

The Concept of Spherical Waves of Higher Education Development Management

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ABSTRACT

The aim of the article is to develop the concept of spherical waves of management of higher education development in Ukraine. The concept consists in integration into European Higher Education Area (EHEA) on the basis of five spherical waves: equal interaction of all participants of the educational process; extension of management actions to various spheres of activity of the higher education institution (HEI); interactions with stakeholders; dissemination of management actions at different levels; coverage of all successive phases of the management process. The spherical wave of higher education management within a HEI is defined as a set of certain homogeneous elements (phases, levels, stakeholders, spheres or participants of the educational process), which is targeted management influence from the relevant management center (HEI's leadership) to achieve strategic, tactical and operational goals of the HEI in the EHEA. The mechanism of involvement of stakeholders in cooperation with the HEI is described.

KEYWORDS: Spherical waves, Higher education, Development management, Higher education institution, European Higher Education Area.

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1. Introduction. *Concept* (from the Latin *conceptus* – «concept», «water accumulation, reservoir», «conception», «fruit») – an innovative idea, that contains a creative meaning [1].

In the context of the formation of the European Higher Education Area (EHEA), the directions of research of conceptual bases of management of development of higher education in Ukraine were as follows: conceptual bases and directions of development of higher education in Ukraine [2 ; 3; 4]; conceptual bases of innovative way of development of higher education in Ukraine [5; 6]; conceptual foundations of higher education in the information society [7]; conceptual principles of management in the system of higher education [8; 9]; conceptual approaches to public administration of higher education [10; 11]; conceptual vision of changes in corporate governance standards in the higher education system of Ukraine [12]; conceptual principles of quality management in higher education [13; 14; 15]; conceptual principles of communication activity of a modern university in the conditions of internationalization of higher education [16]; We proposed strategic directions for modernization of the higher education management system in Ukraine [17]; Researchers from other countries have studied the following management aspects in higher education: innovations in the management of higher education in Syria [18]; concept “quality development” in the UK [19]; entrepreneurial university: an exploratory model for higher education [20]

However, conceptual bases of management of development of higher education in Ukraine need to be improved and supplemented in terms of an integrated approach.

2. Proposed Techniques / Algorithms. The aim of the article is to develop the concept of spherical waves of management of higher education development in Ukraine.

To implement it, the following tasks were set and performed:

1) define the concept of «spherical wave of higher education management within a higher education institution (HEI)»;

2) describe the elements of each wave;

3) develop a mechanism for attracting stakeholders to cooperate with HEIs.

The method of synthesis is used in the work to construct a new concept of higher education development management in Ukraine; analysis – to decompose each wave of the concept into individual elements.

3. Experimental Results. The term *spherical wave* comes from physics and means a wave that propagates from or coincides with a point source [21]. In our opinion, the *spherical wave of higher education management within the HEI* is a set of certain homogeneous elements (phases, levels, stakeholders, spheres or participants of the educational process), which is targeted management influence from the relevant management center (HEI’s leadership) to achieve strategic, tactical and operational goals of the functioning of the HEI in the EHEA. According to the developed concept (innovative idea), the management cycle in HEI lasts one year. The five equivalent waves begin to

appear at the beginning of the new school year and subside before it ends. Their graphic image is given in **Fig. 1**.

The first spherical wave of management of the development of higher education includes all participants in the educational process: scientific, scientific-pedagogical and pedagogical workers; applicants for higher education and other persons, studying in the HEI; specialists-practitioners, who are involved in the educational process in educational and professional programs; other employees of the HEI.

The second spherical wave of management of higher education development contains 13 spheres of management of HEI: household, economic, investment, information and analytical support, marketing, international, research and innovation, accounting, educational, career guidance, social, personnel management, financial.

The third spherical wave of higher education development management unites 16 groups of external stakeholders, who can influence the activities of the HEI or make decisions in it, be influenced by these decisions or perceive themselves: Ministry of education and science (MES), National Agency for Higher Education Quality Assurance (NAQA), public authorities (except MES), local governments, Supervisory board, applicants, religious organizations, grantors, investors, media, employers, labor exchanges, business structures, local communities, non-governments organizations (NGOs), graduates.

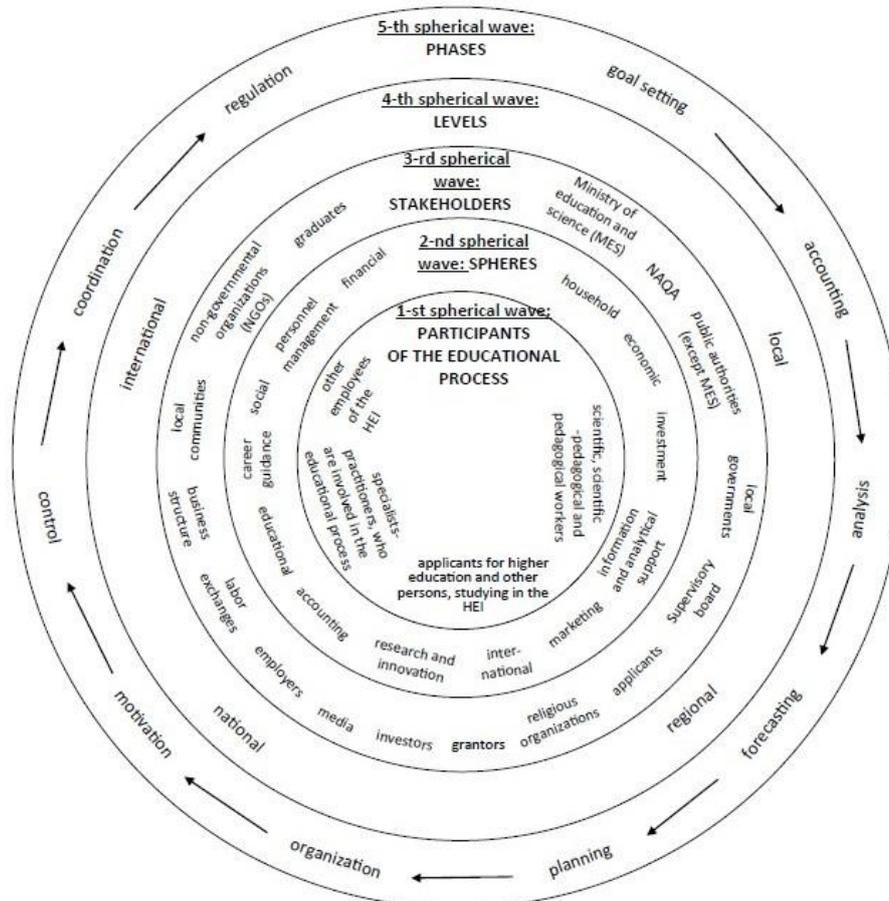


Figure 1. The concept of managing the development of higher education in Ukraine in the functioning of the EHEA in the form of spherical waves [22]

The fourth spherical wave of higher education development management includes four levels, which can cover the process of the HEI management: local, regional, national, international.

The fifth spherical wave of higher education development management contains 10 consecutive phases (activities), in which the HEI is carried out: goal setting, accounting, analysis, forecasting, planning, organization, motivation, control, coordination, regulation.

According to the concept, the management of the HEI in Ukraine is to integrate into the EHEA on the basis of five spherical waves:

- equal interaction of all participants of the educational process;
- extension of management actions to various spheres of activity of the HEI;
- interaction with stakeholders, the mechanism of involved of which to cooperation with the HEI is

shown in **Fig. 2**;

- dissemination of management actions at different levels;
- coverage of all successive phases of the management process.

Let us dwell on the analysis of these spherical waves in more detail.

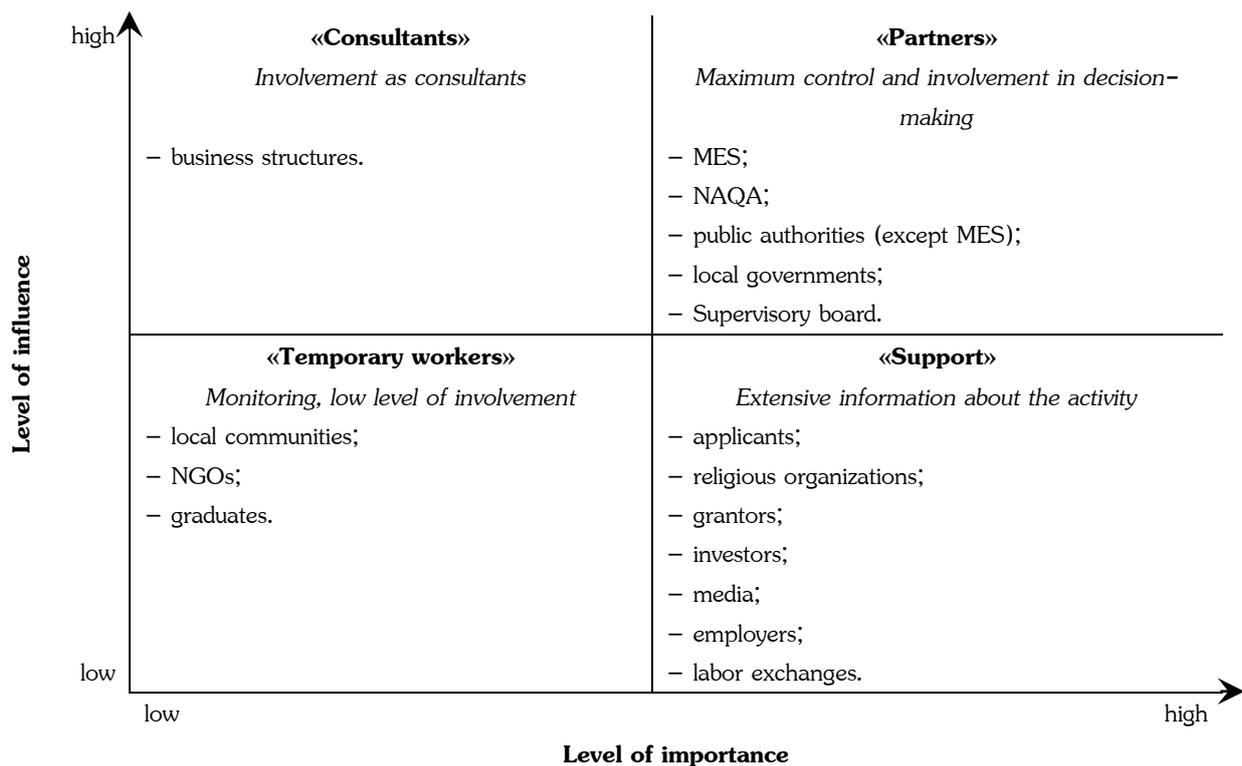


Figure 2. The mechanism of involvement of stakeholders to cooperation with the HEI [22]

The first spherical wave of management of higher education development is the following participants of the educational process of a separate HEI:

- scientific, scientific-pedagogical and pedagogical workers;
- applicants for higher education and other persons, studying in the HEI;

- specialists-practitioners, who are involved in the educational process in educational and professional programs;
- other employees of the HEI.

Their rights and responsibilities are described in the Law «On Higher Education»: Article 57 «Rights of scientific-pedagogical, scientific and pedagogical workers»; Article 58 «Duties of scientific-pedagogical, scientific and pedagogical workers»; Article 62 «Rights of persons, studying in the higher education institutions»; Article 63 «Duties of persons, studying in the higher education institutions». However, the law does not specify on what principles the relationship «leader – subordinate» should be built. And this is necessary in order to protect lower-level officials from discriminatory actions of their leaders.

Such relationships should be considered in two aspects:

- the attitude of managers (rector, vice-rectors, deans, heads of departments, etc.) to subordinates;
- the attitude of subordinates to managers.

Since every leader must be a leader among his subordinates, accordingly, he must have leadership qualities. Thus, G. Yukl developed 19 categories of leader behavior. These are, in particular: the main emphasis on production (in our case, – the provision of educational services); sensitivity, attentiveness; nasal; praise and recognition; remuneration for activities for the benefit of the company (in our case, – HEI); participation in decision-making; transfer of powers; explanation of roles; goal setting; teaching; distribution of information; problem solving; planning; coordination of actions; facilitation of work; involvement of consultants; establishing a favorable climate in the team; conflict management; discipline and criticism [23].

In fact, this list contains requirements for the leader in the process of managing his team. But it can be supplemented and detailed on the basis of information from the main Christian book – the Bible, because the basic moral principles of human life are described in it.

First, on the basis of Old Testament examples (in the order of their mention in the Bible), we can identify 14 desirable qualities for modern managers of the HEI of different levels (rector, vice-rectors, deans, heads of departments, etc.). This is shown in **Fig. 3**. These include the following: decency, trust in subordinates, resolving interpersonal conflicts in the team, keeping the word, sacrifice, magnanimity, initiative, care for sick (tired, exhausted) subordinates, generosity, gratitude, respect for dead subordinates, determination, loyalty, honesty. At the same time, in our opinion, the categories of moral behavior of subordinates in the HEI should include: love, fidelity, respect (honor), obedience, patience. This is shown in **Fig. 4**.

And on the basis of the categories of leader behavior developed by G. Yukl, we will try to form a list of desirable qualities for the subordinate, some of which will be a mirror to them and to some extent paradoxical. Our idea is that the ideal worker should work conscientiously without expecting reward; first of all to be exacting to itself, instead of to the administration. After all, in case of non-performance by the boss of any of the above 19 actions, the subordinate can expect disappointment. In size, it will be directly proportional to his expectations.

Therefore, the portrait of the ideal subordinate should contain the following touches:

- the main emphasis on professional activity – conscientious performance of official duties;
- compassion – taking into account the mood and condition, in which colleagues are at work and, in particular, the leader («Rejoice with those who rejoice, and cry with those, who cry» [24]) ;
- self-pumping – the search for their own motivating factors to improve their work (increase self-esteem in its better, faster and more efficient performance, etc.);
- modesty – avoiding praise and recognition, which can lead to anxiety and vanity;
- lack of initiative in the matter of additional remuneration for activities for the benefit of the HEI
- such an initiative should belong to managers or colleagues, who are familiar with the work of the employee;
- participation in decision-making – if they are made collectively;
- acceptance of additional powers (at the initiative of management) – performance of part of the functions of another employee, responsibility for their implementation;
- clarification of the role – their job responsibilities and rights, as well as the degree of responsibility;
- realization of the set goals – fulfillment of management requirements;
- self-study – independent professional development;
- awareness – awareness of the state of affairs within the HEI;
- participation in problem solving – initiative in difficult situations;
- planning – rational management of working time (effective time management);

Categories of behavior of managers of different levels of the HEI on the basis of Old Testament examples

	<i>decency</i>
	Joseph, who ruled over the entire estate of his master Potiphar (Pharaoh's courtier, chief of the guardians), refused to sleep with his wife at her suggestion (Gen. 39:1–12).
	<i>trust in subordinates</i>
	The Egyptian pharaoh placed thirty-year-old Joseph over his house and all the land of Egypt (Gen. 41:37–46).
	<i>resolving interpersonal conflicts in the team</i>
	When Moses saw two Jews quarreling, he said to the offender: «Why are you beating your neighbor?» (Exodus 2:13).
	<i>keeping the word</i>
	Jephthah, the Gileadite, promised the Lord that in the event of a victory over the Ammonites, after his peaceful return, he would bring Him to the burnt offering that would come out to meet him from the gates of the house. Jephthah was first met by his only daughter, over whom he made his vow (Judges 11:29–40).
	<i>sacrifice</i>
	To avenge the Philistines, Samson did not spare even his life. He removed two middle pillars, on which the house of the Philistine rulers stood, and perished alone with three thousand enemies on the roof

	(Judges 16:26–30).
	<i>magnanimity</i>
	The Lord pointed to Saul as a king for Israel, but some unworthy people neglected him and did not offer him gifts. About a month later, Saul defeated the Ammonites and people wanted to kill those, who were against his reign. However, he did not allow it (1 Sam. 10:17–11:13).
	<i>initiative</i>
	Saul's son Jonathan, along with his armor-bearer, secretly from his father ascended the rock to the Philistine detachment, defeating his enemies, and thus inspiring the Israelites to battle (1 Sam. 14:1–23).
	<i>care for sick (tired, exhausted) subordinates</i>
	King David once persecuted the Amalekites, who took captive the inhabitants of his city, Sekelag. Only four hundred of six hundred men, who accompanied the king, were able to pursue the enemy to the end and return the captives. The other two hundred stopped exhausted near the Vosor stream. After a happy return with the victory, the king decided to divide the spoils equally among all: those, who went to war and those, who remained in the camp (1 Sam. 30:1–25).

Figure 3. Categories of behavior of managers of the HEI on the basis of Old Testament examples [22]

Categories of behavior of managers of different levels of the HEI on the basis of Old Testament examples

<i>Generosity</i>
After the ark of God was solemnly transferred to the city of David (Zion), the king distributed one loaf of bread, a piece of fried meat, and a cake to each nation, to all the Israelites present (2 Sam. 6:18–19).
<i>Gratitude</i>
During King David’s stay in Mahanaim, when he was fleeing from his son Absalom, Barzillai, the Gileadite, provided him and the people with him with food. After defeating his enemies, David told Barzillai to go with him, and the king would feed him in Jerusalem (2 Sam. 19:32–33). In addition, before his death, he commanded his son Solomon to show mercy to the sons of Barzillai so that they would be among those, who are fed at the king’s table (1 Sam. 2:7).
<i>respect for dead subordinates</i>
Tobit, the Naphtali, was taken captive to the country of Assyria, to Nineveh. There he did many good deeds to his fellow tribesmen, in particular, if he saw one of them dead and thrown out of the city wall, he buried him (Tov. 1:1–17). Judas Maccabeus, after defeating Gorgias’ army, collected up to two thousand drachmas of silver and sent them to Jerusalem to offer sacrifices for the sin of his dead soldiers, who were idolaters (2 Maccabees 12:32–45).
<i>Determination</i>
Judith, an Israelite, was not afraid to go to Holofernes, the commander of the Assyrian army, and kill him, protecting her people from death and plunder (Judith 8–13).
<i>Loyalty</i>
Three pious Jewish men, Ananias, Mishael and Azariah, refused to worship the golden idol erected by king Nebuchadnezzar and were thrown into a furnace burning with fire (Dan. 3:8–21).
<i>Honesty</i>
Eleazar, the scribe, refused to eat the meat he had prepared under the guise of an idol sacrifice, so as not to tempt the Jews (2 Maccabees 6:18–31).

The end of Figure 3.

- coordination of actions – coordination of their actions with other persons, involved in the implementation of common tasks, subject to subordination;
- facilitating the work of the team – with the help of innovation proposals, innovative approaches, optimization of various processes, etc.;
- counseling – transfer of own professional experience to colleagues (less knowledgeable or beginners);
- establishing a favorable moral climate in the team – with the help of friendliness and sincerity in communication;

- prevention of inflaming conflicts – dispassionate, impartial, tolerant attitude to the conflicting parties, participation in their reconciliation;
- self-management and self-criticism – organization, objective view of the results of their work.

Categories of moral behavior of subordinates in the HEI	
<i>love</i>	When David wanted to drink during the war, three of his brave warriors risked their lives to break through the Philistine camp to draw water from the well of Bethlehem and bring it to him (2 Sam. 23:15–16).
<i>fidelity</i>	When David fled from his son Absalom and was forced to leave Jerusalem, he was followed even by a stranger Effeï, who said, «... wherever my lord king is, whether in life or in death, there will your servant be» (2 Sam. 15:21).
<i>respect (honor)</i>	David, who was persecuted by king Saul, had the opportunity to kill him several times, but did not take advantage of this, saying to his people, «... the Lord will not allow me to do this to my master, the Lord's anointed, to lay my hand on him ...» (1 Sam. 24:7).
<i>obedience</i>	«Submit yourselves to all the rulers of men for the Lord's sake: whether to the king, or to the supreme authority, or to the rulers, as from Him sent to punish the wicked and to praise those, who do good ...» (1 Pet. 2:13–14).
<i>patience</i>	N. Serbsky urges: «Do not allow the land to be more patient than you, when the peasant plows it or the one, who builds the road, leveled it. Be patient like it, because you are destined for a great reward» [25].

Figure 4. Categories of moral behavior of subordinates in the HEI [22]

As you can see, this list of desirable qualities of the subordinate is quite complete. He describes two aspects:

- a) attitude to work;
- b) relationships with management and colleagues.

But, if desired, everyone can create their own portrait of the ideal subordinate, modifying our proposed option.

The second spherical wave in higher education in Ukraine – the spheres of activity of the HEI: household, economic, investment, information and analytical support, marketing, international, research and innovation, accounting, educational, career guidance, social, personnel management, financial.

The third spherical wave in higher education in Ukraine is stakeholders. Among the stakeholders-«partners» of higher education we include those organizations (MES; NAQA; public authorities (except MES); local governments; Supervisory board), which have the maximum control and involvement in decision-making on the HEI. They are able to do this through the adoption of various regulations, funding, and so on.

In our opinion, the *stakeholders* of higher education, on whose *support* the HEI should count, and who should be widely informed about various aspects of their activity, include:

- applicants – receive information about educational services and at the same time potentially provide the teaching staff with a teaching load;
- religious organizations – provide moral and spiritual support to participants in the educational process;
- grantors and investors – finance scientific-innovative, educational and other spheres of activity of the HEI;
- media – widely inform the public about the activities of the HEI, and, in particular, carry out their popularization;
- employers and labor exchanges – offer vacancies and provide employment for graduates.

It should be noted, that the HEI and religious organizations in Ukraine are not prohibited from cooperating. Such interaction can take place through chaplaincy and the construction of a chapel in the HEI, where employees and students will be able to satisfy their moral and spiritual problems. It should be noted, that the Basic Law of Ukraine was adopted, «aware of the responsibility to God, their own conscience, previous, present and future generations» [26]. On this basis should be based the morale of scientific, scientific-pedagogical and pedagogical workers, and the academic integrity of the participants in the educational process; to affirm their moral values [27]. In addition, some scientists point out, that the innovative way of development of higher education in Ukraine, its conceptual foundations should include the training of highly moral personnel and the spiritual orientation of education [5; 6; 7].

Stakeholders-«consultants» of higher education include business structures, whose representatives the HEI can involve to advise on the commercialization of their developments, as well as the competencies, that students must acquire by the end of their studies to apply for high-paying positions in these organizations.

Stakeholders-«temporary workers» of higher education, in our opinion, are graduates, NGOs, as well as local communities, whose level of involvement is low and whose activities should be monitored by the HEIs.

The *fourth spherical wave in higher education in Ukraine* is the levels of management of the HEI, where HEIs interact with various stakeholders: local, regional, national, international.

The *fifth spherical wave in higher education in Ukraine* – successive phases of management of HEI: goal setting, accounting of the resources (material, financial, labor); their analysis; forecasting on this basis the future of the HEI; implementation strategic, tactical and operational planning of various indicators of the HEI; organization in accordance with the formed plans educational, scientific-innovative and other types of activity of the HEI; employee motivation; control, coordination and regulation, if necessary, of their work.

The developed concept of managing the development of domestic higher education in the form of spherical waves makes it possible to achieve the strategic, tactical and operational goals of the functioning of HEI in the European educational space.

Human resources management occupies one of the leading positions in the management of the development of higher education institutions. According to the Law «On Higher Education» scientific-pedagogical, scientific and pedagogical employees of HEIs of all forms of ownership have the right:

- for academic freedom, which is realized in the interests of the individual, society and humanity in general;

- for academic mobility for professional activities;

- to protect professional honor and dignity;

- participate in the management of the HEI, including electing and being elected to the highest body of public self-government, the academic council of the HEI or its structural subdivision;

- choose teaching methods and tools that ensure high quality of the educational process;

- to ensure the creation of appropriate working conditions, increase their professional level, organization of recreation and life, established by law, regulations of the HEI, the terms of individual employment agreement and collective agreement;

- free use of library, information resources, services of educational, scientific, sports, cultural and educational departments of the HEI;

- to protect intellectual property rights;

- for advanced training and internship at least once every five years;

- receive housing, including office;

- receive preferential long-term loans for construction (reconstruction) and purchase of housing;

- participate in associations of citizens;

- for social and pension provision.

In addition, they are guaranteed:

- creation of appropriate conditions for work, advanced training, organization of life, recreation and medical care, including for teachers with disabilities;

- payment in case of loss of job compensation in accordance with the law;

- surcharges for the degree of Doctor of Philosophy and Doctor of Science in the amount of 15 and 25 % of the salary, respectively, as well as for the academic title of associate professor and senior researcher – 25 % of the salary, professor – 33 % of the salary [27].

At the same time, pedagogical and scientific-pedagogical employees of educational institutions are paid monthly allowances as a percentage of the salary (salary rates) depending on the length of pedagogical work in the following amounts: over 3 years – 10 %, over 10 years – 20 % and over 20 years – 30 % [28]. That is, educators have to wait 3, 7 and 10 years for the next bonus for years of service.

For example, at the University of Alberta (Canada), a member of the teaching staff, who is appointed for 12 months or more, is entitled to a salary increase after each subsequent 12-month period. And an employee, whose term of appointment is less than 12 months, is entitled to promotion after he has accumulated at least 8 months for the appointment. An employee receives an allowance if he has been appointed to the next appointment, provided that: the assessment of the efficiency of

work for the previous year was at least satisfactory; the employee has received no more than seven increases in the past. In addition, an additional increase may be granted by decision of the official [29].

The minimum wages in this HEI, depending on the levels at which teachers can move, are given in **Table 1**. As you can see, in Canada, wage growth depending on length of service may occur more often, than in Ukraine. In our opinion, it is expedient to adopt this experience in the domestic sphere of higher education.

Returning to the Law «On Higher Education», we note that scientific, scientific-pedagogical and pedagogical workers in case of termination of the previous contract and the appearance of other applicants for the position he held, are not guaranteed the primary right to enter into a new contract. And, in our opinion, employees of the HEIs, who have fully fulfilled the terms of the previous contract should have such right. If the manager wants to increase the requirements, it can be declared in the new contract.

Table 1. Minimum salaries of teaching staff for 2019–2020 academic year, thousand dollars [30]

Step on scale	Assistant lecturer	Associate lecturer	Full lecturer
1,0	63,152	75,912	92,267
2,0	65,704	79,183	95,826
3,0	68,256	82,454	99,385
4,0	70,808	85,725	102,944
5,0	73,360	88,996	106,503
6,0	75,912	92,267	110,062
7,0	78,464	95,538	113,621
8,0	81,016	98,809	
9,0	83,568	102,080	
10,0	86,120		
11,0	88,672		
12,0	91,224		
Increase in value	2,552	3,271	3,559

In our opinion, improving the efficiency of higher education development management in Ukraine should be based on strengthening cooperation with all stakeholders in higher education. Relevant measures of cooperation of the HEIs with stakeholders are presented in **Fig. 5**.

Thus, cooperation with the *MES, NAQA, public authorities and local governments* may consist in the formation of the HEIs amendments and proposals to various normative-legal or legislative acts of these institutions; participation in joint educational and research projects.

Members of the *Supervisory board* should be involved in the joint development of a strategy/set of strategies of the HEI.

Applicants should be informed as much as possible through all possible communication channels (especially their own website, as well as social networks, newspapers, radio, television, trade fairs, open days, advertising on transport) about educational services and their cost, conditions of study and living,

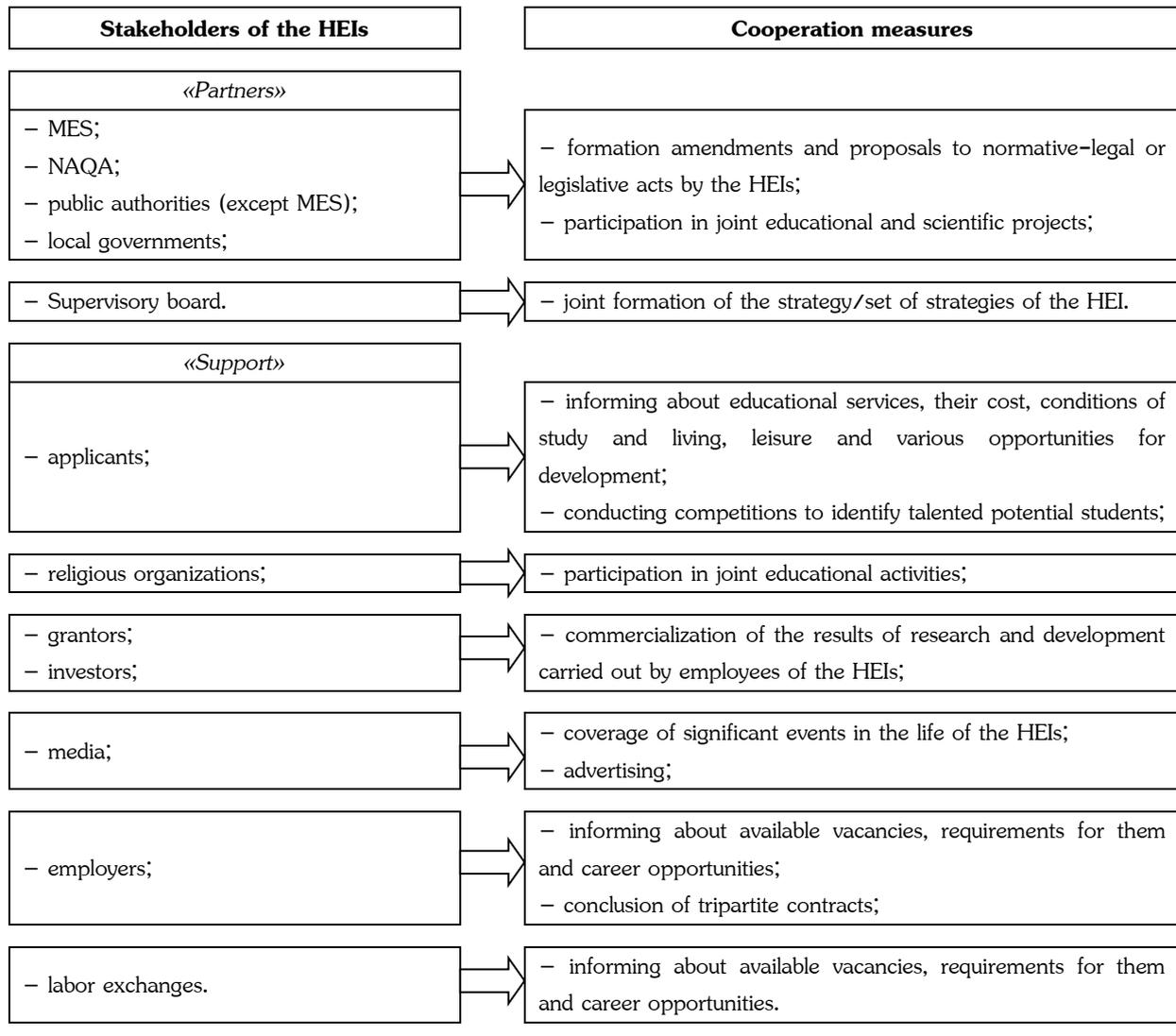
leisure and various opportunities for development (courses, trainings, interest clubs, etc.); among them it is necessary to hold competitions to identify talented potential students.

Representatives of *religious organizations* can take part in various educational activities in the HEIs, such as the beginning and end of the school year, the Day of the University, the Faculty, etc. to form high moral personalities from students.

Work with *grantors and investors* should be based on the commercialization of the results of research and development carried out by employees of the HEIs. For this purpose, a special department of commercialization can be created in the HEIs.

The *media* should be invited to all important events of the HEIs for full coverage of significant events, as well as to be involved in advertising. They should be informed by the public relations staff.

Employers and labor exchanges should be invited to the HEI to inform students about available vacancies, requirements and career opportunities. To increase the number of entrants to the paid form of training and intensify cooperation with employers, it is advisable to enter into tripartite contracts, according to which:



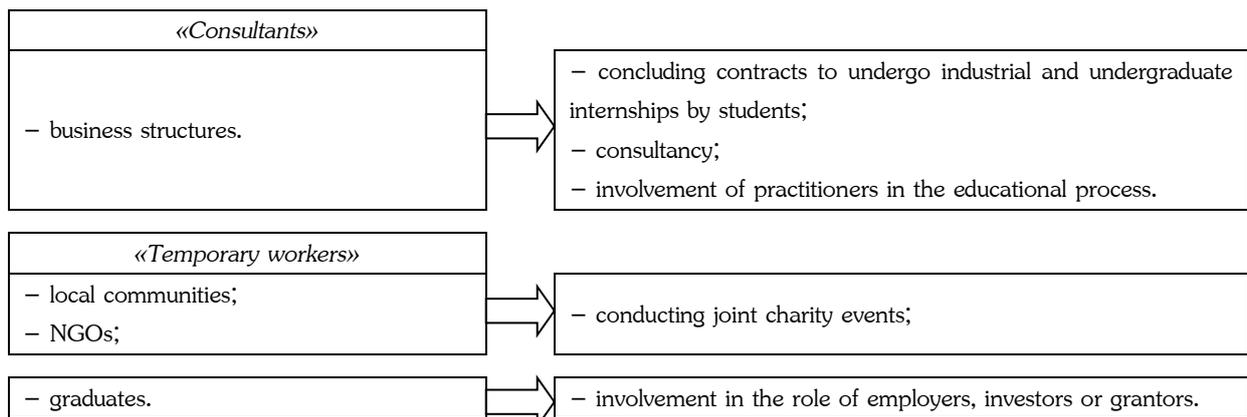


Figure 5. Measures of cooperation of the HEIs with stakeholders [22]

- employers pay for students' education, provide them with a base of practice;
- HEIs form in students the competencies, needed by employers;
- students acquire the necessary competencies for employers and after graduation must work for employers for the period specified in the contract.

The first steps in this direction have already been taken: the Cabinet of Ministers of Ukraine approved the Concept of training specialists in dual education. According to this document, the *educational institution*:

- provides theoretical training, the integrity of the educational curriculum, compliance with educational standards and professional standards, is responsible for the quality of training of students;
- has the right together with the employer to determine the educational programs according to which the educational process is organized according to the dual form of education;
- is responsible for establishing cooperation between the educational institution and employers, as well as further effective communication between the parties;
- selects enterprises, institutions and organizations that provide places of practical training in the dual form of education;
- together with the designated employers develops and approves the curriculum of the relevant educational program;
- together with the designated employers ensures the coordination of the content of the theoretical and practical part of the program;
- coordinates the training of the student at the enterprise and together with the representative of the enterprise accepts the report about the results of training on the dual form of education and evaluates the results;
- adopts relevant internal documents, appoints persons/units responsible for the implementation of the dual form of education;
- organizes discussions of the educational program (programs) on the dual form of education in the specialty (profession) with employers/professional associations for compliance with professional standards and requirements of employers to the competencies of future professionals.

In turn, the *employer*:

- may initiate cooperation with the educational institution for the training of specialists in the dual form of education;
- ensures compliance with the requirements of labor protection established by law;
- together with the educational institution participates in the development and approval of educational programs and curriculum;
- participates in the selection of students for training in the dual form of education;
- maintains a constant dialogue with the educational institution and the applicant on the stages and results of training by appointing a person responsible for cooperation with the educational institution on a dual form of education;
- evaluates together with the educational institution the learning outcomes in accordance with the educational program;
- provides a job to the applicant at the enterprise, institution or organization, which provides a monetary reward;
- assigns a qualified employee to students;
- provides the necessary resources and information materials to perform the work, creates the necessary conditions and opportunities for students to implement the curriculum;
- if necessary, creates conditions for raising the professional level of employees, who train students in the workplace;
- together with trade unions or their associations decide on working conditions, the introduction and determination of allowances, surcharges, bonuses, rewards and other types of material and moral incentives for workers, who provide training to students in the workplace.

For its part, the *applicant* must:

- to be responsible for the implementation of the curriculum in accordance with the schedule of the educational process in accordance with the goals and objectives of on-the-job training;
- follow the rules of internal labor regulations of the enterprise, institution or organization;
- maintain contact with the person responsible for the implementation of the educational program of dual form of education, timely inform the employer and the representative of the educational institution in case of problems;
- follow the rules of labor protection, industrial sanitation, occupational health and fire protection;
- to bear material responsibility for the equipment and property according to the concluded contract;
- timely perform the tasks assigned to him during the on-the-job training and individual tasks at the appropriate level [31].

It is necessary to conclude contracts with *business structures* to undergo industrial and undergraduate internships by students and at the same time use their employees as consultants, as well as to involve practitioners in the educational process, who will be able to fully transfer their professional knowledge to students.

Cooperation with *local communities* and *NGOs* should be strengthened in terms of joint charity events: cleaning parks, helping the poor, volunteering and more.

Graduates who liaise with their alma mater may act as employers, investors or grantors in the future. To this end, it is advisable to create an alumni association, the governing body of which would work on a voluntary basis.

And it is expedient to strengthen internal interaction of *participants of educational process* by means of appointment to students of personal tutors (mentors): one – from among teachers, and one – from among postgraduate students or senior students; as well as an increase in the workload of teachers of consultation hours.

To expand *international cooperation*, the Ministry of Education and Science of Ukraine developed the Conceptual Principles of State Policy for the Development of English in Higher Education [32], which aims to create opportunities for cultural, educational and professional development and prosperity of every citizen, promote integration and economic growth of the HEIs, improving the quality of educational services in the field of higher education in Ukraine, promoting the implementation of European and global aspirations of Ukraine and its economic growth.

4. Discussion and Conclusion. Thus, the concept of managing the development of higher education in Ukraine in the form of spherical waves involves managerial influences on such elements as participants in the educational process, the sphere of activity of HEIs, stakeholders, levels and phases of management. This concept can be used to intensify work with stakeholders in any HEI in Ukraine and, in addition, in HEIs in other countries.

References

- [1] The concept. [Online]. Available: <https://uk.wikipedia.org/wiki/>. [Accessed: Jun. 4, 2021]. (In Ukrainian)
- [2] S. P. Botezat, “Conceptual bases and directions of higher education development in Ukraine,” (In Ukrainian), *Bulletin of the Ministry of Justice of Ukraine*, vol. 11, pp. 145–147, 2011. [Online]. Available: http://nbuv.gov.ua/UJRN/bmju_2011_11_24. [Accessed :Jun.4, 2021].
- [3]. O. M. Khokhlenko, “Conceptual principles of higher education development in Ukraine,” (In Ukrainian), *Dictum factum*, vol. 1, pp. 80–82, 2018. [Online]. Available: http://nbuv.gov.ua/UJRN/dicf_2018_1_16. [Accessed: Jun. 4, 2021].
- [4.] A. V. Salo, “Conceptual principles of higher education development in Ukraine,” (In Ukrainian). *Business Inform*, vol. 10, pp. 91–96, 2015. [Online]. Available: http://nbuv.gov.ua/UJRN/binf_2015_10_16. [Accessed :Jun. 4, 2021].
- [5.] O. V. Garashchuk, and V. I. Kutsenko, “Innovative way of higher education development in Ukraine: conceptual bases, ” (In Ukrainian). *Economy and region*, vol. 1, pp. 135–143, 2014. [Online]. Available: http://nbuv.gov.ua/UJRN/econrig_2014_1_22. [Accessed :Jun.4, 2021].
- [6.] G. P. Klimova, “Paradigmatic concepts of innovative development of higher education in Ukraine,” (In Ukrainian), *Law and innovation*, vol. 1, pp. 11–18, 2015. [Online]. Available: http://nbuv.gov.ua/UJRN/apir_2015_1_3. [Accessed :Jun.4, 2021].

- [7.] O. Naydenov, "Conceptual foundations of higher education in the information society," (In Ukrainian), *Scientific notes of the National University «Ostroh Academy». Ser.: Philosophy*, vol. 16, pp. 74–78, 2014. [Online]. Available: http://nbuv.gov.ua/UJRN/Nznuoafs_2014_16_17. [Accessed: Jun. 4, 2021].
- [8.] O. V. Chernysh, "Conceptual principles of strategic management of higher education institutions," (In Ukrainian), *Economic Bulletin of Zaporizhzhya State Engineering Academy*, vol. 3, pp. 104–108, 2018. [Online]. Available: http://nbuv.gov.ua/UJRN/evzdia_2018_3_21. [Accessed: Jun. 4, 2021].
- [9.] T. O. Gubanova, "Management in the higher education system: conceptual principles," (In Ukrainian), *Law and society*, vol. 5, pp. 9–13, 2016. [Online]. Available: http://nbuv.gov.ua/UJRN/Pis_2016_5_4. [Accessed :Jun. 4, 2021].
- [10] A. V. Merzlyak, and N. I. Takhtadzhieva, "Conceptual approaches to public administration of higher education," (In Ukrainian), *Bulletin of the National University of Civil Defense of Ukraine. Ser.: Public Administration*, vol. 2, pp. 119–126, 2014. [Online]. Available: http://nbuv.gov.ua/UJRN/VNUCZUDU_2014_2_18. [Accessed: Jun. 4, 2021].
- [11]. N. V. Nikonchuk, "Conceptual principles of improving state regulation of the national system of higher education," (In Ukrainian), *Collection of scientific works of Tavriya State Agrotechnological University (economic sciences)*, vol. 2, pp. 51–56, 2016. [Online]. Available: http://nbuv.gov.ua/UJRN/znptdau_2016_2_10. [Accessed: Jun. 4, 2021].
- [12] S. P. Zadneprovskaya, "Standards of corporate governance in the system of higher education in Ukraine: a conceptual vision of change," (In Ukrainian), *Intelligence XXI*, vol. 4, pp. 131–135, 2018. [Online]. Available: http://nbuv.gov.ua/UJRN/int_XXI_2018_4_29. [Accessed: Jun. 4, 2021].
- [13]. M. F. Dmitrichenko, and O. M. Yazvinska, "Conceptual principles of quality management of higher education in the context of fundamentalization of professional training in higher educational institutions of Ukraine," (In Ukrainian), *Bulletin of the National Transport University*, vol. 26(1), pp. 24–30, 2012. [Online]. Available: [http://nbuv.gov.ua/UJRN/Vntu_2012_26\(1\)_7](http://nbuv.gov.ua/UJRN/Vntu_2012_26(1)_7). [Accessed: Jun.4, 2021].
- [14] S. V. Gordiychuk, "Conceptual bases of quality of higher education in the European and national space," (In Ukrainian), *Bulletin of Taras Shevchenko Luhansk National University. Pedagogical sciences*, vol. 8(1), pp. 6–16, 2017. [Online]. Available: [http://nbuv.gov.ua/UJRN/vlup_2017_8\(1\)_3](http://nbuv.gov.ua/UJRN/vlup_2017_8(1)_3). [Accessed: Jun.4, 2021].
- [15] O. P. Vorobyova, "Quality management of higher education as a conceptual priority of today," (In Ukrainian), *A young scientist*, vol. 6(1), pp. 131–133, 2018. [Online]. Available: [http://nbuv.gov.ua/UJRN/molv_2018_6\(1\)_31](http://nbuv.gov.ua/UJRN/molv_2018_6(1)_31). [Accessed: Jun.4, 2021].
- [16] O. M. Shipko, "Conceptual bases of communication activity of modern university in the conditions of internationalization of higher education," (In Ukrainian), *Anthropological studies. Ser.: Philosophy*, vol. 34, pp. 138–147, 2017. [Online]. Available: http://nbuv.gov.ua/UJRN/Lstudf_2017_34_13. [Accessed :Jun. 4, 2021].

- [17] N. Pavlikha, and O. Totska, “Strategic areas of modernization of the higher education management system in Ukraine,” (In Ukrainian), *Economic Journal of Lesya Ukrainka Eastern European National University*, no. 4, pp. 33–41, 2019. Doi: 10.29038/2411-4014-2019-04-33-41.[Accessed :Jun. 5, 2021].
- [18] S. Dalati, J. Raudeliuniene, and V. Davidaviciene, “Innovations in the management of higher education: situation analysis of Syrian female students empowerment”, *Marketing and Management of Innovations*, vol. 4, pp. 245–254, 2020. [Online]. Available: <http://doi.org/10.21272/mmi.2020.4-20>. [Accessed :Jun. 5, 2021].
- [19] D. Gosling, and V. D’Andrea, “Quality Development: A new concept for higher education,” 2001. [Online]. DOI: 10.1080/13538320120045049. [Accessed: Jun.5, 2021].
- [20] S. M .d. A. Ruiz, C. D. P. Martens, and P. R. da Costa, “Entrepreneurial university: anexploratory model for higher education,” *Journal of Management Development*, vol. 39, no. 5, pp. 705–722, 2020. [Online]. Available: <https://doi.org/10.1108/JMD-08-2019-0363>. [Accessed :June 5, 2021].
- [21] Spherical wave. [Online]. Available: https://uk.wikipedia.org/wiki/Сферична_хвиля. [Accessed :Jun. 4, 2021]. (In Ukrainian).
- [22] O. L. Totska, *Managing the development of higher education of Ukraine in European educational area: a monograph*. Lutsk: Vezha–Druk, 2020. (In Ukrainian).
- [23]. K. V. Biletska, *Fundamentals of management*. Lutsk: Volyn National University named after Lesya Ukrainka, pp. 183–185 , 2012. (In Ukrainian).
- [24] *Bible. Books of scripture of the Old and New Testaments*. Kyiv: Vydavnytstvo «Presa Ukrainy», 2009. (In Ukrainian)
- [25] Saint Nicholas Serbsky, *Thoughts of good and evil*. Lviv: Vyd. Badikova N. O., 2015. (In Ukrainian)
- [26]. Constitution of Ukraine from June 28, 1996, No 254k/96–VR). [Online]. Available: <https://zakon.rada.gov.ua/laws/show/254k/96-BP>. [Accessed: Jun 4, 2021](In Ukrainian).
- [27]. Law of Ukraine “On Higher Education” from Jul. 01, 2014, No. 1556–VII). [Online]. Available: <https://zakon.rada.gov.ua/laws/show/1556-18>. [Accessed :Jun. 4, 2021].(InUkrainian).
- [28] Postanova KMU “Resolution “On the implementation of certain provisions of the first part of Article 57 of the Law of Ukraine “On Education”, the first part of Article 25 of the Law of Ukraine “On General Secondary Education”, the second part of Article 18 and the first part of Article 22 of the Law of Ukraine “On Extracurricular Education” from Jan. 31, 2001, no. 78). [Online]. Available: <https://zakon.rada.gov.ua/laws/show/78-2001-II>. [Accessed: Jun. 4, 2021]. (In Ukrainian).
- [29] Procedures for Implementing Salary Increases for Staff Employed under the Academic Teaching Staff Agreement (ATS). [Online]. Available: <https://cloudfront.ualberta.ca/-/media/hrs/pay-and-tax-information/salary-scales/procedures-for-implementing-salary-increases-ats-2017-18.pdf>. [Accessed :Sept. 02, 2019].

- [30] Academic Teaching Staff Salary Scale 2019-20. [Online]. Available: <https://cloudfront.ualberta.ca/-/media/hrs/pay-and-tax-information/salary-scales/ats-2019-2020.pdf>. [Accessed: Jun. 4, 2021].
- [31] Order of the Ministry of Education and Science of Ukraine “On approval of the Concept of training specialists in the dual form of education” from Sept. 19, 2018, no 660-r.). [Online]. Available: <https://zakon.rada.gov.ua/laws/show/660-2018-p> [Accessed :Jun. 4, 2021]. (In Ukrainian).
- [32] Conceptual principles of state policy on the development of the English language in the field of higher education (project)). [Online]. Available: <https://mon.gov.ua/ua/>. [Accessed: Jun. 4, 2021]. (In Ukrainian).