

## THE TECHNOLOGY OF SELF-ASSESSMENT OF THE QUALITY OF SCIENTIFIC ACTIVITY OF HIGHER EDUCATION INSTITUTION AS A FACTOR OF INCREASE OF ITS ACADEMIC AUTONOMY

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### Rayevnyeva O. V., Derykhovska V. I. The Technology of Self-Assessment of the Quality of Scientific Activity of Higher Education Institution as a Factor of Increase of its Academic Autonomy

The article is aimed at building a technology of self-assessment of the quality of scientific activity of higher education institution as one of the main directions of development of scientific potential of the national higher school, search for effective ways and measures of stimulation of the scientific-research, scientific-technical, and innovation activity of universities of Ukraine with purpose of integration of the national system of higher education in the European educational space for ensuring a sustainable development of society. It has been specified that the priority direction of development of the scientific potential of the national higher school is the need to assess the quality of scientific activity of higher education institutions, in particular by introducing a system of international and national ratings. A generalizing scheme of the main stages of the technology of self-assessment of the quality scientific activity of higher education institution has been presented. Using the system approach, three organizational levels of self-assessment have been allocated: individual, of department and faculty. Implementation of the technology of self-assessment of the quality of scientific activity of higher education institution on the level of individual departments of university has been accomplished.

**Keywords:** autonomy, higher education, self-assessment, scientific activity.

Fig.: 3. Bibl.: 13.

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#### Раєвнева О. В., Дериховська В. І. Технологія самооцінки якості наукової активності вищого навчального закладу як фактор підвищення його академічної автономії

Метою статті є побудова технології самооцінки якості наукової активності вищого навчального закладу як одного з головних напрямків розвитку наукового потенціалу вітчизняної вищої школи, пошуку дієвих шляхів і заходів стимулювання науково-дослідної, науково-технічної та інноваційної діяльності університетів України задля інтеграції національної системи вищої освіти в європейський освітнянський простір і забезпечення сталого розвитку суспільства. Зазначено, що пріоритетним напрямком розвитку наукового потенціалу вітчизняної вищої школи є необхідність оцінки якості наукової активності вищого навчального закладу, зокрема шляхом впровадження системи міжнародних і національних рейтингів. Наведено узагальнюючу схему основних етапів технології самооцінки якості наукової активності вищого навчального закладу. За допомогою системного підходу було виділено три організаційні рівні самооцінювання: індивідуальний, кафедральний та факультетський. Здійснено імплементацію технології самооцінки якості наукової активності вищого навчального закладу на рівень окремих підрозділів університету.

**Ключові слова:** автономність, самооцінка, вища освіта, наукова активність.

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#### Раєвнева Е. В., Дериховская В. И. Технология самооценки качества научной активности высшего учебного заведения как фактор повышения его академической автономии

Целью статьи является построение технологии самооценки качества научной активности высшего учебного заведения как одного из главных направлений развития научного потенциала отечественной высшей школы, поиска действенных путей и мер стимулирования научно-исследовательской, научно-технической и инновационной деятельности университетов Украины для интеграции национальной системы высшего образования в европейское образовательное пространство для обеспечения устойчивого развития общества. Отмечено, что приоритетным направлением развития научного потенциала отечественной высшей школы является необходимость оценки качества научной активности вузов, в частности путем внедрения системы международных и национальных рейтингов. Представлена обобщающая схема основных этапов технологии самооценки качества научной активности высшего учебного заведения. С помощью системного подхода выделены три организационных уровня самооценки: индивидуальный; кафедральный и факультетский. Осуществлена имплементация технологии самооценки качества научной активности высшего учебного заведения на уровень отдельных подразделений университета.

**Ключевые слова:** автономность, высшее образование, самооценка, научная активность.

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On the path to modernization of the Ukrainian higher education system, one of the topical problems is to determine the boundaries and forms of autonomy of higher education to ensure an effective functioning of higher education institutions (HEIs), improve the quality of providing educational services, fully meet the needs of the national economy, and increase the image attractiveness and competitiveness of domestic HEIs in the international educational and scientific space.

The problem of formation, development and evolution of university autonomy in the context of reforming the system of higher education was reflected in the works of many scientists [1–5], who emphasize its key role in the process of transforming the state regulation of HEIs' activities towards increasing their academic freedom.

As stated in the Charter of Ukrainian Universities: academic freedoms, university autonomy and education [6], university autonomy should guarantee the right to independently determine its mission, own research strategy in the sphere of research work, in particular academic autonomy should determine the forms and methods, programs and directions of research, thereby stimulating HEIs to develop and increase the productivity of their research activities, its flexibility and adaptability in accordance with today's and future requirements of the society. One of the principles for the formation of university autonomy and academic freedom is public responsibility, which implies the quality control of the provision of educational services by building a unified independent ranking of universities in terms of the level of satisfaction of public expectations of graduates, employers, national economy.

Since research activities is a priority for universities, therefore, a scientifically based approach to building the ranking of research activities of an HEI should be aimed at obtaining rating assessment of the HEI's research activities, which affects the image attractiveness of the HEI, increase in its autonomy, proper public funding of research developments of the HEI and integration of the research potential of the market for educational services to the needs of the labor market in solving applied problems. The analysis of the ranking results is the basis for self-analysis of own shortcomings, identification of weaknesses in the management system of the HEI and priority directions of its development.

That is why, the aim of the article is elaborating a technique for self-assessment of the quality of an HEI's research activities as one of the main directions in developing the research potential of the national higher education, searching for effective ways and measures to stimulate the research, scientific and technological, and innovation activities of HEIs of Ukraine for the integration of the national education system in the European educational space and assurance of sustainable development of the society.

The modern paradigm of management sees an HEI as a full-fledged subject of the market and as an open system that self-develops, self-organizes and has emergent properties. Therefore, effective management of such a system requires the correct application of the principles of synergetics with a view to making productive use of the adaptive potential, which is designed to ensure the development of a university under conditions of changing external environ-

ment. Fulfilling its mission, implementing its development strategy, an HEI strives to remain competitive in the educational services market. In this regard, the management system of the university should be formed taking into account the vector of development of the modern knowledge economy, which becomes impossible without improving the organizational structure of management and effective organization of activities of each subsystem of the HEI's management.

Representing an HEI as a complex organizational and technical multi-level system, which is designed to perform conceptual decisions, strategic, tactical and operational management tasks, involves defining a number of interrelated subsystems of different levels. It is advisable that to such subsystems be attributed the subsystems of teaching (educational), scientific, innovation, information, international activities, the subsystem of development of personnel potential, the production and technological subsystem, etc. Since each of the above-mentioned directions accumulates a significant set of hierarchical goals, tasks, functions, principles, methods, structural units and is characterized by a certain degree of integrity, autonomy, and independence, we have every reason to call them subsystems. The above list of subsystems can be changed in accordance with the specifics, scale of activities of the HEI, its organizational structure and priority directions of its activities.

Considering the subsystem for managing the research activities of a university from a cybernetic point of view, it is worth noting that such a system can be characterized by self-organization, self-learning (due to accumulated experience and adaptation) and purposefulness. We represent research activities of a university as a cybernetic system that has a separate controlling (subject of control) and controlled (control) subsystem that are in constant interaction and take into account the influence of the external environment on the system and the reverse effect of the system on the environment (*Fig. 1*).

Input parameters (input information) can be the results of ranking the HEI in terms of quality of its research, scientific and technological, and innovation activities at the macro level. The obtained data are the basis for the administrative influence of the subject of management on its object. The latter are in close interaction and realize the principle of feedback, i.e., the control system transmits information to the controlled object, which, in turn, transmits the information about its current state. Consequently, an increase in the productivity of the HEI's research activities, i.e., the current state of the initial parameters (initial information) that will ensure the effect of the HEI's system of research activities on the external environment, will depend on the quality of management decisions.

Under conditions of integration of the national system of higher education into the European educational space, the problem of finding effective ways and measures to stimulate research, scientific and technological, and innovation activities of higher educational institutions in Ukraine remains relevant. In this regard, the priority direction in developing the research potential of the national higher education is the need to assess the quality of research activities of

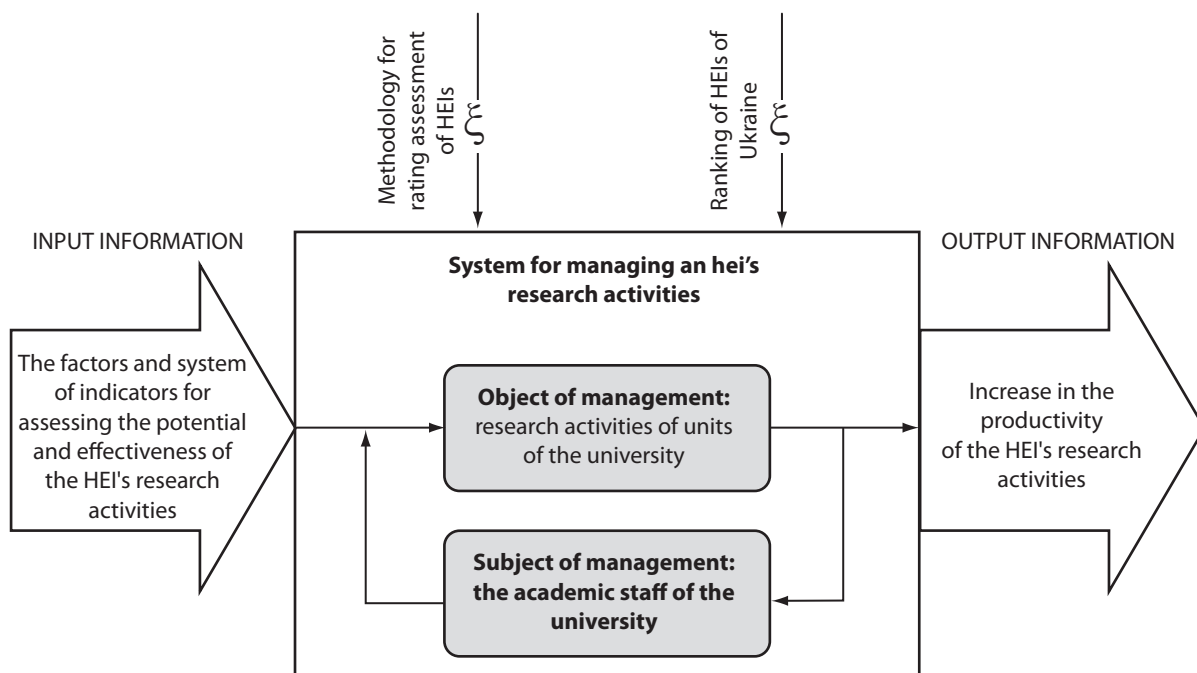


Fig. 1. Cybernetic system for managing research activities of an HEI

universities, in particular through introducing the system of international and national rankings.

Indeed, ranking is an effective tool for comparing university research, and thus serves as a means of stimulating institutions of higher education to searching for innovative ways of increasing their productivity and enhancing their own research potential for developing the national economy and strengthening the country's competitiveness in the world market. The ranking procedure should be multidimensional, comply with international standards and take into account the specifics of research activities and educational orientation of various types of HEIs in Ukraine. The results of ranking universities at the macro level should be the basis for a detailed self-analysis of each individual university at the micro level. That is, the position of the university in the corresponding cluster group of the ranking in terms of research activities affects the adoption of appropriate managerial decisions on intensifying the research, scientific and technological, and innovation activities of a particular institution, and selecting sound strategic directions for developing research activities.

In this context, of particular relevance is self-assessment of the quality of an HEI's research activities, which is designed to determine the current state of the research, scientific and technological, and innovation activities of the HEI, assess the weaknesses and shortcomings in the work of each structural unit of the university and a particular member of its academic staff, and also, based on the results of the conducted self-analysis, to elaborate a system of adequate and balanced management decisions on the enhancing and searching for new ways of development, and improvement of the strategy of the HEI's research activities.

More often self-assessment is associated with a personality, his/her professional and social realization. Thus, according to the great explanatory dictionary of the contemporary Ukrainian language, self-assessment should be

interpreted as an assessment of oneself, own capabilities, qualities, and places among people [7]. The Ukrainian Pedagogical Encyclopedic Dictionary [8] considers self-assessment as a human judgment of the extent to which he/she possesses certain qualities, properties in their relation with a certain standard, a model. At the same time, self-assessment is the result of analysis, comparison and synthesis of information.

There is no doubt that self-assessment is personal in nature, since it is closely linked with the aspiration of a person to self-affirmation in a family circle, in a team, at work, in the society. On the other hand, any organization is, above all, the staff – people, the professional qualities and performance of which are subject to assessment.

It is worth pointing out that under current market conditions successful operation of any organization is impossible without a continuous monitoring of the efficiency of its activities. In turn, improvement of the organization becomes impossible without periodic analysis of the actual state of quality of its performance results. Thus, based on the results of such an analysis, it is possible to develop and implement a plan of tactical and strategic improvement measures. In the world practice such a comprehensive analysis is called self-assessment as a method for comparative analysis of performance results with those of the reference model [9; 10].

In other words, self-assessment of an organization should be understood as a comprehensive and systematic critical analysis of the organization's activities, its results in accordance with the quality management system or reference (standard) organization model [11]. Self-assessment is intended not only to give a general idea of the organization as a whole but also identify the areas, directions that need improvement, and determine the priorities of the organization's development in the future.

It should be noted that self-assessment is conducted solely on the initiative of the organization's management, which independently develops the methodology and establishes criteria for the self-assessment. That is why, self-assessment is most often used as an effective diagnostic tool for regular monitoring and analysis of the current state of the organization, which allows to quickly identify weaknesses in the organization's activities, the cause-and-effect relationships of their occurrence, and reasonably choose the appropriate priorities, balance the allocation of resources and elaborate realistic strategic development plans in order to achieve its own standard of excellence in business.

According to the leading experts of the European Foundation for Quality Management (EFQM) [11], the process of self-assessment serves as a definite catalyst for business improvement. For this reason, modern progressive companies use the results of self-assessment as one of the effective elements of the business planning process, which includes detailed self-analysis of strengths, weaknesses, opportunities and threats, allows to obtain objective assessments of the potential and effectiveness of one's own activities, make a balanced management decision regarding priorities in the development of the company.

Self-assessment of HEIs also has its own peculiarities, since it serves as a definite starting point for effective quality assurance of their activities. The main goal of self-assessment is a continuous improvement based on a comprehensive and systematic analysis of activities of an HEI. Self-assessment should be perceived as a critical introspection, which is an integral part of the work on improving the HEI's activities. Moreover, self-assessment is a requirement of a progressive world.

Modern HEIs function in a highly competitive educational environment, therefore their administration is oriented to using leverage to increase their own competitiveness in searching for effective directions and measures to build up an internal competitive environment in order to stimulate structural divisions for high-quality professional work. What place a specific university will occupy in the national ranking system and in international rankings, if the HEI will be presented in them? Answers to these questions can be given by self-assessment. Moreover, the advantages of conducting self-assessment of an HEI's activities include:

- 1) detailed analysis of all processes, performance results of structural units of universities (faculties, departments, divisions and academic staff);
- 2) identification of strengths and weaknesses in the activities of the HEI, its competitive advantages and potential directions for improving its activities;
- 3) construction of a competitive environment within the university, which will allow to encourage the academic staff to develop professionally and achieve the best results in their work (healthy competition is a stimulus to high-quality, high-performance work of the university staff in order to improve the university's positions in the general ranking of establishments of higher professional education and increase its image attractiveness, competitiveness in the market for educational and scientific services);

4) formation of an information base to improve the management process of developing and providing educational and scientific services and build a ranking both within the university and for participation in the national system of university rankings;

5) system approach to improving the HEI's activities;

6) transparency and objectivity in assessment based on facts and not on the personal (subjective) perception of individual employees or managers;

7) regular self-assessment, which is the basis for the dynamic analysis of the results achieved (comparing the level of the results achieved with the performance indicators of the educational process participants for the past years will allow to identify the changes and follow the trend towards the improving by the HEI of its performance results).

Since the scientific and technological, and research activities are an integral part of educational activities and one of the priority directions of the work of HIEs [12–13], the problem of developing and implementing an effective system for assessing research activities containing rational evaluation criteria and corresponding indicators remains topical and will make it possible to comprehensively determine the current state and prospects for the development of the research potential of an HEI.

That is why elaborating a technique for self-assessment of the quality of research, scientific and technological, and innovation activities of universities is of particular importance. The technique should be based on the developed complex structured algorithmic model for organizing and conducting self-assessment of the state of the HEI's research potential, dynamics of the effectiveness of research activities of subjects of educational process in the HEI (research workers, academic staff, students, postgraduate students, doctoral students) at all levels of the organizational structure of the HEI. It is worth pointing out that self-assessment of the quality of research, scientific and technological, and innovation activities of the university serves as an effective tool for managing the research activities of the HEI.

Proceeding from the fact that the objective rating estimation of research activities of universities is dualistic and provides combining of interests both at the state level (enhances the justification of financial and non-financial means of stimulating the research activities of HEIs, improves the quality of research activities of the higher education system as a whole) and at the level of an individual HEI (increases the level of its autonomy and creates prerequisites for the transformation of the HEI into an innovatively active economic entity of the national and international market for educational services). Fig. 2 presents a general outline of the main stages of the technique for self-assessment of the quality of research activities of an HEI with its breakdown into macro and micro levels.

The information base for elaborating the technique for self-assessment of the quality of research activities of an HEI can be presented by a strategy for developing the research activities of the university and the corresponding goals. That is, each university, when working out a strategic develop-

ment plan, chooses as one of the priority tasks to ensure the positioning of the HEI in the world educational space based on the formation of a worthy image (brand) of the university, international reputation, competitive advantages in the scientific sphere as well as coverage of scientific and research results in the world space, etc. This necessitates constant

monitoring of the state of the leading directions of the HEI's activities in accordance with the established benchmarks (standards). In this context, self-assessment is an effective tool for analyzing the level of results achieved concerning the identification of strong (weak) points in the research and professional activities of the university's structural units.

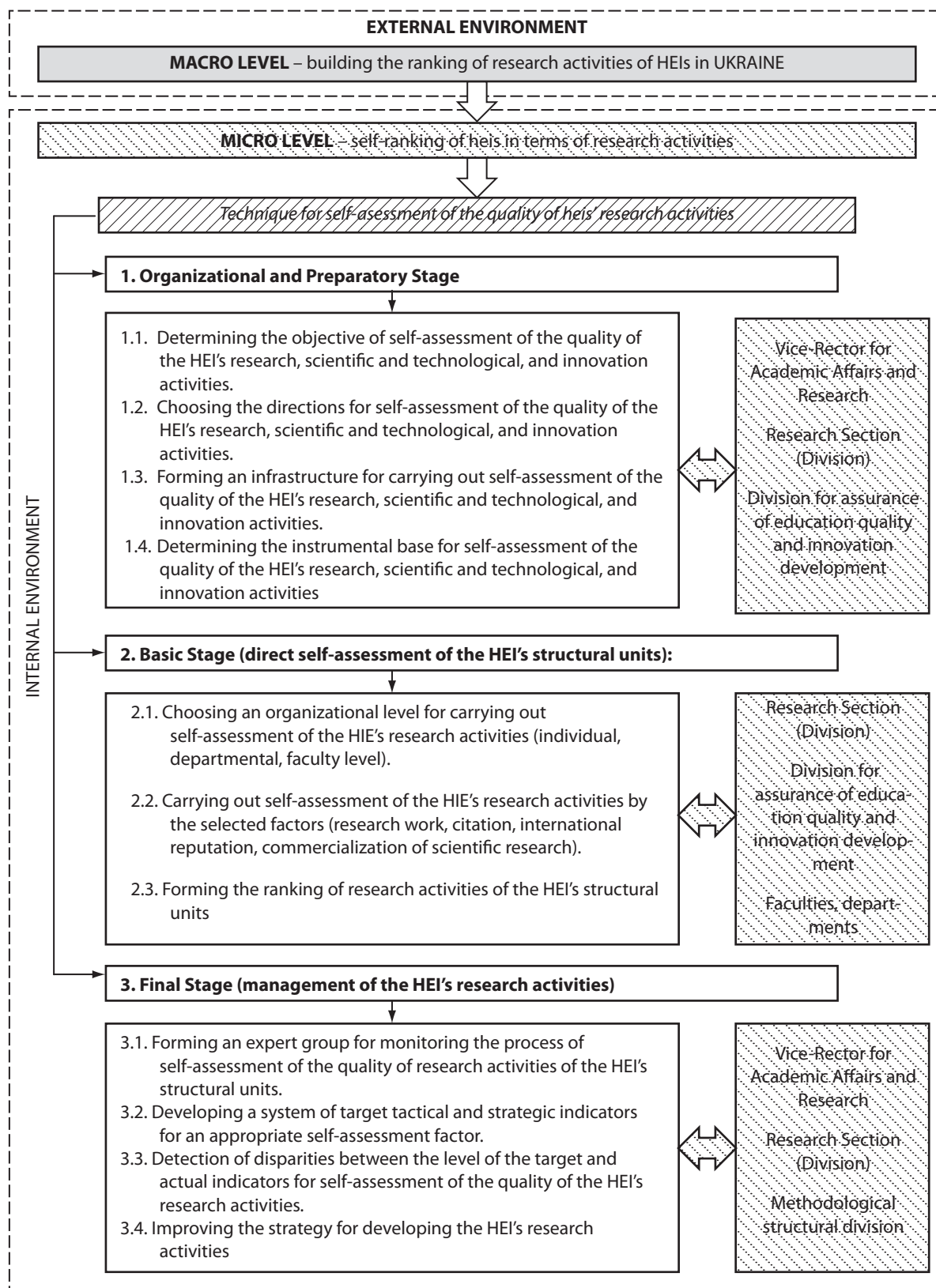


Fig. 2. Main stages of the technique for self-assessment of the quality of an HEI's research activities

The proposed two-level system for ranking research activities of HEIs in Ukraine has a hierarchical character and consists of two main subsystems: the subsystem of the definition of clusters among all HEIs of the country and the subsystem of ranking HEIs within each cluster, as well as the source information base for conducting self-assessment. Thus, it is also appropriate to use the results of ranking HEIs within the corresponding cluster. This will enable using an identical informational space (substantiated factors of rating assessment of research activities of HEIs), the feature of which is a combination of the indicators of potential and effectiveness.

Consequently, the input information for the elaboration of the technique for self-assessment of the quality of research, scientific and technological, and innovation activities of an HEI is a systematic assessment of the research activities of the HEI in its cluster group and the objectives of strategic development of the HEI's research activities.

If the ranking results at the second level were unsatisfactory or did not meet the strategic and tactical goals of the HEI's development, the university determines an appropriate goal for self-assessment of the quality of research, scientific and technological, and innovation activities. Moreover, all the directions of research activities of the HEI (research work, citation, international reputation, and commercialization of scientific research) and those that require urgent intervention and corresponding actions on the part of the HEI's administration can be subject to self-assessment.

It should be mentioned that the proposed technique for self-assessment of the quality of an HEI's research activities has three main stages, namely organizational and preparatory stage (defining the purpose and selecting self-assessment areas, forming an appropriate infrastructure and instrumental basis for self-assessment of the quality of research activities of the HEI), the basic stage (assessing research activities of structural units of the HEI and forming the ranking of quality of research, scientific and technological, and innovation activities of the HEI at the relevant organizational levels), and the final stage (managing the results of the self-assessment of the quality of the HEI's research activities).

The distinguishing of the relevant stages makes it possible to simultaneously assess the research activities of the structural units of the university and coordinate their activities in parallel to achieve better results. After all, the results of self-assessment serve as an instrument for working out sound management decisions to strengthen and find new ways for developing the research activities of HEIs. Let us consider the composition of the stages of elaborating a technique for self-assessment of the quality of research activities of a university in more detail.

The main goal of self-assessment of the quality of research, scientific and technological, and innovation activities of an HEI is to diagnose the current state of research activities of the HEI and the prospects for their further development on the basis of a well-founded system of ranking factors (research work, citation, international reputation,

and commercialization of scientific research), and the corresponding system indicators for assessment of the research potential and effectiveness of its use with a view to working out sound management decisions on stimulating the development of research activities of the HEI, improving its position in the national and international systems of the ranking of HEIs' research activities, and enhancing the competitiveness of the university in the market for educational and scientific services.

By carrying out self-assessment, the university has a real opportunity to assess the strengths and weaknesses of its research activities, identify shortcomings in the work of all its structural units and, based on self-analysis of the results, develop a system of measures to eliminate the identified shortcomings and stimulate the development of priority areas of its research activities.

It should be noted that self-assessment of the quality of research, scientific and technological, and innovation activities of an HEI is integral, since it combines all aspects of research activities of the HEI — research work, international reputation, citation, and commercialization of scientific research. This makes it possible to comprehensively determine the level of research activities of a particular HEI with the aim of ensuring its innovation development, increasing the productivity and strengthening its own research and development potential, which, in turn, is a prerequisite for enhancing the image attractiveness of the university, strengthening its national and international status. Moreover, the assessment of research activities within a particular university can be conducted in terms of all factors of its research activities in whole as well as of a particular individually chosen direction (factor).

The choice of the specified system of ranking factors and criteria (indicators) for assessing the research activities of HEIs for each of the factors is justified, since it is based on a detailed analysis of the world and national experience in determining the system of factors for ranking the research activities of HEIs. It should be noted that self-assessment of such factors as research work, international reputation, citation, and commercialization of scientific research will make it possible to comprehensively assess the research activities of the HEI, taking into account all directions of research activities of the HEI. Moreover, the essence and composition of this system of ranking factors is maximally correlated with international analogues and provides the possibility of implementing the national ranking system in correspondence with the world experience.

Considering an HEI as an active subsystem of the national innovation system, it is necessary to understand that a university is also a complex structure, has a significant scientific potential and resources for realization of research activities. That is why, using a systems approach in carrying out the self-assessment, it is expedient to single out individual organizational levels – structural units of the university (faculties, departments, divisions). Moreover, members of the academic staff, whose dynamic and multifaceted work makes it necessary to constantly self-analyze the productivity of professional activities, development as well as self-

improve their competencies for successful self-realization in the educational and research spheres, are subject to self-assessment. Of course, one of the most important factors that determine the personal and professional growth of a university teacher is his/her self-assessment.

In the proposed technique for self-assessment of the quality of research, scientific and technological, and innovation activities of universities, three organizational levels of self-assessment are distinguished: individual (self-assessment

by each member of the academic staff working for the department of the results of his/her research activities); departmental (self-analysis of the results of research activities of the academic staff of each department) and faculty (integral assessment of scientific achievements of the departments and their staff, who are part of the corresponding faculty). The corresponding hierarchy allows to implement the developed methodical approach to ranking HEIs' research activities at the level of individual departments of an HEI (Fig. 3).

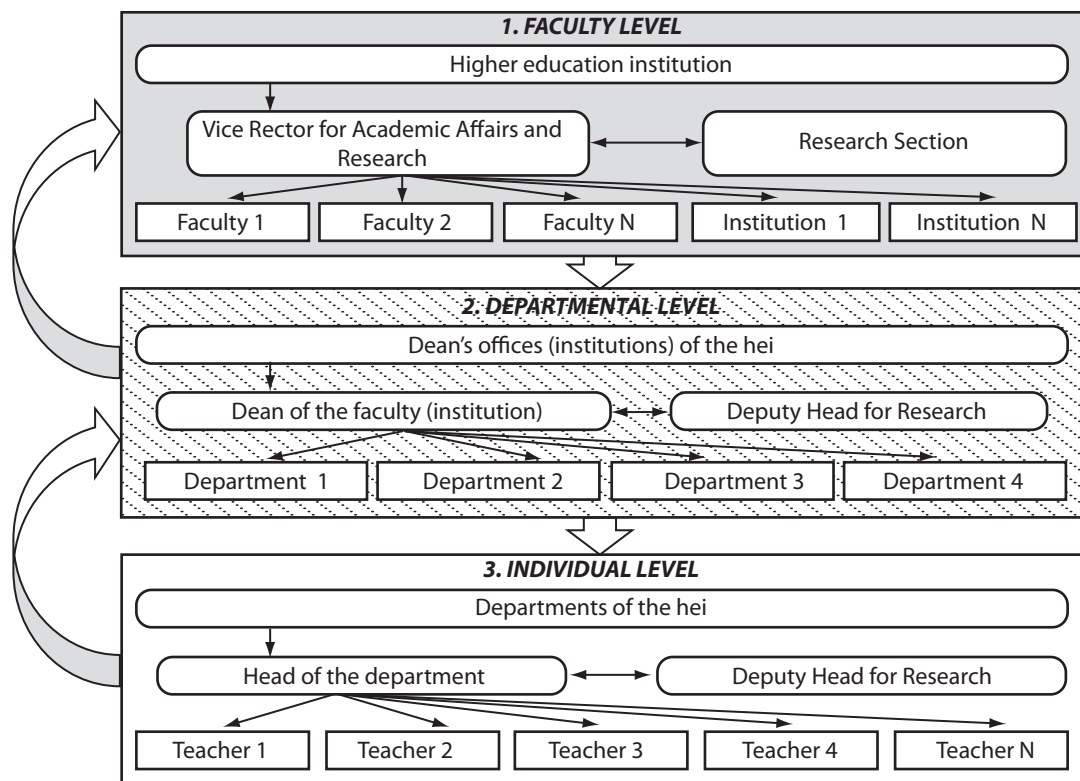


Fig. 3. Organizational levels of self-assessment of the quality of an HEI's activities

Thus, at the university level, the vice rector for academic affairs and research, fruitfully cooperating with the research section (division), develops a methodology for self-assessment of the quality of research, scientific and technological, and innovation activities of HEIs and orders the deans of faculties (institutions/institutes) to organize and monitor the process of self-assessment of the research activities at the level of the relevant subordinate structural units. In turn, the deans delegate the conduct of self-assessment of the research activities to the level of the department and oblige the heads of each department to assess the degree of scientific achievements of its own academic staff.

It is necessary to pay attention that the structure and the list of indicators of each group of factors should be identical for comparison of the results of research activities of a structural unit at the corresponding level. Also, it is worth noting that during the self-assessment of the academic staff and departments, it is advisable to use primary indicators of research activities and not to convolve them in integral indicators. It is advisable to build integral rankings in terms of selected factors only at the faculty level. This is substantiated by the fact that a faculty is a subsystem of the university system, which generates a synergistic effect from the joint

activity of the departments and their staff. That is, it is not correct to build individual rankings of members of the department's academic staff during the self-assessment of the quality of research, scientific and technological, and innovation activities of the university, since, for example, an individual teacher simply is not able to significantly influence the international reputation of the university or the amount of funding for research, scientific and technological activities, etc.

Thus, we consider it expedient to adapt the system of indicators of potential and effectiveness of research activities to the corresponding level of self-assessment of research activities of structural units of the HEI in order to take into account the personal component of research activities of a teacher working for the department to be used in inter-departmental comparisons of the effectiveness and quality of the research activities of teachers and / or ranking the best teachers working for each department.

After the process of self-assessment of the quality of research activities at the corresponding organizational levels is completed, based on the results of the information received, the ranking of the quality of research, scientific

and technological, and innovation activities of the HEI is formed. That is, the structural units of the university are ranked separately by certain areas (factors) of research activities, and also the integral ranking of the faculties by all factors (citation, research work, international reputation, and commercialization of scientific research) is built separately. The ranking obtained is the basis for the university administration to intervene in the adoption of appropriate managerial decisions, and, consequently, a logical transition to a new level — management of the research activities of the HEI.

**T**he effectiveness of the process of self-assessment of the activities of an HEI also depends on timely and balanced management decisions on monitoring the progress of self-assessment at all levels of the organizational structure of the HEI, making the list of primary indicators at appropriate levels and establishing target (tactical and strategic) indicators to compare the results of self-assessment of the quality of research, scientific and technological, and innovation activities of structural units of the university. However, the main task of the perspective contour of the system for self-assessment of the HEI's research activities is to analyze the results and identify the strengths, weaknesses and shortcomings in the work of structural units of the HEI with the aim of developing a system of measures to eliminate the identified shortcomings and / or stimulate the development of research activities of the HEI. That is, management of research, scientific and technological, and innovation activities of the university is focused on the formation and improvement of the strategy for research activities of the HEI through the prism of scientifically based and prompt management decisions corresponding to the situation and objective conditions of the university development and ensuring the most complete achievement of the goal and rational resource usage.

Since a management decision is always a complicated choice among a number of alternatives aimed at solving a problem situation or achieving relevant goals, the administration of the university needs to get support of experienced specialists, competent experts in the field of assessing research activities of HEIs. That is why, we consider it expedient to involve in the process of self-assessment of the university's research activities structural units that are competent in the given sphere and use a necessary resource base. It should be noted that subjects of educational process and objects of the scientific infrastructure of each university will differ depending on its type, form of ownership and available material and technical base.

The names, composition and functional responsibilities of each of the structural units (divisions) that will be involved in the process of self-assessment of the quality of research, scientific and technological, and innovation activities of HEIs may also differ depending on the size and resource base of universities.

However, a key role in the implementation of the technique for self-assessment of the quality of research activities of HEIs should be given to the vice rector for academic affairs and research, to the staff of the research section and

the department for ensuring the quality of education and innovation development. Moreover, the first two subjects of educational process will carry out management, supervisory and coordinating functions, while the department for ensuring the quality of education and innovation development should become the direct executor of ranking research activities of the HEI's structural units.

Also, the main responsibilities of the administration and representatives of these units will include:

1. Development of the system of target tactical parameters (indicators) of self-assessment of research activities in order to determine the current state of the HEI's research potential, dynamics of research activities of subjects of educational process in the HEI (research workers, academic staff, students, postgraduate students, doctoral students) at all levels of the HEI's organizational structure.

Based on the results of the ranking of the research activities of the university within the cluster group (in accordance with the two-level ranking system of the Ministry of Education and Science of Ukraine in terms of research activities of subjects of the higher education system), and using a valid system of ranking factors and corresponding indicators of research activities of HEIs for each of the factors, the vice rector for academic affairs and research establishes the level of target indicators of research activities for each structural unit of the HEI. Moreover, it is expedient to establish target tactical indicators based on the actual situation and the current state of research, scientific and technological, and innovation activities of the university's structural units. This will allow coordinating the research activities of the HEI for a relatively short period focused on detailing, supplementing and introducing corrections in the previously worked out priority plans for the development of the university as a whole and research activities in particular.

In turn, based on the elaborated system of target strategic indicators that take into account the specific nature of research activities and educational orientation of the HEI, long-term reference points for the development of research activities of the university are determined, which, in turn, covers all areas and directions of the university's activities, outlining the mission and the subordinate goals of the HEI's research activities as well as fundamentally important ways to achieve them.

**D**etermining the level of target indicators, the vice rector for academic affairs and research should take into account the efficiency and adaptability of the system for university ranking, i.e., the timeliness of information presentation and possibility of changing the parameters or the structure of the ranking system in the event of changes in the external environment to enhance the university's competitiveness both at the national and world level in terms of quality of research and educational activities.

Thus, taking into account the strategic goals and priority directions of the university's development, its place in the ranking in terms of research activities among other HEIs of the cluster, there determined the composition and the list of target tactical and strategic indicators for self-assessment of



the quality of research, scientific and technological, and innovation activities for each structural unit of the university.

2. Direct management of the HEI's research activities. By checking the compliance of target values with actual ones, the division for ensuring the quality of education and innovation development discovers disparities between the level of the target and actual indicators for self-assessment of the quality of research activities of the HEI and determines the current state of research activities of each structural unit of the university. If the actual quality indicators of research, scientific and technical, and innovation activities of the structural unit are below the target level, a detailed analysis is conducted to identify weaknesses and shortcomings in the work of the structural unit. Moreover, this analysis is hierarchical, i.e., from the faculty level, it gradually through the departmental level reaches the academic staff of the department and its particular member, thereby analyzing the cause-and-effect relationships that conditioned the emergence of the problem situation and the weak points in the research activities of both the teacher working for the department, and the whole structural unit. That is, the realization of the person-oriented and competency-based approaches allows not only to assess the state of the research potential of the HEI, take into account the personal component of research work and dynamics of the effectiveness of research activities of subjects of educational process in the HEI but also implement methodological approaches to ranking research activities of the HEI at the level of individual units of the HEI.

3. Elaboration of measures to eliminate the identified shortcomings and the development of a system for stimulating the research activities of structural units of the HEI (in case actual indicators correspond to the level of target ones and / or exceed them). After carrying out a detailed analysis of the results of research activities at each level of the HEI's organizational structure, a decision is made to improve the level of research activities by its components (factors), in particular, taking into account the current state of the tactical and strategic indicators being studied, an action plan is worked out to increase them or maintain at the achieved high level. This plan should contain information on the sequence of steps with a clear indication of the purpose, executors, implementation time and necessary resources. This will eliminate narrow and weak places in the research activities of the university, facilitate its restructuring and overcoming shortcomings in the path of resistance to changes from the external and internal environment.

Undoubtedly, the development of an HEI, its scientific and innovation potential is impossible without the introduction of an effective incentive system for the academic staff. That is why, we consider it expedient to develop a motivation system for intensifying the research activities of subjects of educational process of the HEI (research workers, academic staff, students, graduate students, doctoral students) at all levels of the organizational structure of the HEI. The interest of the academic staff in building up its own research potential and increasing the effectiveness of research activities will allow to harmonize and

consolidate the joint efforts of all structural units in order to improve the quality and competitiveness of educational and research services and image attractiveness of the HEI, as well as to facilitate its rapid integration into the European educational space. Moreover, stimulating the development of research in the walls of an HEI has a positive effect on social progress and affirms the high authority of the national science not only on a national scale, but also in the world as a whole.

The decision on the system of non-material and material motivation of employees is taken by the HEI's administration in accordance with its own capabilities and priorities for the development of research activities.

The last sub-item of the final stage is the improvement of the strategy for the development of the university's research activities.

The strategy for the development of the HEI's research activities should involve building up the university's position in the national system of university ranking, getting ranked or improving its positions in international rankings. Since the receipt of a certain rating estimation of the HEI research activities influences the improvement of the HEI's image in the national and international scientific and educational space (attracting the best researchers and teachers, foreign students, as well as investments and grants to the educational and scientific process); improvement of the HEI's autonomy; increase in the public financing of scientific developments of the HEI and the interaction of the labor market and the market of educational services for the effective economic and social development of the country.

According to the results of the self-analysis of research activities, the expert group makes recommendations for adjusting the current strategy for the HEI's development in the context of making changes in the priority areas for improving scientific productivity and strengthening the research potential of the university. After their approval by the university administration, these recommendations should be rendered to each structural unit and subject of educational process in the HEI with the indication of priority goals, benchmarks and tasks. That is, it is expedient to develop a detailed strategic plan for the development of the university's research activities, the realization of which, in turn, will ensure the growth of competitive advantages in the scientific sphere and contribute to improving the image and international reputation of the HEI in the world educational space.

## CONCLUSIONS

The organization and implementation of the technique for self-assessment of the quality of an HEI's research potential, dynamics of the effectiveness of research activities of subjects of educational process in the HEI (research workers, academic staff, students, graduate students, doctoral students) at all levels of the organizational structure of the university will allow assessing the existing potential of research activities of the HEI and take into account the effectiveness of its use, which will serve as a basis for de-

termining strategic and tactical guidelines for improving research activities of both an individual university and the modernization of national systems of higher education in general.

The application of the technique for self-assessment of the quality of research, scientific and technological, and innovation activities of an HEI will improve the existing system for managing the research activities of the HEI and create sound strategic guidelines for improving the HEI's research activities, based on the ranking information on the effectiveness of its components. All this is aimed at ensuring the principle of consistency within the competency-based approach, improving the quality of education and, as a consequence, enhancing the attractiveness of the HEI for different groups of consumers of the scientific and educational product in the national and international markets. ■

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