborated by the author based on USM Scientific Activity Reports, 2016-2019

From the analysis of Table 3, we notice that in research there are involved from habilitated doctors (Full Professors) to university assistants. However, most of the human resources in the USM that are involved in research doctors of science - which in the period 2015-2019 slightly decreased their number from 107 people in 2015 to 100 people in 2019. The number of scientific researchers followed a decrease for the period 2016-2019 from 211 people to 163 people.

We consider useful the presentation of the scientific results obtained by the scientific researchers from USM University in the period 2016-2019. The schematic data are presented in Table 4.

Table 4. The scientific results obtained by USM scientific researchers in the period 2016-2019

Year / results	2016	2017	2018	2019
Patents	58	55	56	67
Total publications	357	568	568	506
Total monographs	22	35	31	33
Total articles	166	203	259	193
of which ISI, WoS, SCOPUS	26	29	25	32
Textbooks for university course education, guides, course notes, books	13	35	15	17
Participation in national and international projects	31	30	28	28
USM position in webometrics	1	1	1	1

Source: elaborated by the author based on USM Scientific Activity Reports, 2015-2019

Based on the data presented schematically in Table 4, we can see that in the period 2015-2019 within the USM the largest number of publications by researchers from the higher education institution was published. Thus, if the total number of publications in 2015 were 357, then in 2019 this number reached 506 publications. Of these, with impact factor in 2015 there were 26, and in 2019 their number increased to 32. This demonstrates the special

interest of researchers to increase their visibility, on the one hand, but also of the higher education institution and the country, on the other hand.

In addition, we must note that the research within USM is very well capitalized so that in USM the dynamics of research projects is special. USM researchers are involved in many research projects as follows: fundamental 13, applicative 8, projects for young researchers in core sciences 3 and applied sciences 1, as well as, projects within state and bilateral programs, 1 per each, projects for scientific events 1 (USM Scientific Reports, 2019).

From the analysis of the research and innovation activity of USM University, one can observe a valuable contribution of the university both domestically and internationally. The State University of Moldova is a national leader in the field of research and innovation, has an enormous potential for both research and innovation, having all the necessary resources to ensure and develop its innovation potential and to ensure its sustainable university development. Teachers at USM University and students are involved in research, thus providing them with an atmosphere conducive to creativity and the development of the innovative potential of the higher education institution.

Scientific research at the Academy of Economic Studies of Moldova is supported by technical, material and information services. The Academy of Economic Studies provided the necessary spaces for carrying out scientific research activities, spaces provided with all the necessary utilities. The academy currently has 1068 computers, of which 350 are directly intended for the educational process, being located in 28 laboratory rooms. There are also 20 classrooms for teachers, equipped with 75 computers (ASEM, 2017).

The Academy of Economic Studies has 6 study and research buildings. The study rooms are equipped with furniture to ensure the comfort of students and teachers, most of the rooms are equipped with multimedia technology (laptops, projectors). There are also laboratories in which special furniture is installed, adapted according to the type of activities carried out (merchandise, informatics, etc.) (ASEM, 2020).

If we move on to the analysis of the human potential of ASEM that may be involved in research activities within the higher education institution then we must note that ASEM has an important scientific potential in the field. At the level of the higher education institution, the total number of positions with scientific-didactic activity is 446, of which 338 positions – staff employed in research and innovation, in addition to this, there are people working through internal cumulation – 24 people. Out of the total number of collaborators involved in the research, 32 persons hold the

scientific degree of habilitated doctor, i.e., 9.5%, and 208 persons have the scientific degree of doctor, i.e., 61.5%. The number of people involved in the research under the age of 35 is 67 people (ASEM, 2017).

It should be noted that ASEM has a significant contribution to the development of research potential, supporting young researchers in this higher education institution. From this point of view, the ASEM efforts to create the Doctoral School in the economic field must be highlighted.

In this context, we consider it useful to present this component at USM. Therefore, the synthetic data are presented in Table 5, the human potential of ASEM, in the period 2015-2019.

Table 5. The human potential of ASEM, in the period 2016-2019

Researchers	2016	2017	2018	2019
Total	429	397	343	276
PhD in Science, and Full Professors (Habilitated Doctors)	286	254	228	168

Source: elaborated by the author based on ASEM Scientific Activity Reports, 2015-2019

From the analysis of Table 5, we notice that the number of teachers in ASEM decreased for the period 2016-2019 from 429 teachers who taught in 2016 to 276 teachers who worked in ASEM in 2019. Thus, the number of teachers decreased in 2019 by 35.66%. This is due to the decrease in the number of students in the ASEM educational institution.

In addition, most of the ASEM teachers who are involved in research hold the PhD degree, which in the period 2016-2019 slightly decreased in number from 286 people in 2016 to 168 people in 2019.

We consider useful the presentation of the scientific results obtained by the scientific researchers from ASEM in the period 2016-2019. The schematic data are presented in Table 6.

Table 6. Scientific results obtained by scientific researchers of ASEM, in the period 2016-2019

Year / results	2016	2017	2018	2019
Patents	-	-	-	-
Total publications	512	448	192	
Total monographs	10	12	8	
Total articles	355	187	91	
of which ISI, WoS, SCOPUS	7	4	4	
Textbooks for university course education, guides,	48	34	4	

course notes, books				
Participation in national and international projects	10	6	8	
ASEM position in webometrics	3	5	6	4

Source: elaborated by the author based on ASEM Scientific Activity Reports, 2015-2019

Analysing the data summarized in Table 6, we can see that ASEM teachers in 2016-2019 have made a multitude of publications, where they have offered the opportunity to increase their visibility and the educational institution they represent. We must note that during the analysed period the number of scientific results of the ASEM educational institution are decreasing from year to year.

Thus, if in 2016 ASEM was a member of 10 research projects, as in 2019 ASEM is a member of 8 research projects. Accordingly, there is a 20% reduction in the number of research projects implemented within ASEM.

We can also highlight that the total number of publications of ASEM researchers decreased for the period 2016-2019 from 512 publications to 192 publications in 2019.

The ASEM position according to the Raking Webometrics ranking in the period 2016-2019 followed an oscillating trend from the 3rd position in 2016 to the 4th position in 2019.

Finally, we can mention that ASEM is a higher education institution that boasts a competent staff, with a valuable innovative potential expressed through a multitude of research projects, researchers' publications from this higher education institution.

If we are to make an analysis of the research activity within UAIC from Iasi, Romania, then we must note that the University focuses its research activities in the following research directions:

1. Advanced research in physics and technology;
2. Fundamental and applied structures in mathematics;
3. Theoretical and applied informatics and software engineering;
4. Medical chemistry and biodiversity;
5. Atmospheric chemistry;
6. Geonomics;
7. Romanian and worldwide history, language, literature and civilization;
8. Economy, business, society – new models of growth and innovation;
9. Religious and intercultural studies;
10. Social representation of poverty, power and minorities;

11. Behavioural studies and psychological and educational support interventions;
12. Strengthening the rule of law;
13. Evaluation of morpho-functional parameters in performance sports and people with disabilities;
14. Regional development; economy, territories, governance;
15. Eastern Europe; geopolitics, culture and society (UAIC, 2017).

In the same context, we must mention that the teachers involved in the research activities within the UAIC of Iasi, have made a valuable contribution to the university and its visibility. Thus, the analysis of the research situation within UAIC from Iasi serves as proof. The synthetic data are presented in Table 7.

Table 7. The human potential of UAIC, in the period 2016-2019

No.	2016	2017	2018	2019
Total	1455	1488	1529	1610
Researchers	94	89	95	95

Source: elaborated by the author based on UAIC Scientific Activity Reports, 2016-2019

From the analysis of Table 7, we notice that the number of teachers in UAIC decreased for the period 2016-2019 from 429 teachers teaching in 2016 to 276 teachers working in UAIC in 2019. Accordingly, the number of teachers decreased in 2019 by 35.66%. This is due to the decrease in the number of students in the educational institution of UAIC.

In addition, most of the teachers involved in research in UAIC hold PhD degrees in Science. In the period 2016-2019 their number slightly decreased from 286 people in 2016 to 168 people in 2019.

We consider useful the presentation of the scientific results obtained by the scientific researchers from the UAIC university in the period 2016-2019. The schematic data are presented in Table 8.

Table 8. The scientific results obtained by the scientific researchers from UAIC in the period 2016-2019

Year / results	2016	2017	2018	2019
Patents	-	2	2	-
Total publications	2162	1810	1606	1764
Total monographs	519	200	226	238
Total articles	1643	1610	1779	1526
of which ISI, WoS, SCOPUS	1493	1431	1496	1296
Participation in	159	195	217	165

national and international projects UAIC position in webometrics	4	3	3	2
---	---	---	---	---

Source: elaborated by the author based on UAIC Scientific Activity Reports, 2016-2019

Analysing the data summarized in Table 8, we can see that UAIC teachers in the period 2016-2019 have made a multitude of publications where they have offered the opportunity to increase their visibility but also of the educational institution. It should be noted that during the analysed period the number of scientific results of the UAIC educational institution are decreasing from year to year. Thus, the teachers from UAIC made a multitude of scientific publications in the period 2016-2019. Most of the publications constitute ISI and WoS articles which in 2016 amounted to 1493 and in 2019 decreased slightly reaching the value of 1296. In addition to these achievements, UAIC academics are proud of a multitude of monographies, in 2016 their number reached 519, and in 2019 – 238.

The projects obtained by UAIC researchers demonstrate the university massive effort in the field of research. Thus, the number of projects within the university is increasing from 159 projects in 2016 to 165 projects in 2019.

In addition, UAIC also holds a top position after the evaluation performed by the Ranking Webometrics where Alexandru Ioan Cuza University of Iasi holds the 4th position in and the 2nd place in 2019. This fact is due to the massive effort made by academics from UAIC involved in research, and indisputably increases the visibility of both UAIC teachers and the university as a whole.

In order to perform a comparative analysis of the human potential available to the universities taken for analysis, we present Figure 3.

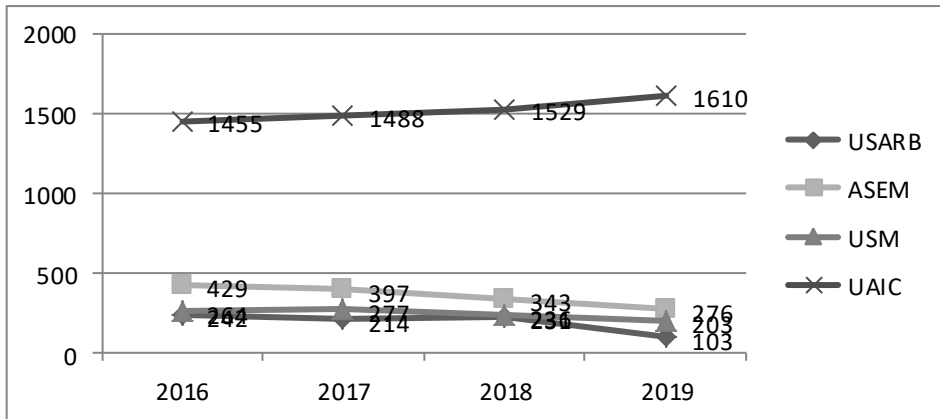


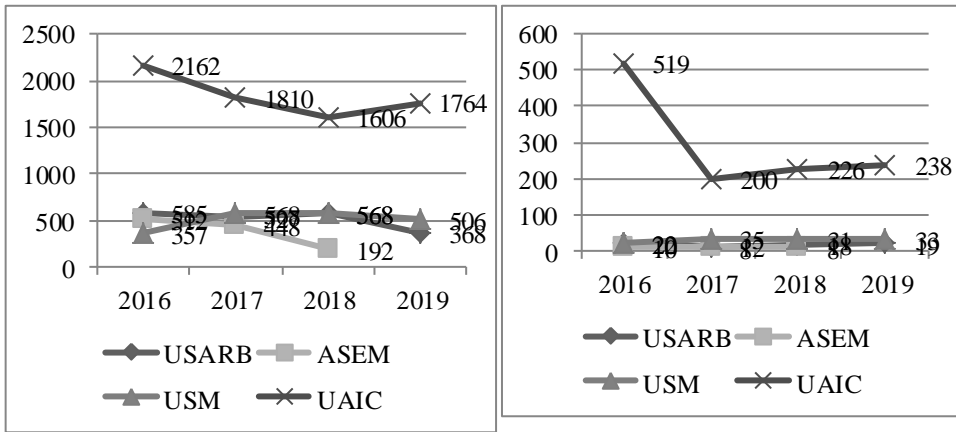
Figure 3. A comparative analysis of the human potential of ASEM, USARB, USM, UAIC

Source: elaborated by the author based on Scientific Activity Reports of the analysed Universities

Based on the data presented in Figure 3, we can see that among the universities in Moldova, ASEM University has a higher potential. On the other hand, if we analyse all 4 universities, we notice that Alexandru Ioan Cuza University of Iasi is a leader in the human potential it has and it should be noted that for the analysis period, within UAIC there is no decrease in the number of teachers, as we see within the Universities of Moldova. The 3 universities in Moldova such as USARB, ASEM, USM, follow practically the same decreasing trend for the period 2016-2019. It shows that Moldovan universities are facing a reduction in the number of students, which also contributes to reducing the number of teachers.

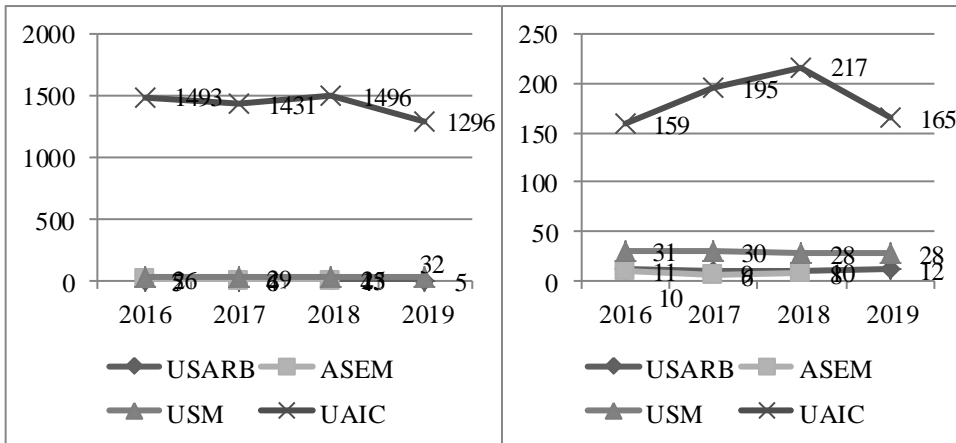
On the other hand, UAIC is a strong university, which despite similar problems, the reduction of the number of students strives to maintain the number of students and teachers.

In Figure 4, we performed a comparative analysis of the scientific results recorded by each university analysed.



Total Publications

Total monographies



Total articles ISI, WoS, SCOPUS

Participation in projects

Figure 4. A comparative analysis of the scientific results recorded by each university analysed USARB, USM, ASEM, UAIC

Source: elaborated by the author based on Scientific Activity Reports of the analysed Universities

Performing a comparative analysis of the 4 diagrams, we can highlight the following:

- *total publications* – performing an analysis of the total number of publications registered by the analysed universities, we notice that the UAIC university colossally exceeds the results obtained by the universities of Moldova. Thus, if Moldovan universities in recent years have a declining

trend in the number of publications from 506 registered by USM to 368 registered by USARB in 2019, then UAIC University is a leader in this regard which registers in 2019 – 12936 publications.

- *total monographies* – and in this respect, the UAIC University is a total leader registering 238 monographies in 2019. While Moldovan universities in 2019 registered 28 monographies at USM and 12 monographies at USARB.

- *total articles ISI, WoS, SCOPUS* – in this respect the differences are colossal because UAIC is a leader at this chapter where over the entire analysis period 2016-2019 it registers special values showing a slight decrease from 1493 in 2016 to 1296 in 2019. While Moldovan universities still have much work to do, because articles published in journals with high impact factor, WoS, SCOPUS published by Moldovan academics are very few 32 at USM and 5 at USARB in 2019.

- *participation in projects* – It is also worth noting here an obvious difference between the universities of Moldova and UAIC in Romania. Thus, when participating in UAIC projects in the period 2016-2019, there is an increase from 159 to 165 projects, while Moldovan universities participate in fewer projects. Accordingly, among the universities in Moldova, most projects are implemented by USM, which in the period 2016-2019 registered 31 projects in 2016 and 28 projects in 2019. During this period, USARB implemented 11 projects in 2016 and 12 projects in 2019. In this period, ASEM implemented 10 projects in 2016 and 16 projects in 2019.

Limits and Discussions

To conclude, we can note that in each of the universities analysed we noticed that there is a great research, human, and innovative potential which is exploited, to some extent, by teachers in universities. Nevertheless, we must note that we observed a big difference between the capitalization of the innovation potential by the universities of Moldova and by the UAIC university.

Thus, the UAIC University, for the period 2016-2019, registered special results in terms of scientific work and collaboration. UAIC academics publish the results of their research in national and foreign indexed journals. Hence, Moldovan academics still have much to learn when disseminating research, by publishing them in peer-reviewed journals with an impact factor that will help increase the image of the university and the country in the international arena. It will also make it easier to ensure sustainability in higher education institutions in Moldova.

On the other hand, we noticed the non-involvement of Moldovan institutions in projects, the data showing that higher education institutions

are not oriented towards obtaining new projects, as we observed at UAIC University, where, for the analysed period, there is an increase in the number of projects – from 159 to 165 projects.

Conclusions

From here, several imperatives for the universities of the Republic of Moldova are outlined:

- increasing the number of publications of Moldovan universities in journals with an impact factor, ISI, Wos, SCOPUS;
- increasing the number of accessed projects;
- motivating researchers to work in the research and development sector;
- increasing the number of monographies published by Moldovan researchers;
- stimulating the involvement of young people in research and development activities;
- increasing the patenting process of the results obtained by Moldovan researchers;
- carrying out collaborative activities between Moldovan and foreign universities.

Based on the analysis of the innovation potential of the analysed universities, ASEM, USARB, UAIC, USM, we can say with certainty that universities are aware of the need to place special emphasis on recruitment. Thus, during the analysis periods, there is an increase in the number of national and international projects accessed by universities and the number of researchers and teachers in universities that develop their innovation potential and participate in promoting research in these projects.

This will help universities to be visible nationally and internationally, to gain new knowledge and skills, which will ultimately contribute to increasing the innovation potential at the level of a higher education institution.

References

Dai, D.Y. (2020). The nature-nurture debate regarding high potential: Beyond dichotomous thinking. In: *D. Ambrose, R. J. Sternberg, & B. Sriraman, Confronting dogmatism in gifted education*, pp. 41–54.

Development of human skills in higher education institutions in Moldova [cited on 21.01.2021]. Available at: indicator.idsi.md/ro/categories_ind_list/HR-RD

- Dynamics of external Research and Development expenditures, % of total Research and Development funding volume [cited on 21.01.2021]. Available at: http://indicator.idsi.md/ro/categories_ind_list/E-RD
- Gottlieb, G. (2007). Probabilistic epigenesis. In: *Developmental Science*, 10, 1–11. Doi:10.1111/j.1467-7687. 2007.00556.
- Hall, V. C. Educational psychology from 1890 to 1920. (2003). In: B. J. Zimmerman & D. H. Schunk (Eds.), *Educational psychology: A century of contributions*, Lawrence Erlbaum Associates, pp.9-39.
- Iliina, G. (2012). Organizational human potential. In: *Consultant*, 2012, № 17, p. 78 - 81.
- Indicator for assessing the potential of higher education institutions “Increasing performance” [cited on 21.01.2021]. Available at: http://indicator.idsi.md/ro/categories_ind_list/Perf-RD
- Indicator for assessing the potential of higher education institutions “Internationalization of research and development” [cited on 21.01.2021]. Available at: http://indicator.idsi.md/ro/categories_ind_list/INTER-RD
- Lohman, D.F. (2005). An aptitude perspective on talent identification: Implications for identification of academically gifted minority students. In: *Journal for the Education of the Gifted*, 28(3–4), 333–360, 2005.
- Plucker, J., Beghetto, R., & Dow, G. (2004). Why Isn't Creativity More Important to Educational Psychologists? Potentials, Pitfalls, and Future Directions in Creativity Research. In: *Educational psychologist*, 39(2), 83–96, Lawrence Erlbaum Associates, Inc.
- Research profiles accredited in USM [cited on 21.01.2021]. Available at: http://usm.md/?page_id=2622&lang=ro
- Snow, R.E. (1992). Aptitude theory: Yesterday, today, and tomorrow. In: *Educational Psychologist*, 27(1), 5–32.
- Suslenco, A. (2021). Elaboration of the sustainable university model and its application in the higher education system of the Republic of Moldova. In: *Priority areas for development of scientific research: domestic and foreign experience*, Riga, Publishing House “Baltija Publishing”, 2021, p. 235-264. Doi: <https://doi.org/10.30525/978-9934-26-049-0>
- Terman, L. M. (1925). Genetic studies of genius. Mental and physical traits of a thousand gifted children. Stanford University Press.
- The report on the activity of UAIC university, 2016-2019 [cited on 21.01.2021]. Available at: <https://www.uaic.ro/wp-content/uploads/2020/02/Raport-Rector-Tudorel Toader sinteza 2016 2019.pdf>

- The report on the scientific activity of ASEM, 2016 [cited on 21.01.2021]. Available at: https://ase.md/files/documente/rapoarte/activitate_2015-2016.pdf
- The report on the scientific activity of ASEM, 2017 [cited on 21.01.2021]. Available at: https://ase.md/files/documente/rapoarte/activitate_2016-2017.pdf
- The report on the scientific activity of ASEM, 2018 [cited on 21.01.2021]. Available at: https://ase.md/files/documente/rapoarte/activitate_2017-2018.pdf
- The report on the scientific activity of ASEM, 2019 [cited on 21.01.2021]. Available at: https://ase.md/files/documente/rapoarte/activitate_2018-2019.pdf
- The report on the scientific activity of USARB, 2015 [cited on 21.01.2021]. Available at: https://usarb.md/wp-content/uploads/2018/11/RAPORT_STIINTA_2015.pdf
- The report on the scientific activity of USARB, 2016 [cited on 21.01.2021]. Available at: https://usarb.md/wp-content/uploads/2018/11/RAPORT_STIINTA_2016.pdf
- The report on the scientific activity of USARB, 2017 [cited on 21.01.2021]. Available at: https://usarb.md/wp-content/uploads/2018/11/Raport_2017.pdf
- The report on the scientific activity of USARB, 2018 [cited on 21.01.2021]. Available at: https://usarb.md/wp-content/uploads/2019/04/RAPORT_STIINTA_CATEDRE-pt-Senat-23.01.19_Final.pdf
- The report on the scientific activity of USM, 2016 [cited on 21.01.2021]. Available at: <http://cercetare.usm.md/wp-content/uploads/Raport-activitate-stiintifica-2016-USM.pdf>
- The report on the scientific activity of USM, 2017 [cited on 21.01.2021]. Available at: <http://cercetare.usm.md/wp-content/uploads/Raport-activitate-stiintifica-USM-2017.pdf>
- The report on the scientific activity of USM, 2018 [cited on 21.01.2021]. Available at: <http://cercetare.usm.md/wp-content/uploads/Raport-activitate-stiintifica-2018-USM.pdf>
- The report on the scientific activity of USM, 2019 [cited on 21.01.2021]. Available at: <http://cercetare.usm.md/wp-content/uploads/Raport-activitate-stiintifica-2019-USM.pdf>
- The report on the scientific activity of USM, 2020 [cited on 21.01.2021].

The report on the scientific activity of, 2019 [cited on 21.01.2021]. Available at:
https://usarb.md/wp-content/uploads/2020/01/RAPORT_STIINTA_-Senat-