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"VALUE OF SCIENCE FOR THE USER"- SCIENTIFIC RESEARCH AS AN ELEMENT OF A COMPREHENSIVE ASSESSMENT OF SCIENTIFIC UNITS - THE STATUS DE LEGE LATA AND THE POSTULATES DE LEGE FERENDA IN THE LIGHT OF OWN RESEARCH

ABSTRACT

Police Academy in Szczytno (APwSz) is implementing an international research task *Management and implementation of projects in the field of state security in the opinion of project managers at universities*[1]. The aim of the research was to develop solutions aimed at optimizing activities undertaken during the implementation of projects. As part of the research, a survey was conducted among persons managing a given institution, project managers, project team members and persons dealing with administrative support of projects. A survey questionnaire was developed by the research team in accordance with the adopted research objectives. The research areas were specified, including the nature of participation in the project, the size of the project team, research planning and project budget, difficulties and risks encountered during the implementation of projects, the importance of projects also in the context of evaluating the quality of scientific activity. Learning about the experiences of the respondents related to the management and supervision of the implementation of projects is of great importance in the context of constructing guidelines for the continuous improvement and enhancement of the quality of conducted research.

The leader of the research was Police Academy in Szczytno, while units of domestic and foreign uniformed schools and universities accepted invitations to conduct joint research, i.e.: Polish Naval Academy of the Heroes of Westerplatte, WSB Academy in Dąbrowa Górnicza, Lviv State University of Internal Affairs of Ukraine, Academy of the Police Force in Bratislava, University of Siedlce, Police Academy of the Czech Republic in Prague, Mykolas Romeris University in Vilnius.

KEYWORDS: *manager, legal regulations, scientific research, university, evaluation of a scientific unit*

INTRODUCTION

This article presents thematically selected results of research conducted at the Police Academy in Szczytno (APwSz) as part of the international research task *Management and implementation of projects in the field of state security in the opinion of project managers of higher education institutions*. The aim of the article is to present the results of research on institutional and organizational aspects of the conducted scientific research. In this article, the research area related to the presentation of results of the scientific research conducted by respondents and their practical use, and in particular the impact of this research on the socio-economic environment, was analysed. One of the most

important factors determining the economic and social growth of a country is the level and development of scientific research and the use of its results as a force for the modernization of the country, in accordance with the concept of a knowledge-based economy^[1]. The scientific research carried out and its results contribute to the development of scientific disciplines, as well as the development of technical solutions that can be implemented in practice. The importance of scientific research is also recognized by the legislator in the evaluation of scientific units as the third criterion of evaluation.

The measurable value of research is significantly influenced by the evaluation of scientific activity, which is an important element of implementing scientific policy and directing the activities of scientific units. This important instrument of managing the organization and financing of scientific research has been used for at least three decades in various countries as a tool for conducting scientific policy^[2]. The considerations taken include the pragmatic and reflective dimension of evaluating the quality of scientific activity, taking into account the impact on the contemporary economy^[3].

The aim of the research undertaken was to develop solutions aimed at optimizing actions undertaken during project implementation. During the research, a survey was conducted among those managing a given institution, project managers, contractors and persons dealing with administrative support of projects. Adequately to the assumed research goals, a survey questionnaire was developed by the research team. The research areas specified include, among others, the nature of participation in the project, the size of the project team, research planning and project budget, difficulties and risks encountered during project implementation, and the importance of projects in the context of evaluating the quality of scientific activity. Learning about experiences of the respondents related to the management and supervision of project implementation is of great importance in the context of constructing guidelines for the continuous improvement and enhancement of the quality of research.

The leader of the research was the Police Academy in Szczytno, while units of domestic and foreign uniformed schools and universities accepted invitations to conduct joint research, i.e.: Naval Academy named after the Heroes of Westerplatte, WSB University, Lviv State University of

Internal Affairs, Academy of the Police Force in Bratislava, University of Siedlce, Police Academy of the Czech Republic in Prague, Mykolas Romeris University.

PROJECT WORK OF SCIENTIFIC STAFF – AN ELEMENT OF SCIENTIFIC DEVELOPMENT

The thematic *value of science for the user* realized through scientific and research projects is invaluable, both from the point of view of new significant discoveries and the development of the research team itself working on the issue of interest to it. Undoubtedly, both inquiry and searching for answers to research questions are the essence of the development of science.

The development of each scientist includes, in addition to publishing, participation in scientific and research projects. In the catalogue of areas of scientific activity of a researcher necessary for their development, it is indicated that they have scientific achievements, among which the following are listed, among others:

- work in research teams implementing projects financed through domestic or foreign competitions;
- research internships in scientific institutions, including foreign ones; and
- conducting scientific research or development work at universities or scientific institutions, including foreign ones.^{[[4]]}

In the Communication of the Minister of Education and Science of July 2, 2021 on the establishment of the program *Support for the participation of Polish research teams in international research infrastructure projects* and the call for applications, you can find a catalogue of entities that can apply in design competitions. In the catalogue, universities take the main positions.

“II. Entities eligible to participate in the program. The following entities are eligible to participate in the program:

1. universities,
2. scientific institutes of the Polish Academy of Sciences,
3. research institutes,

4. international scientific institutes established on the basis of separate acts operating in the territory of the Republic of Poland,
5. Łukasiewicz Centre,
6. institutes operating within the Łukasiewicz Research Network, for which the granting of financial resources under the project would not constitute State aid pursuant to Articles 107 and 108 of the Treaty on the Functioning of the European Union, hereinafter referred to as *applicants*.^[5]

As can be seen from the cited fragment, universities are therefore a natural environment in which projects are conducted. Research teams consist of people whose knowledge and experience can ensure effective scientific investigations. Scientific consortia established within a given project are based on the cooperation of representatives of several universities and other entities, including those with an international reach. Such cooperation allows for the achievement of intended goals and the implementation of the developed effects after their completion.

It is also significant that research and development projects influence a university's evaluation process, positioning it in scientific space and allowing it to obtain high ratings, which translate into, for example, the scientific categories and authorizations it holds.

EVALUATION OF SCIENTIFIC ACTIVITIES – SELECTED ASPECTS

The Law on Higher Education and Science of 20 July 2018 introduced a reformed system for assessing scientific units, referred to as the evaluation of the quality of scientific activity. The evaluation is carried out within the framework of scientific disciplines that universities and scientific institutions report for evaluation. The first evaluation according to the principles specified in the indicated act was carried out in 2022 for 2017–2021.^[6] The next one will cover 2022–2025. The evaluation is based on three evaluation criteria: the scientific or artistic level of the conducted activity, the financial effects of

scientific research and development work, the impact of scientific activity on the functioning of society and the economy. Other activities of the University, e.g. organization of conferences, as well as participation in foreign projects, are not included in the evaluation. However, they constitute an important area of activity from the perspective of, for example, the internationalization of the University, establishing partnerships and agreements. Formal and legal consequences of the evaluation of scientific disciplines are also important. As a result of the evaluation, the following categories are awarded: A+, A, B+, B and C. Only obtaining the scientific category A+, A, B+ entitles universities to a number of benefits listed below:

- having the status of an academic university (a university is an academic university if it conducts scientific activities and has a scientific category A+, A or B+ in at least one scientific discipline),
- in the scientific sphere (the right to award a doctoral degree in a discipline is held by a university, a Polish Academy of Sciences institute, a research institute or an international institute in a discipline in which it has a scientific category A+, A or B+),
- in terms of the amount of financial resources granted,
- in terms of the possibility of submitting candidates by the university to entities such as the Council of Scientific Excellence, the Science Evaluation Commission,
- with respect to student education (an academic university offers first-cycle and second-cycle studies or uniform master's studies and may also offer doctoral education. On the other hand, a vocational university (category B, C) offers education in studies with a practical profile only, while a vocational university offers first-cycle studies and may also offer second-cycle studies),
- in terms of obtaining a permit for education (a permit is not required to establish studies in a field assigned to a leading discipline in which the university has a scientific category A+, A or B+),
- prestige of the university related to the recognition of the University as a research and development centre in the national and international arena.

Under the first evaluation criterion, the types of scientific achievements and their point values are assessed. Publications are assessed, i.e. scientific articles published in scientific journals and in peer-reviewed materials from international scientific conferences included in the list of journals,^[7] scientific monographs published by publishing houses included in the list of publishing houses, scientific editions of such monographs and chapters in such monographs, scientific monographs published by publishing houses not included in the list of publishing houses, scientific editions of such monographs and chapters in such monographs, patents for inventions and protection rights for utility models. Importantly, scientific publications are taken into account in the evaluation if their subject matter is substantively related to scientific research or development work conducted in the evaluated entity within a given discipline.

In the context of the subject matter of the publication and the results of our own research specified at the beginning of the publication, it is reasonable to present the second and third criteria assessed during the evaluation, i.e. the financial effects of scientific research and the impact of scientific activity on the functioning of society and the economy. In accordance with § 22 section 1 of the Regulation of the Minister of Science and Higher Education of 22 February 2019 on the evaluation of the quality of scientific activity,^[8] the assessment of the financial effects of scientific research and development work is made taking into account projects covering scientific research or development work, financed in a competitive procedure by foreign institutions or international organizations, from the funds referred to in art. 365 points 9, 11 and 12 of the Law on Higher Education and Science,^[9] by the Foundation for Polish Science, and by the Medical Research Agency. The provisions of the Act referred to above, i.e. Article 365 in the indicated points, cover the following sources of financing: funds from the European Union budget or funds from the aid granted by the member states of the European Free Trade Agreement (EFTA), or other funds from foreign sources that are not subject to return (point 9), financed by the NCBR, including scientific research and development work for the defence and security of the state (point 11), financed by the NCN (point 12). The cited regulation also indicates that the evaluation assessment also includes research financed as part of projects from the National Humanities Development Program, co-financed in a competitive

procedure from the funds referred to in art. 365 points 10 (i.e. NAWA) and 12 (i.e. NCN). In terms of the second criterion, i.e. the assessment of financial effects, the financial effects of commercialization of research results or development work or know-how related to the results and the financial effects of research services provided on behalf of entities outside the higher education and science system are also taken into account.

The closed catalogue of sources of research financing should be modified to make it possible to take into account other sources of financing, such as competitions announced and financed by the Ministry of Science and Higher Education under the *Science for Society II* or *Excellent Science* programmes, especially since most of the objectives of these programmes are related to the research conducted by research centres.

The indicated regulation also lists the conversion factors for the amount of funds obtained for scientific research into points awarded in the evaluation assessment. Thus, within the evaluation of the financial effects of scientific research and development works, 1 point is awarded for:

1. PLN 50,000 of the total financial resources granted in the period covered by the evaluation for the implementation of projects referred to in paragraph 1 points 1 and 2, in the case of projects implemented independently by the evaluated entity or projects implemented by a group of entities led by the evaluated entity or another entity belonging to the higher education and science system;
2. PLN 25,000 of the total financial resources granted in the period covered by the evaluation for the implementation of projects referred to in paragraph 1 points 1 and 2, in the case of projects implemented by a group of entities to which the evaluated entity belongs, the leader of which is or was an entity that does not belong to the higher education and science system (§ 22 paragraph 4 of the Regulation).

In turn, in the case of achievements realised within scientific disciplines belonging to the field of humanities, social sciences and theological sciences, the quota thresholds referred to above are reduced by 50% (§ 22 paragraph 7 of the Regulation).

Therefore, in the case of, for example, the field of social sciences, quota thresholds are reduced by 50% in accordance with the provisions of the regulation and, after taking into account the reduction, they are as follows:

- 1 point for PLN 25,000 of total financial resources granted for the implementation of projects covering scientific research financed in a competitive procedure by foreign institutions or international organisations, NCBR and NCN funds in the case of projects implemented independently by the evaluated entity or projects implemented by a group of entities led by the evaluated entity or an entity not belonging to the higher education system,
- 1 point for PLN 12,500 of total financial resources granted for the implementation of projects, including scientific research financed in a competitive procedure by foreign institutions or international organisations, NCBR and NCN funds, if the project was implemented as part of a group of entities and the leader is or was an entity not belonging to the higher education sector.

It is also important that in the case of interdisciplinary achievements, the evaluated entity determines the percentage share of financial resources allocated for the implementation of projects involving scientific research, financed on a competitive basis by foreign institutions or international organisations, attributable to a given scientific discipline.

In the case of projects implemented from the EU budget, NCBR, implemented by a group of entities, when determining the number of points, the amount of financial resources allocated for the implementation of the project in total is taken into account – when the entity was the group leader. On the other hand, when the entity was one of the co-contractors of the project – the number of points is allocated according to the financial resources allocated for the implementation of the tasks of a given co-contractor in the project.

In relation to the third criterion of evaluation, i.e. the impact of research on the socio-economic environment, it should be emphasized that it is the most difficult element of evaluation to demonstrate, because there are no precise rules on how to describe the impacts. The description of social impact, the so-called *impact* – is defined as a change, benefit in the economy,

society, culture, legislation, environment, quality of life, outside the scientific world. Here, evidence should be shown that society has gained specific benefits, organizational solutions have been implemented, or knowledge in a given field has been expanded. When describing influences, it is always reasonable to indicate beneficiaries of the influence, also in quantitative terms. Importantly, the evaluation is performed by experts (two for each influence description) and they assign points for the following parameters:

- scope of impact (a maximum of 50 points awarded): international scope – 50 points, national – 40 points, regional – 30 points, local – 20 points, marginal scope or no evidence of impact – 0 points),
- significance of the impact is also awarded a maximum of 50 points (groundbreaking significance – 50 points, significant – 25 points, limited – 10 points, negligible or no evidence of impact – 0 points).

Therefore, the maximum number of points is 100. If the interdisciplinary nature of scientific research was crucial to the creation of a given impact, it is possible to increase the sum of points awarded for the scope and significance of the impact by 20%.

The third criterion discussed here has been implemented into the evaluation system based on the UK model, as an element of *social impact* – the impact that a university has on the economy and society. In the UK, the Research Excellence Framework (REF) is in force in the evaluation framework. REF 2014 assessed 6975 case studies of *social impact* and 1911 narrative documents on the conditions for achieving *impact* (*impact templates*) from 154 institutions. The top institutions for impact were the Institute of Cancer Research, London School of Hygiene and Tropical Medicine (UoL), Imperial College London, St. George's (UoL) and University of Cardiff, with traditional leaders Oxford and Cambridge coming in the 9th and 12th respectively.^[10]

Analyzing the indicated evaluation criteria, it would be reasonable to extend them, which was also noticed in the British experience, to include the evaluation of the quality of teaching. After all, it is one of the key areas, essence and goals of the functioning of universities.

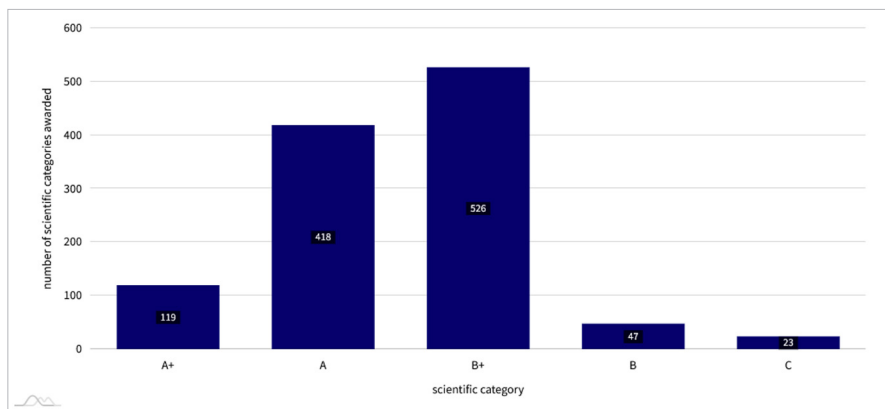
EVALUATION RESULTS AND CONCLUSIONS FROM OWN RESEARCH

According to the Law on Higher Education and Science, evaluation applies to academic institutions, federations and institutes of the Polish Academy of Sciences (PAN) together with international institutes. On the other hand, evaluation of vocational universities, research institutes and other entities conducting scientific activities is carried out at the request of the institution.

In order for a scientific entity to be subject to evaluation, it is required to employ at least 12 employees conducting scientific activity in a specific discipline, converted into full-time employment, as of 31 December of the year preceding the evaluation. The evaluation process takes into account achievements of all employees of the evaluated entity who conduct scientific activity in a specific scientific or artistic discipline and who have submitted declarations about the discipline and belonging to N. As a result of the evaluation for 2017–2021, 1,145 scientific categories were awarded in 283 institutions. The most frequently awarded category was category B+. The largest number of categories (685) were awarded to disciplines in which the number of evaluated researchers (number N) was between 11 and 50. On the other hand, the largest share of categories A+ (18%) was in disciplines with N between 101 and 300. The majority (9 out of 11) of scientific categories awarded to disciplines with the highest N (301 researchers or more) concerned medical sciences. Disciplines with the number of researchers below 10 were awarded 41 categories, of which 17% were category C.^[111]

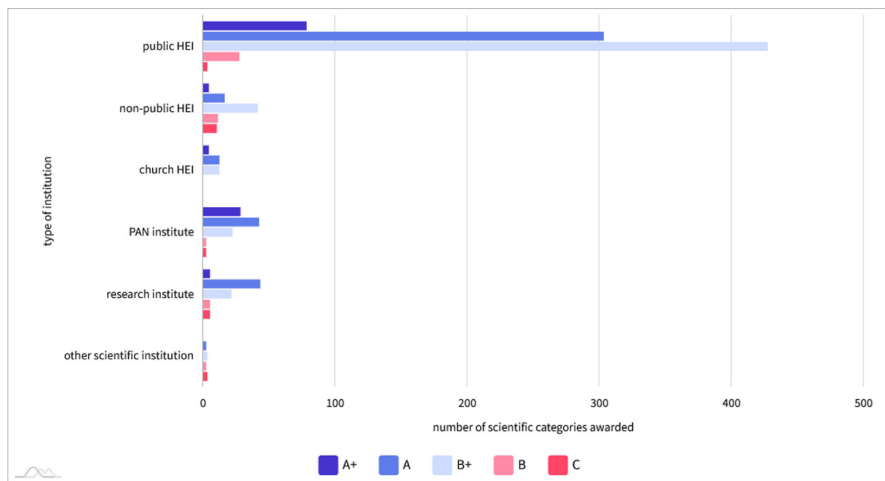
As part of the aforementioned research, led by the Police Academy in Szczytno, a survey questionnaire was developed by the research team and referred to the following areas: administrative and technical (including the size of the project team and the amount of the budget), substantive (including difficulties and risks encountered during project implementation), and management (concerning the experiences of the respondents related to the management and supervision of project implementation). It is not possible to present the results of the entire study in the publication due to its extensive and multi-threaded dimension. Only a fragment will be presented, relating to the respondents' opinions in the context of the importance of research in the process of evaluating the quality of scientific activity.

Chart No. 1. *Number of scientific categories awarded*



Source: https://radon.nauka.gov.pl/raporty/ewaluacja_kategorie_naukowe

Chart No. 2. *Number of scientific categories awarded by type of institution*

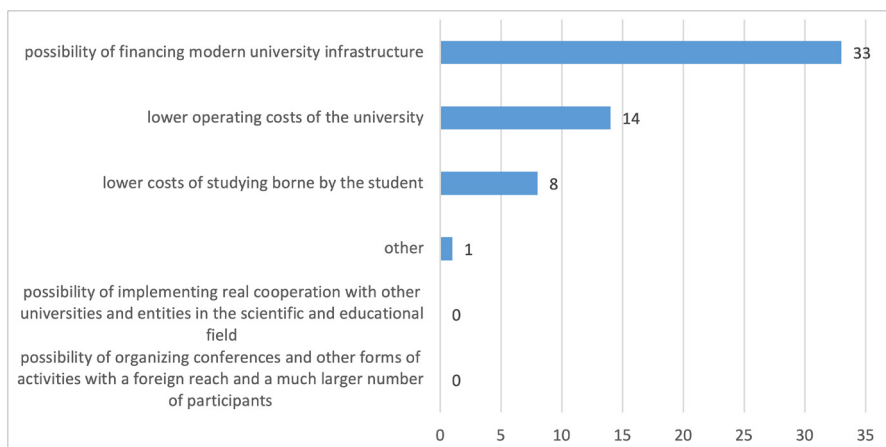


Source: https://radon.nauka.gov.pl/raporty/ewaluacja_kategorie_naukowe

In addition to the evaluation results regarding the scientific categories awarded, it is reasonable to present the research results that present issues related to, among others, research results and their practical significance. Thus, the respondents were asked about issues related to the benefits they

receive from the funds obtained, the project results obtained, confirmation of the effectiveness of research by obtaining information from the project beneficiaries and the nature of the research or the implementation of the project results. Contemporary creation of scientific policy is not limited only to stimulating the development of knowledge or increasing the number of innovations. The main emphasis is placed on the economic and social dimension of science in the public space, which is clearly illustrated by the evaluation criteria^[12].

Chart No. 3. *Benefits from the obtained aid funds*



Source: Prepared by W. Nowak, research team member of APwSz

One of the questions in the questionnaire concerned a very important area, which indicates the benefits of obtaining external aid funds at the university. The largest number of respondents – 33, indicated the possibility of financing modern infrastructure of the University, 14 people – lower operating costs of the university. In turn, 8 people indicated lower costs of studying borne by the student. It is symptomatic that none of the respondents indicated the option of realizing real cooperation with other entities or organizing conferences. As the research shows, the respondents focus on very pragmatic benefits, important from the perspective of the functioning of the entity.

During the study, respondents were asked to indicate the outcomes of the project. The outcomes are presented in the graph below.

Chart No. 4. Project outcomes

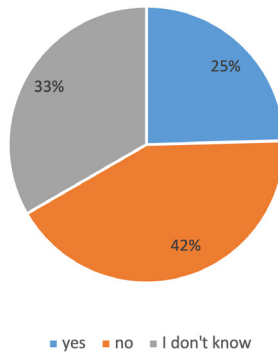


Source: Prepared by W. Nowak, research team member of APwSz

As an outcome of the project, the majority, i.e. 22 respondents indicated the establishment of scientific and research contacts, 17 – publication in a rated domestic journal, 14 – publication in a rated foreign journal, 13 – production of equipment that can be used in teaching. Only one person indicated *reporting research results in the form of a patent, industrial design, utility model*. The part of research presented here and the opinions of respondents clearly demonstrate priorities of the respondents. Undoubtedly, the researchers, while sharing their experiences, focused during the research process primarily on meeting the evaluation requirements.

Chart No. 5. Evidence of influence

During the project implementation or after its completion, did the research team obtain evidence confirming that the research or its outcomes impact the functioning of the economy, public administration, health care, or environmental protection?

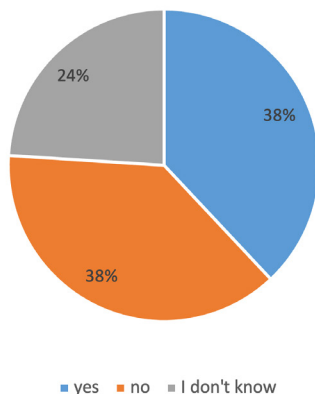


Source: Prepared by W. Nowak, research team member of APwSz

In the context of the research work of each scientist, the significance of research, the possibility of implementing solutions, applying research in practice, proposing a new solution, or finally the contribution of research to the development of a given discipline are important. The question referred to a new challenge for researchers, which is the option of presenting research results to the socio-economic environment and obtaining evidence confirming their effectiveness and significance. Only 25% of the respondents confirmed obtaining evidence of influence, 42% had negative indications in this regard, while 33% did not have knowledge on the subject. The state of affairs is undoubtedly dictated by the fact that in the academic culture, descriptions of impacts are a new phenomenon and, probably in the future, scientists will strive to obtain real confirmation of the effectiveness of their own research results, not only for reasons of accountability within the framework of evaluation.

Chart No. 6. *Implementation of research outcomes*

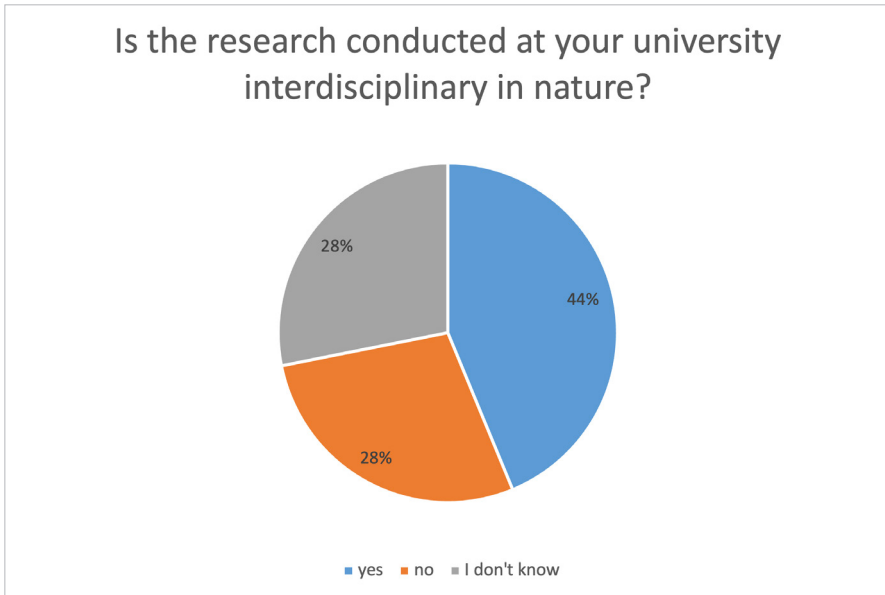
Have the outcomes of the projects you carried out been implemented in practice?



Source: Prepared by W. Nowak, research team member of APwSz

The question referred to the implementation of research outcomes. In this respect, the research outcomes, for the option *yes* or *no*, were evenly distributed, 38%. On the other hand, 24% of the respondents did not have knowledge in the area. Implementation aspects are extremely important, because they have a measurable impact on the effectiveness of the unit's evaluation process.

As indicated in the publication, interdisciplinary projects are rewarded much higher during evaluation. The implementation of the research process requires the use of the achievements of various disciplines: the leading one, as well as related disciplines. In the research process, due to the complex area of research, an interdisciplinary approach is often used. The multi-threaded subject matter of the conducted research requires the acquisition of knowledge from various scientific disciplines.

Chart No. 7. *Interdisciplinarity of research*

Source: Prepared by W. Nowak, research team member of APwSz

In response to the question asked in the questionnaire, 44% of respondents indicated that their research was interdisciplinary in nature. Respondents indicated *no* or that they did not have knowledge in the area, respectively, by 28%. It should be noted that implementation of interdisciplinary projects, financed from both domestic and foreign sources, requires, above all, the development of standards for project activities, which facilitates project management using certain universal methods and techniques. Social development and the development of new technologies will force the need to conduct research, in which only the achievements of many disciplines will be able to bring the expected effect.

SUMMARY

Evaluation criteria are a new challenge for the entities being evaluated and for the scientists themselves. The experience of the previous evaluation has shown that both researchers and people administering universities and research units have met the challenge. It would undoubtedly be difficult to create an ideal evaluation model. But there is no doubt that such an evaluation must exist. It motivates activity, allows for the creation of new research areas, and obtaining innovative results.

However, what should be postulated is, first of all, a direction of action in higher education aimed at reducing bureaucracy and creating transparent, stable and clear regulations.

What is more, it is necessary to invest in the development of university staff competences, e.g. to provide training for scientists in the field of communication with non-academic entities, and to allocate financial resources to employ specialist staff supporting processes related to research or documenting the so-called *impact descriptions*, they are carried out on the basis of descriptions of the relationship between the results of scientific research and development work and the economy, functioning of public administration, health care, culture and art, protection of the natural environment, security and defence of the state or other factors influencing the civilizational development of society, prepared on the basis of evidence of the impact, in particular in the form of reports, scientific publications and citations in other documents or publications disclosed in the period covered by the evaluation. The criterion refers to the long-term effects of scientific activity.

Currently, we are dealing with a transformation of academic culture. The concept of universities open to the world, the external environment, innovations is emerging. Research institutions and universities are to serve society more fully – not only by supporting the economy, but also by supporting comprehensive education, offering a scientific basis for legislation, creating a platform for a knowledge-based civil society.

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- Announcement of the Minister of Education and Science of 23 February 2022 on the announcement of the uniform text of the regulation of the Minister of Science and Higher Education on the evaluation of the quality of scientific activities. (2022). Journal of Laws of 2022, item 661
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- [6] The evaluation assessment is carried out in a four-year system. However, the first evaluation carried out under the new rules was extended by one year due to the outbreak of the Covid-19 pandemic.
- [7] As of October 26, 2024, the Announcement of the Minister of Science of January 5, 2024 regarding the list of scientific journals and peer-reviewed materials from international conferences is in force.
- [8] Announcement of the Minister of Education and Science of 23 February 2022 on the announcement of the uniform text of the regulation of the Minister of Science and Higher Education on the evaluation of the quality of scientific activities, Journal of Laws of 2022, item 661.
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