# “Assessment of institutional autonomy of higher education institutions: methodical approach”


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# ASSESSMENT OF INSTITUTIONAL AUTONOMY OF HIGHER EDUCATION INSTITUTIONS: METHODICAL APPROACH[1]

## Abstract

In order to reform and modernize the system of higher education, an important step is to assess the constituent parts of the institutional autonomy of higher education institutions (HEI), which allows, on the basis of a combination of the level of autonomy of higher education systems of countries and their universities, and indicators of the quality of scientific and educational activities of the HEI, to ensure a unified approach to information and analytical assessment of university autonomy in general. This fact proves the necessity of developing a methodological approach to the assessment and management of institutional autonomy of the HEI. The authors carried out a comparative analysis of the models of university autonomy, international and national approaches to the assessment of the components of institutional autonomy such as organizational, personnel, academic and financial.

The methodical approach to the evalution of the institutional autonomy of the HEI is developed. The proposed methodological approach is aimed at the formation of an information space for simultaneous comparison and assessment of the level of institutional autonomy of HEI and indicators that affect it. This approach combines the results of grouping the autonomy of higher education systems of the countries and their HEI according to homogeneous groups and the results of calculating the integral indicator of the quality of scientific and educational activity within each component of institutional autonomy, which allows to determine the position of a specific HEI on the level of autonomy in the proposed matrix of recognition of the situation.

**Keywords** autonomy, cluster, integral coefficient, quality, educational activity, European University Association (EUA)

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## INTRODUCTION

One of the characteristic features of the transformation of the higher education system of the world in the 21st century is the significant reduction of state regulation of universities and the expansion of the autonomy and responsibility of higher education institutions (HEI) for the results of their activities. Ukraine does not stand aside these processes, which is confirmed by the systematic modernization of the national system of higher education, which covers the development of new legislative acts and a radical change in the system of relations between individual HEI and the Ministry of Education and Science of Ukraine. So, the Law of Ukraine "On Higher Education" in 2014

1 The research was conducted within the framework of research work on the topic No. 41/2017-2018 "Development of Methodological and Model Information Support of Institutional Autonomy of Higher Educational Institutions"



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gave an impetus to the implementation of real steps to autonomy of universities, according to which higher education institutions acquired the right to make independent decisions in various spheres of economic-financial, scientific and educational activity.

Provided that university autonomy is one of the factors of increasing its attractiveness and competitiveness in the national and international educational market, it is relevant to study various aspects and approaches to building a system of assessment and management of institutional autonomy of a specific institution of higher education.

Research of scientists on the analysis of the constituents of institutional autonomy suggests that today there is no single approach to assessing its status. This is due to the presence of different views of scientists on the list and composition of indicators, which are used as indicators for assessing the level of autonomy of higher education systems. The proposed methodology of the European University Association (EUA) for the assessment of the autonomy of higher education systems should be adapted to national realities, taking into account the peculiarities of the functioning of the national HEI.

Thus, in order to compare the programs of national higher education with the subject of autonomy with foreign educational systems, the establishment of correlation and interconnections between the level of autonomy, the rating of universities and the indicators characterizing the quality of scientific and educational activities of the HEI, it is important to form a system of indicators of institutional autonomy of the HEI, which will allow to assess the components of institutional autonomy at the level of both the education system of the country as a whole and its HEI separately and will provide a unified approach to information and analytical assessment of institution authority.

In this regard, it is important to develop a unified methodological approach to the formation of the information space and the system of evaluation and analysis of the components of the institutional autonomy of a separate university.

## 1. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

According to the decisions of the Lisbon Declaration, four types of university autonomy are distinguished (Klimova, Ivanov, & Shevchenko, 2015):

1. Academic freedom of scholars in teaching and research (academic autonomy) is freedom to seek the truth and produce knowledge without fear of sanctions for political, religious or social motives. There are signs of academic freedom (Abramov, 2010):

- freedom of research (choice of subjects, methods of academic work) and the exchange of scientific data (methods of dissemination of scientific results);
- limited jurisdiction of the secular, ecclesiastical, and judicial authorities in relation to the members of the university corporation;
- collegiate principles of self-organization of the scientific community and university (election of the positions of professor, dean, rector, award of scientific degrees on the basis of collegiate assessment of the submitted work);
- right of the faculty to independently determine the structure and content of study at the university;
- study programs and research methods.

The notion of academic freedom is closely linked to the procedural and substantive autonomy of the HEI. So, if academic freedom is freedom of scientists and is understood in the organization of studies and research, the autonomy of universi-

ties in determining their own goals and programs is declared substantive autonomy, and procedural autonomy characterizes the right of the university to determine the means of achieving the goals and implementing the programs (Shpakovskaya, 2007).

2. Management (organizational) autonomy is decisions on the university structure and statute, the conclusion of contracts, the procedure for the election of executive and governing bodies.

3. Financial autonomy consists in making decisions on the receipt and distribution of assets, the amount of tuition fees.

4. Personnel autonomy is autonomy in making decisions on recruitment and career growth of employees of HEI.

Thus, autonomy is a complex concept, which means the availability of universities for the formation and implementation of independent government decisions in the areas of personnel management, the formation and distribution of the budget, the definition of training programs for student preparation and the rules of recruitment, etc.

The problems of autonomy and its evaluation are highlighted in the writings of many scientists. The research of the scientists is aimed at analyzing the relationship between the development of society and university education, the need for democratization of society as a factor in increasing democratic freedoms in the field of education, the separation of the components of institutional autonomy and the identification of indicators for their evaluation in connection with the quality of scientific and educational activities of the HEI in general.

Carvalho and Diogo (2018) analyze the interconnection between institutional and academic autonomy and argue that initiatives to improve institutional autonomy lead to increased professional autonomy of scientists. Gornitzka, Maassen, and Fumasoli (2017) believe that it is expedient to study and evaluate institutional autonomy, first of all, in the field of research management and staffing capacity of the university. In order to do this, it is necessary to develop an appropriate analytical support, on the basis of which the level of autonomy of HEI (Gornitzka et al., 2017; Maassen, 2017) is studied.

In the writings of Jomgbloed (2008), the emphasis is placed on the primary assessment of the level of financial autonomy of the HEI. These researchers believe that the development of universities largely depends on the availability of their financial resources, and in conditions of increased competitiveness for universities, it is necessary to obtain more rights and freedoms in the field of financial autonomy (Jomgbloed et al., 2008). The continuation of these ideas was reflected in the studies by Jongbloed (2010), Amaral, Tavares, and Santos (2012), where the authors emphasize that the financial autonomy of universities is a major factor in the competitiveness of the country's higher education system. They conclude that, in most countries, increasing autonomy in the field of finance provides more academic freedom to universities to determine their educational programs.

Among the domestic scientists, the most relevant questions are the definition of the essence of the components and levels of manifestation of the autonomy of the HEI. Thus, in their works, Lisun (2016), Ambarchian (2016) made a generalization of theoretical and methodological foundations of the analysis of the level of autonomy of HEI, and specified the indicators for assessing the institutional autonomy of the HEI by the components: organizational, financial, personnel and academic autonomy. These scholars provide an assessment of the degree of autonomy of the Ukrainian higher education system based on the methodology developed by the European University Association (EUA).

Reznik (2017) views the forms and limits of the autonomy of the HEI for their effective functioning and maintaining the balance between the level of autonomy and the state regulation of the scientific and educational activities of universities. According to the author, in the context of globalization, the HEI should focus on the graduation of specialists not only for national labor markets, but also that it is necessary to ensure a certain level of competitiveness of graduates, which is impossible without certain actions in the field of improving the quality of education, openness of HEI, their cooperation with business structures, etc.

The emphasis of many scholars on the question of assessing the quality of scientific and educational activities of the HEI on the components of au-


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tonomy is due to the fact that academic freedom of the university is the most difficult for the conceptual awareness and practical implementation of institutional autonomy. There are two trends in modern university education: liberal and utilitarian. The liberal tendency adheres to the principles of classical, fundamental education, which is aimed at the formation of theoretical knowledge. Education, however, is determined by the sphere of production in which an intellectually developed personality is formed. Utilitarian tendency means the professionalization of education, caused by the needs of the labor market in specialists with specific competencies. Education is thus recognized as a service area that meets the needs of "clients" in further employment. If the consumer is dissatisfied, he will buy educational services elsewhere, so competition between the HEI unfolds for their quality. According to Khagurov (2011), the formula "education as a service" reflects the culture of a market society whose main values are maximization of utility, efficiency and competitiveness, freedom and pluralism. In today's conditions of development of higher education systems, the utilitarian paradigm wins.

According to experts (Kalinina, Sapunov, & Tebiev, 2012), the reform of higher education in foreign countries relates to the quality indicators of scientific and educational activities of HEI that meet the criteria of a competitive university. These indicators are closely linked to the components of institutional autonomy, since they are aimed at:

1) introduction of effective academic management with aggressive market behavior of the university and its subdivisions;

2) recognition of teaching activity is successful only provided the compliance with the criteria of competitiveness: attraction of grants, high index of scientific citation, participation in successful PR projects, advertising company, formation of the brand HEI;

3) dominance of the manager over the faculty;

4) innovation of the university and its teachers in order to attract non-state sources of funding, that is, the university is transformed into a business corporation that massively introduces academic business management, and its instructors are in fact subordinated to the market and marketing.

The role of autonomy of HEI in strengthening their competitiveness is also considered in the works of domestic scientists. Thus, Stryzhychenko (2016) proposed a methodological approach for increasing the autonomy of the HEI, which consists of a stage of assessment, forecasting and strengthening of the self-sufficiency of HEI.

Consequently, the institutional autonomy of universities in different countries of the world serves as a guarantee of the independence of their internal intellectual life, liberal principles of management, and provides an innovative nature of the development of HEI.

Summarizing the composition of the indicators of institutional autonomy, one can distinguish four models of autonomy of the HEI depending on the degree of state intervention:

- state control (minimal autonomy) – intervention by the Ministry of Education and Science or other specialized agency;
- semi-autonomy (average low autonomy) – control is carried out by the Ministry of Education and Science, specialized agencies, other authorized statutory bodies or state corporations;
- semi-dependence (average high autonomy) – control is exercised by the statutory body, charitable or non-profit organizations, under the supervision of the Ministry of Education and Science;
- independence (maximum autonomy) – the control is exercised by an authorized body, charitable or non-profit organization without government intervention and control, but the activity of the HEI is in line with the national strategy and can be financed from the state budget.

Investigating the models of the autonomy of HEI, specialists (Kirillovykh, 2010) singled out:

- a model of minimal autonomy – the HEI performs the tasks of the founder and does not have the right to initiate additional financial resources;

- a model of partial autonomy – an HEI performs state functions for the provision of social services, it is partially financed by the founder with the right to engage in civil-trade turnover independently in order to obtain additional material resources for the provision of activities;

- a model of complete autonomy – in the absence of organizational and property subordination between the HEI and the government.

The analysis of the concept of autonomy, methods of its evaluation, models of autonomy and factors influencing it, have shown that:

- firstly, autonomy is closely interlinked with the competitiveness and attractiveness of universities;

- secondly, when forming the information space for the assessment and analysis of institutional autonomy, the most expedient and complete method is to assess the level of autonomy of higher education systems of European universities (EUA methodology);

- thirdly, since the notion of autonomy is a complex, hierarchical system, then, it is proposed to form a methodological basis for the system for assessing the autonomy of the HEI taking into account the degree of autonomy of the national system of higher education.

The purpose of this study is to develop a methodical approach to assessing the institutional autonomy of a higher education institution on the basis of the generalization of European and national experience in assessing university autonomy.

## 2. RESULTS

In this study, it is proposed to form a methodical approach to assessing the autonomy of the HEI of Ukraine, whose main goal is to create an information base for evaluation and analysis and decision-making at different levels of management of the development of institutional autonomy of the HEI. The proposed methodical approach has two characteristics: the target orientation of information flows and the maximum objectivity of the findings at each stage of processing and analysis of data.

The target orientation of information flows is manifested in the identification of the object or process under investigation in the analysis of the interrelations of their elements and the identification of the system of controlled factors, as well as in analyzing the state of the object or the course of the process.

Objectivity of the results is ensured, on the one hand, by the explicit definition in each case of its purpose and objectives of the methodological approach, on the other hand, it is a system of measures to "objectivize" the processing of information.

Consequently, the purpose of the methodological approach is to develop a sound system of indicators for assessing the level of institutional autonomy of the HEI, on the basis of which the management decisions will be formed at different levels of organization of the scientific-settled activity in the HEI.

The objectives of the system of indicators for assessing the institutional autonomy of the HEI are as follows:

- informational support for making managerial decisions, that is, in forming the necessary and sufficient information and analytical space for studying the institutional autonomy of the HEI;

- providing methodological support to the functioning of the general university information system, i.e., the choice of methods for assessing institutional autonomy;

- analyzing the expected state of the object, that is, to carry out an analysis of the level of institutional autonomy of the HEI of Ukraine, comparative analysis with the universities of the countries-type representatives, the identification of the directions of development;


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- ensuring the rationality of the process of managing the development of the institutional autonomy of the HEI, that is, identifying unresolved problems of autonomy and raising its level at various levels of organization of scientific and educational activities at the university.

The proposed methodological approach to assessing the institutional autonomy of the law enforcement is based on the following principles:

- systematic, which determines that autonomy is a complex structured concept that includes various components, namely, organizational, academic, financial, human resources. Within the framework of this principle, all components are considered as interconnected elements that form separate functional subsystems of the system of autonomy of the HEI;

- synergistic effect associated with the performance of the components of autonomy. Since each component of autonomy characterizes the functions inherent only to it, then, it is important to achieve autonomy in all its components, which will lead to an increase in the overall level of autonomy of the HEI;

- new tasks that consist in the fact that in the conditions of the evolution of the external environment, the autonomy of the HEI can receive new qualitative characteristics, on the basis of which there are new opportunities for strengthening the various components of institutional autonomy of the HEI;

- hierarchy that determines the autonomy of the university as a hierarchical structure associated with the autonomy of its individual units, and as a subsystem of the general system of autonomy of higher education.

The block diagram of the methodical approach to the assessment of the institutional autonomy of the HEI consists of the steps, which are given in Figure 1.

Stage 1 of the proposed methodological approach involves the formation of two systems of indicators.

## 2.1. Task 1.1.

Construction of a complex structured system of indicators for assessing the level of autonomy of the national system of education and individual self-defense. In order to do this, a comparative

**Table 1.** Components and indicators for assessing the institutional autonomy of the HEI according to the EUA methodology

| An integral part of university autonomy | Indicators of evaluation |
|---|---|
| Academic covers the specialization of law enforcement, educational degrees, the number of students and disciplines, the criteria for recruiting on certain specialties, ensuring the quality of education, the freedom to choose areas of scientific interests | Ability to determine the level of recruitment of students in HEI<br>Ability to select students for different levels of training and specialty<br>Ability to open and close educational programs<br>Ability to choose the language of instruction<br>Ability to develop criteria for assessing the quality of training<br>Ability to choose a provider of quality control procedures<br>Ability to construct the content of educational programs that lead to the formation of the necessary competencies |
| Financial covers the financing (budget and extrabudgetary), financial reporting, resource utilization | Duration of the state budget period<br>Type of government financing<br>Ability to earn profits and use budget balances<br>Possibility of lending<br>Ability to own real estate<br>Possibility to establish and regulate tuition fees for national students<br>Ability to set and adjust tuition fees for foreign students |
| Organizational involves the formation of the general rules of the functioning of the university and the regulation of its organizational structure, namely the appointment of the rector and other bodies of management of structural subdivisions of the HEI | The procedure for the election of the executive head of the university (rector)<br>Selection of criteria for the election of the rector<br>Dismissal from the post of executive director<br>Terms of staying as head of the university<br>Ability to include external members in the university authorities<br>Selection of external members of government<br>Ability to decide on the academic structure<br>Ability to create legal entities |
| Personnel involves staffing HEI, setting wages and career opportunities | Ability to take staffing decisions on recruiting academic staff<br>Ability to make staffing decisions on recruiting administrative staff<br>Ability to determine the level of wages of academic staff<br>Ability to determine the level of wages of administrative staff<br>Ability to decide on the release of academic staff<br>Ability to decide on the dismissal of administrative staff<br>Ability to promote academic staff<br>Ability to promote administrative staff |

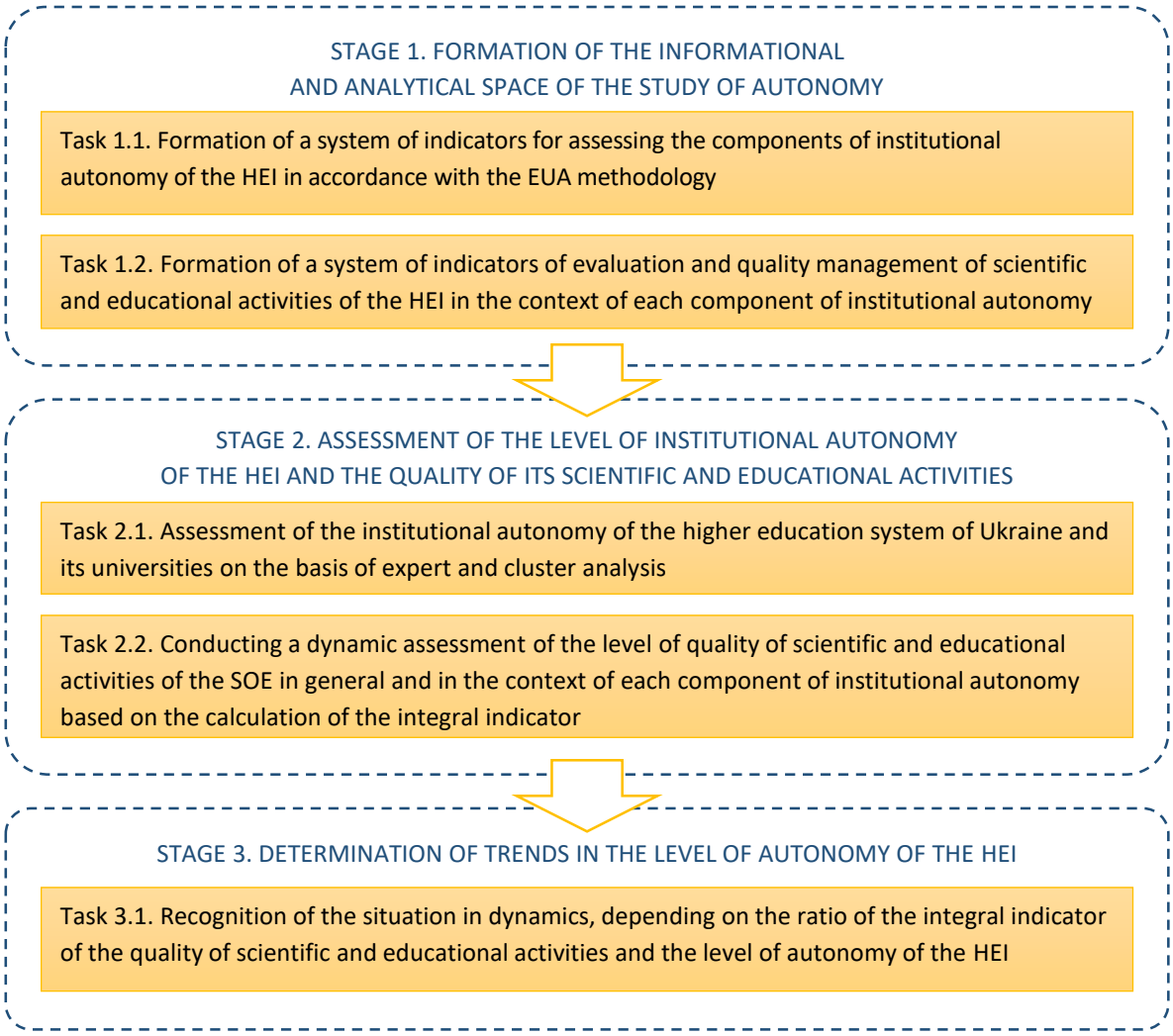


**Figure 1.** Scheme of the stages of the methodical approach to the assessment of institutional autonomy of the HEI

analysis of international approaches to assessing the components of institutional autonomy has been carried out and the most appropriate approach is the EUA methodology (Pruvot & Estermann, 2017; Высшее образование в Европе [Vysschee obrazovanie v Evrope], 2017).

The level of autonomy by this methodology is determined by the four components of autonomy: organizational, financial, personnel and academic (Table 1).

Thus, the degree of autonomy of the national higher education system is proposed to be evaluated by the given indicators.

Since the HEI of Ukraine operates within the legislative space of a particular country, a scientific hypothesis is made that the level of autonomy of the HEI coincides with the level of autonomy of the national system of higher education.

## 2.2. Task 1.2.

Construction of a system of indicators for assessing the quality of scientific and educational activities of the HEI. In order to solve the problem, there are the national approaches to the assessment of institutional autonomy, the results of rating the HEI, the analysis of statistical reporting of educational institutions, reports of the HEI on licensing conditions for the performance of educational activities, legislative and normative provision of the educational process. On the basis of this, for each component of the institutional


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**Table 2.** Harmonized indicator systems for assessing academic autonomy and quality level of scientific and educational activities of HEI (fragment)

| I. The system of indicators for assessing the academic autonomy of the HEI according to the EUA methodology | II. The system of indicators for the evaluation and quality management of scientific and educational activities of the HEI in the context of academic autonomy |
|---|---|
| Indicators of academic autonomy for the EUA | Indicators for assessing the quality of scientific and educational activities of the HEI |
| • Ability to determine the level of student recruitment in the HEI<br>• HEI independently decide on the number of training places<br>• HEI decide on the number of paid (contracted seats), and the number of budget places is set by an external body (or HEI negotiate with an external body)<br>• An external body decides on the number of initial seats<br>• Free enrollment | • Quality of student recruitment and training<br>• The number of students enrolled in a budget and contract forms of study at the levels of undergraduate and graduate programs in specialties and educational programs<br>• HEI scale (total number of full-time students) |
| | • The quality of international activity and educational mobility<br>• The number of foreign citizens who receive higher education<br>at a higher educational institution for 100 full-time scientific and pedagogical workers<br>• The share of foreign citizens enrolled in the first year (initial cycle) of full-time education in the total number of foreign students of full-time studying in the area of HEI, % |
| • Ability to develop criteria for assessing the quality of training<br>• HEI can freely choose quality assurance mechanisms according to their needs<br>• HEI cannot choose quality assurance mechanisms | • Quality of student recruitment and training<br>• The number of graduates of bachelors (specialists/masters) of full-time education who completed the full cycle of study and received a diploma with honors, per 100 graduates of this category<br>• The share of graduates of the HEI of all forms of studying in the reporting period after 9-12 months after the end of the educational institution, %<br>• Number of students-winners of international competitions of student research papers<br>• The number of students-winners of All-Ukrainian Olympiads among full-time students of studying<br>• The number of contests for students' scientific works in natural, technical and humanitarian sciences among full-time students |
| | • Satisfaction with the quality of education by higher education and employers<br>• The results of a sociological survey of graduates of HEI on satisfaction with the quality of education at the university |

autonomy of the HEI, a list of indicators is presented that reflect the quality of educational and scientific processes in the HEI.

In order to further the formation of the organizational structure of management for each component of institutional autonomy and to make managerial decisions in order to increase the level of autonomy of the HEI, it was proposed to reconcile the two developed system of indicators. A fragment of the coordination of the indicators of the evaluation of the level of autonomy and the quality of scientific and educational activities is shown on the example of academic autonomy (Table 2).

It should be noted that each indicator of the quality assessment of scientific and educational activities of the HEI includes a list of local indicators, for which the integral indicator will be calculated in the future (task 2.2 of step 2). Similarly agreed indicators are developed for each component of institutional autonomy.

Stage 2 provides for the selection of a method for assessing the quality of its activity as an autonomous organization.

## 2.3. Task 2.1.

Estimation of the level of autonomy of HEI. In order to prove the hypothesis regarding the coincidence of the level of autonomy of the law enforcement with the level of autonomy of the national system of higher education, it is proposed to use:

- cluster analysis is to determine the one-dimensional degree of autonomy of higher education systems in Europe;
- expert analysis is to assess the level of self-sufficiency of the HEI through the system of indicators of the method of EUA.

The feasibility of using cluster analysis is substantiated by the fact that the construction of autono-

mous clusters of higher education systems at the same time in all groups of indicators allows us to determine the spatial characteristics of the autonomy of the higher education system of Ukraine and its universities and to identify the representative countries for cluster groups.

This clusterization has been carried out in the scientific-applied research on the topic No. 41/2017-2018 "Development of methodological and model information support of institutional autonomy of HEI". The results are shown in Table 3.

A study of the overall indicator of autonomy through cluster analysis allowed to identify the three homogeneous clusters. For cluster groups, the Harrington scale is used, which implies an even distribution of the overall integral index of autonomy. According to this scale, it is determined that the first cluster has a low level of autonomy, the second cluster has an average level with a different modification of the influence of the components of the institutional atnomonia and the third cluster has a high level.

Ukraine has fallen into a cluster with a low level of autonomy in the system of higher education, and the characteristics of the development of components of autonomy show that it is the closest to the characteristics of the autonomy of the higher education system in France. Therefore, as benchmarks for the further development of the national system of higher education, it is expedient to take experience of the system of higher education in France.

In order to prove the hypothesis that the indicators of the general level of autonomy of the HEI coincide with the indicators of the assessment of the higher education system, the analysis was conducted, the respondents of which were the heads of services and departments of S. Kuznets KHNEU. Indicators of quality evaluation of the coincidence of the results of the examination proved that the responses received were not accidental. Studies have shown that the list of indicators and the strength of their impact on the autonomy of the HEI completely coincide with the method of EUA. In other words, it can be noted that for innovative active law-enforcement bodies that operate within the legislative space of national higher education systems and maximize the autonomy opportunities in their practice, the level of autonomy of the higher education system is equated with the level of autonomy of the HEI.

## 2.4. Task 2.2.

Assessment of the quality of scientific and educational activities of the HEI. It was carried out according to the selected indicators in the context of each component of institutional autonomy for 2014–2017. According to the results of the analysis, integrated indicators are calculated, the significance of which provides information on trends in the quality of educational and scientific activities of the HEI before and after the enactment of the Law "On Higher Education" (2014), which sets out the principles of expanding the autonomy of national universities till today.

In order to construct an integral indicator of the quality of scientific and educational activities of the HEI, it is proposed to use the method of taxonomy, which allows you to reduce the aggregate of the characteristics of the phenomenon under study to one synthetic feature. An algorithmic model for calculating the integral index by taxonomy is presented in Figure 2.

**Table 3.** Structure of cluster groups by the level of general autonomy

| Low level of autonomy (cluster 1) | Average level of autonomy (cluster 2) | | | High level of autonomy (cluster 3) |
|---|---|---|---|---|
| | With a strong academic and organizational component | With an enhanced financial component | With an enhanced staffing component | |
| Greece<br>Turkey<br>France<br>Ukraine | Austria<br>Brandenburg<br>Iceland<br>Hessen<br>Norway<br>South Rhine-Westphalia<br>The Netherlands<br>Sweden | Spain<br>Italy<br>Portugal<br>Slovakia<br>Hungary<br>Cyprus<br>Luxembourg | Latvia<br>Lithuania<br>Poland<br>Czech Republic<br>Switzerland | UK<br>Denmark<br>Estonia<br>Ireland<br>Finland |


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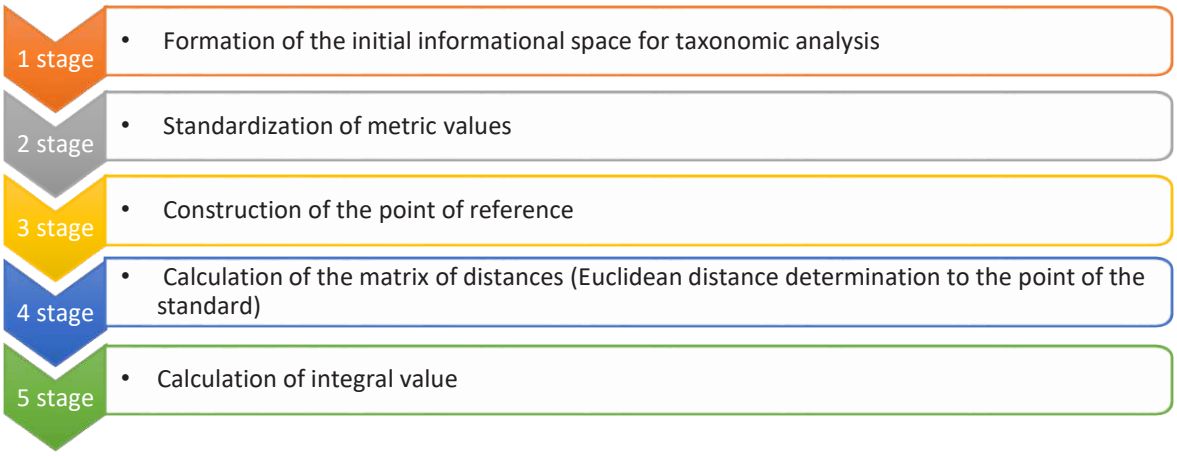


**Figure 2.** Algorithmic model of the integral index calculation

Obtaining an integral indicator of the quality of scientific and educational activities of the HEI occurs according to the formula (1):

$$Q_i = 1 - \frac{c_i}{\bar{c} + 3 \cdot S};$$

$$c_i = \sqrt{\sum_{j=1}^{m} (z_{ij} - z_{je})^2 \cdot w_j}; \quad (1)$$

$$\bar{c} = \frac{1}{T} \sum_{i=1}^{n} c_i;$$

$$S = \sqrt{\frac{1}{n-1} \sum_{i=1}^{n} (c_i - \bar{c})^2},$$

where $c_i$ – distance from the point-standard; $z_{je}$ – the reference value of the $j$ index, which is formed as follows: $z_{je} = \max z_{ij}$, if $j$ – a stimulant's sign, $z_{je} = \min z_{ij}$, if $j$ – a destimulant's sign; $w_j$ – the weight of the $j$ index; $j = [1 \div m]$; $i = [1 \div n]$, $z_{ij}$ – standardized value of $j$-th index for $i$-th object, obtained by the formula (2):

$$z_{ij} = \frac{x_{ij} - \overline{x_j}}{\sqrt{\frac{1}{n-1} \sum_{i=1}^{n} (x_{ij} - \overline{x_j})^2}}, \quad (2)$$

where $x_{ij}$ – value of the $j$-th index for $i$-th object, $\overline{x_j}$ – average or reference value of $j$-th index.

The integral indicator obtained by this method acts as a normalized value, i.e., it varies in the range from 0 to 1, which allows us to determine the tendency of changing its value both for each component of institutional autonomy and for all components in general.

Stage 3 involves recognizing the situation regarding the autonomy of the HEI in dynamics. The direction of the change of the integral index enables to identify the factors of increasing the autonomy of the HEI and to make managerial decisions by certain structural subdivisions of the HEI, which form the primary informational space for calculating the quality indicators of scientific and educational activities of the HEI.

As for the innovative active HEI, the increase of the quality indicators of scientific and educational activity in the context of each component of institutional autonomy increases their competitiveness and attractiveness for entrants and employers, and only an autonomous HEI can be innovative only, the focus of stage 3 of the methodological approach is to identify "narrow places" in the indicators of quality of the scientific and educational process and the formation of managerial decisions to increase the level of institutional autonomy of the HEI, as a means of strengthening its competitive advantages.

## 2.5. Task 3.1.

It is construction of the matrix of recognition of situations regarding the autonomy of the HEI. In order to solve this problem, it is proposed to construct a matrix of 6 cells (3 × 2), in which each cell meets the cluster of autonomy of the HEI (vertical matrix axis) and the level of quality of scientific and educational activity of HEI, that is obtained as a result of calculating the integral coefficient (horizontal matrix axis) (Figure 3).

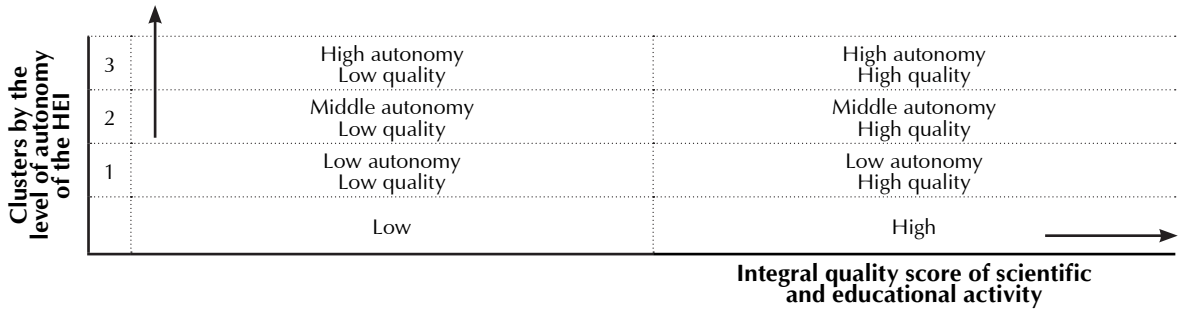


**Figure 3.** Matrix of recognition of the situation in relation to the autonomy of the HEI

As noted above, the level of autonomy of the HEI depends on the legislative basis for the autonomy of the entire national system of higher education. That is, in this case, a separate HEI stands in the position of "price-taker", it cannot influence the objective reality of legislation, its task to adapt to these conditions. Regarding the quality of scientific and educational activities of the HEI, the situation is the opposite. In this case, everything depends on the initiative of HEI, on his desire to constantly strengthen its scientific and educational attractiveness for entrants, employers, and international partners. Therefore, if the HEI`s position in the proposed matrix is foreseen for the level of autonomy, then, the movement of HEI along the quality axis is an indicator of its ability to strengthen its competitive position in the national and international educational markets.

Thus, the proposed methodological approach to the evaluation and management of institutional autonomy of the HEI allows us to form an informational space for its study and, based on the combination of the results of grouping the autonomy of higher education systems of countries and their HEI according to homogeneous groups and the results of calculating the integral indicator of the quality of scientific and educational activities within each component of institutional autonomy, to determine the place of self-sufficiency in terms of autonomy.

## CONCLUSION

The conducted research has shown that in order to form a system of informational and analytical assessment of the level of autonomy in modern conditions, it is expedient to use the system of indicators of institutional autonomy developed by the EUA. The EUA methodology is a toolkit that compares the components of institutional autonomy in higher education systems of countries, and hence in higher education institutions of these countries. The system of indicators for assessing the components of autonomy of the university is identical to the system of indicators for assessing the autonomy of the higher education system of the country for the innovative activity of the system of higher education.

In addition, for each component of institutional autonomy, the formation of agreed indicators systems is proposed: for assessing the level of HEI autonomy and for assessing and managing the quality of scientific and educational activities of the HEI. The proposed system of indicators will be used to assess the quality of the HEI activity and to form the organizational structure of the institutional autonomy component management in order to develop managerial decisions to increase or maintain the level of autonomy of the HEI.

Depending on the position of the country and its universities on the level of autonomy and the integral indicator of the quality of scientific and educational activities, the matrix of the recognition of the situation regarding the level of independence of the HEI, its change in dynamics is proposed. Based


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on the position of the Ukrainian HEI in the proposed recognition matrix, there is the development of tactical and strategic management decisions to increase the level of institutional autonomy of the HEI relative to those countries and HEI that are located in the same cluster or in clusters with better status.

Further research in this field will be aimed at identifying the causes of transitions from the quadrant to the quadrant of the matrix and developing appropriate management measures in order to enhance the quality of the scientific and educational activities of the HEI and increase the autonomy of the universities.

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