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MODERN TRENDS IN AGRICULTURE SCIENCE: PROBLEMS AND SOLUTIONS



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Tallinn Teadmus 2023 UDC 631.1:338.43:339.9

Modern trendsin agricultural science: problems and solutions. Monograph. Edited by S. Stankevych, O. Mandych. – Tallinn: Teadmus OÜ, 2023. 220 p.

ISBN 978-9916-9859-8-4

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The monograph is a collection of the results of actual achievements of domestic agricultural scientists, obtained directly in real conditions. The authors are recognized experts in their fields, as well as young and postgraduate students of Ukraine. Research scientists grouped conceptually sections: **Plants** protection and at quarantine; vegetable growing in open and closed ground; horticulture, fruit growing, viticulture; breeding and seed production; agrochemistry and soil science; agriculture agricultural technologies; and modern management and strategies for future development. The monograph will be interesting for experts in plant breeding, economics, selection, agrochemistry, soil science, scientific workers, teachers, graduate students and students of agricultural specialties of higher education institutions, and for all those who are interested in increasing the quantity and quality of agricultural products.

Keywords: agriculture, modern technologies, plants protection, quarantine, vegetable growing, horticulture, fruit growing, viticulture, breeding and seed production, agrochemistry, soil, management, strategies, development.

PLANTS PROTECTION AND QUARANTINE IN THE 21ST CENTURY:

MANAGEMENT OF EDUCATIONAL INSTITUTIONS: THEORETICAL ASPECT AND STRATEGIC VECTOR

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The accelerated rate of development of science and technology, as well as the production cycle itself, is primarily connected with the transformation of technologies into more scientific, informative, and communicative ones. In turn, such a change explains the dynamic fluctuations in both the labor and goods and production markets. Working at a higher level of such technologies will allow the subject of the organization to achieve a more effective organization of labor and its management. Leaders and managers of various levels and structures play an extremely important role in their management/ The Law of Ukraine "On Education" emphasizes that education is the basis of the intellectual, cultural, spiritual, social, and economic development of society and the state. We can see reforms and the process of transformation in the education system as well. Thus, in order to ensure competitiveness in the market of educational services, the question of effective management of the educational institution and its structures, and the formation of the management strategy of the educational institution is acute. Formed principles of management of educational institutions in pic. 1. allow you to see their peculiarity and a high degree of dependence on each other in achieving the goals of the educational institution [1]. Thus, the ability of educational institutions to provide and satisfy needs in the market of educational services guarantees the strengthening of indicators of its competitiveness, as a priority element of management [2, 3]. Accordingly, the effect of external and internal factors on the labor market will contribute to the correction of the provided services and their renewal. In turn, systematicity in educational institutions is characterized by the connection of elements and their interaction in quality, unity, and integrity. Of great

importance in improving the functioning of educational institutions is professional orientation, which is possible when taking into account the interests, preferences, and needs of the consumer of educational services. The management system is based on a number of elements depending on the environment of its operation. So in pic. 2. we see exactly the signs of management as a category of science and education.

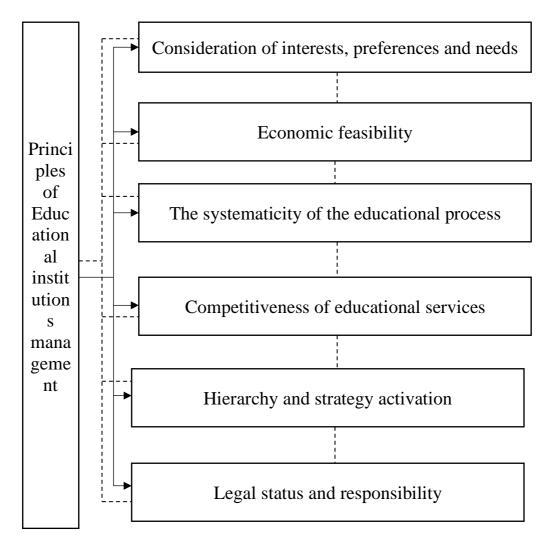


Fig. 1. Basic principles of management of educational institutions

Management of the education system is based on a number of active economic, social, political, and other processes. In the conditions of a market environment, educational potential depends on objective formations and the operation of the law of supply and demand [4-6]. The problem of forming the management strategy of an educational institution is national and belongs to the regulation of state administration and requires constant monitoring and systematicity. Education is the basis and driving force for the development of an individual, personality, society, nation, and state. Education reproduces and increases the intellectual, spiritual, and economic potential of society.

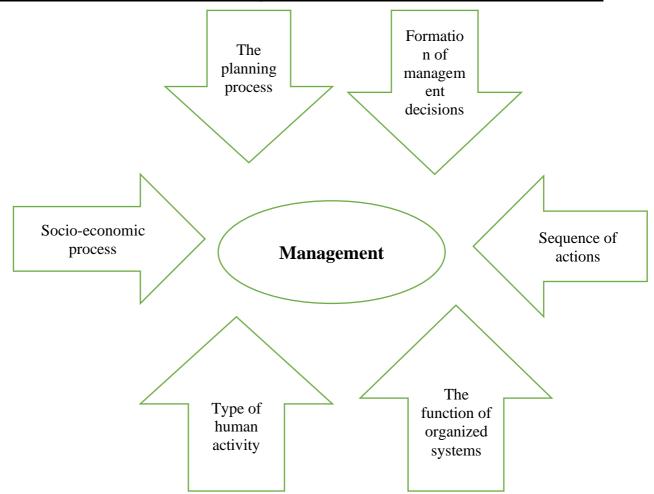


Fig. 2. Signs of management as a category of science and education

The intellectual potential is determined by the level of development and education of each society. As an economic category, intellectual potential cannot be formed from the specified components, the combination of which is the basis of separate individuality, the disclosure of its creative and innovative steps, and a significant vector of the success of the educational environment [7]. The economy of knowledge reveals its special importance as a productive force, the accumulation of information, and the possibility of its preservation in the implementation of ideology and innovative strategic treasure of the nation. Long-term search and constant updating of innovations are components of strategic management. Timely response to rapid changes and the ability to act is the basis of success in the implementation of strategic management. Today, education should be anticipatory, because it is timely forecasting and involvement of all elements of planned activity, taking into account all factors of influence and time, that guarantees practical work and productive results of educational institutions. Under the management system of educational institutions, we can understand the activities of its subjects who conduct educational activities and the involved complex elements of the academic environment.

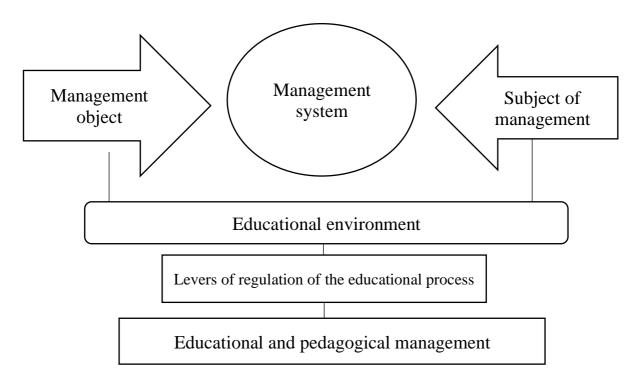


Fig. 3 The management system of educational institutions

According to pic. 3. we can claim that the modern management system is a specific condition for the development and self-realization of every citizen of the country. The management system is designed to form a new generation that is capable of learning and re-learning, created to adapt the acquired knowledge in the creation and development of society. That is why the question of forming an educational institution management strategy is important [8-11]. The environment in which an individual grows and receives specific knowledge is an academic environment. Management of educational institutions is impossible without a set goal, defined tasks, functions, methods and regulators of educational management.

The management system of educational institutions is an important component of the general system of state administration, pedagogical and educational management. From an organizational point of view, the formation of the management system of educational institutions is a hierarchically structured set of state, territorial, and regional management bodies. From the point of view of functionality, this process shows continuity and constant improvement in the information and communication movement [12-13]. The education system is understood as a set of educational components, levels and degrees of education, qualifications, licensing programs, education educational standards, conditions, educational institutions and other subjects of educational activity, participants in the educational process, governing bodies in the field of

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education, as well as normative legal acts that regulate relations between them. In Fig. 4. we can see the special place of the educational environment in the existing conditions. As we can see, the priority direction of the state and its strategic course significantly affects the general educational space. The management of the country is guided by both the strategic vector and the socioeconomic and spiritual and cultural development of society [15].

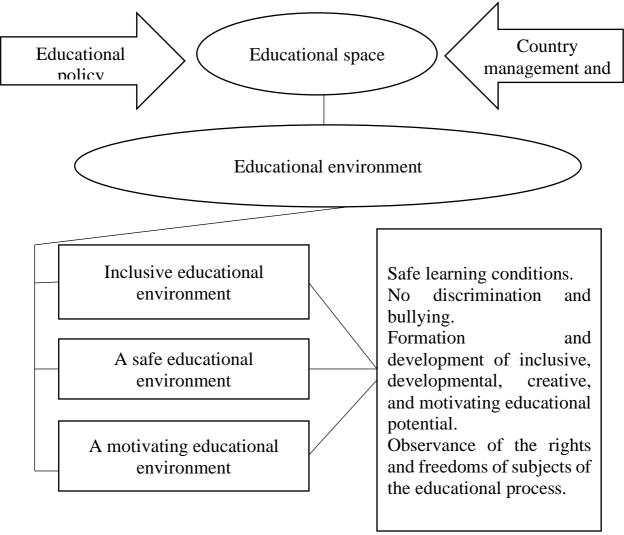


Fig. 4. Educational environment and its content in the system of educational space

The interests of the state as a whole are aimed at improving the well-being of society and the nation, ensuring national interests, strengthening the international authority and image of our state, and creating conditions for the self-realization of each individual in particular.

Transformations of the internal and external environment forced to improve the theory and practice of strategic management. The appearance of the term "strategic management" at the end of the 1950s. was caused by

the need to emphasize the difference between current management at the level of production and management aimed at the future, as well as changes in the views of the person in the economic system and new conditions of doing business

The problem of the formation of management and managerial competence of heads of educational institutions was reflected in the works of domestic scientists: Bezus A.M., Moshek G.E., Fedorenko V.L., Kovalenko O.V., Kovalchuk M.V., Solomko A. S., Zeldich V.E., Sivanenko H.P., Krasnokutska N.S., Nashchekina O.M., Zamula O.V., Dykan L.V., Zubenko V.O., Makovoz O.V., Tokmakova I.V., Shramenko O.V., Shcheblina I.O., Hrybova D.V. etc. Most of them testify that the managerial activity of the head of an educational institution in modern conditions is multifunctional and professional, the content of which goes beyond pedagogical knowledge and requires his mastery of educational management, knowledge and skills of related branches of management sciences. The particular interest of theorists and practitioners in the concept and content of strategies, as well as the processes of their implementation, arose in the early 1960s. The 20th century It was then that the well-known work of A.D. Chandler's "Strategy and Structure", in which he noted that strategy is the determination of the main long-term goals of the organization, the adaptation of actions and the allocation of resources necessary to achieve them [16-19,20] He made an attempt to explain how the processes of strategy development and implementation determine the need for organizational changes. This prompted the development of theoretical research and the formation of this field of knowledge. The word "strategy" came from the Greek stratëgia (Stratos - army and aux - lead), which meant "the art of the general". The head of a modern organization must lead the team to new achievements and successes, shape the image of the institution, showing a high level of professional skill. This is his "general's art".

In UNESCO documents of the XXI century. declared the century of education, and at the same time, it is about the crisis of education all over the world and the need to develop a significantly new model. The main directions of reforming educational systems in the world are global globalism, humanization and democratization of education; cultural socialization and environmental nation of the content of education; interdisciplinary integration in educational technology; orientation to its continuity, development and civic functions. The effectiveness of solving strategic social tasks defined in the laws of Ukraine "On education", "On general secondary education", the National strategy for the development of

education in Ukraine for the period until 2021 and other main regulatory and directive documents, primarily depends on the quality management carried out in educational institutions and the corresponding competence of their managers. The structure of strategic management and management of educational institutions. In this form, the strategy looks like a general program of actions and allocation of industry priorities and resources to achieve common long-term goals. With the help of strategy, innovations and changes in the organization are ensured by: - distribution of resources, adaptation to the external environment, - coordination of the functioning of the organization, - prediction of future changes in activity [21]. The organization's strategy is constantly evolving and consists of a planned action-oriented strategy and an adaptive response to a change in the situation. A strategy is necessary when transformations of the external environment have occurred or are expected, as well as qualitative changes in the organization's value system. Therefore, strategic management is the implementation of a concept that combines targeted and integrated approaches to activity, which makes it possible to set development goals, compare them with the available capabilities of the organization and bring them into line by developing and implementing a system of strategies. Thus, after analyzing the definition of strategy, the following conclusions can be drawn: - strategy is a multifaceted concept and it is incorrect to interpret it from the point of view of any one aspect; - the strategy should provide for the direction of action, the action itself and the goal. As a method of action, the strategy is necessary in situations where there are not enough available resources to directly achieve the main goal. The task of the strategy is the effective use of resources to achieve the main goal. Strategic management in education is a complex of decisions and actions regarding the outline and implementation of priority directions for the development of an educational institution or the educational system in general. For the successful implementation of the strategy of management of the education system in Ukraine, it is necessary to use the main educational resource, which is the "active forces of the development of education "model"5 oh i". Taking into account and using the intelligence of the nation and modern advanced technologies, Ukraine will be able to create innovative products that in turn, it will allow to attract significant investments in the country's economy. With investments in education, the state can become a leader in the field of more complex and highly professional educational services, including data science, artificial intelligence, and virtual reality. Purposeful activity to create socio-prognostic, organizational, legal, personnel, pedagogical,

material-financial and other conditions necessary for the optimal functioning and development of the industry, the realization of its purpose, the implementation of the transition to a qualitatively new state and is the management of educational institutions. In the field of education, one of the promising directions is strategic management, which has become the basis of stable development and ensuring the stability of the educational system [22-25]. The effectiveness of the strategic management system is mainly determined by the quality of models and methods of strategy formation and implementation, which are at its core. Primary methods of management of educational institutions indicated in pic. 5 are able to raise the position of education in the state, allow it to become more competitive in the European and global educational space, and the subject of management will become more protected, mobile in the labour market and in the context of personal spiritual worldview choice.

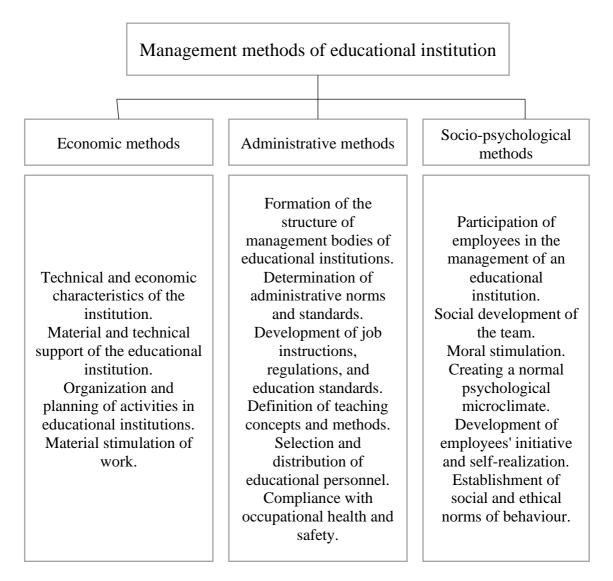


Fig. 5. Primary methods of management of educational institutions

The main purpose of the organization's strategic management system is to solve the task of optimizing its functioning, measured by the integral indicator of the effectiveness of the organization's activity, defined as a system quality criterion [26-28]. Taking into account all its steps will allow the creation of a system of education for a new generation, which is a reserve for launching the development of a person, his intelligence and revealing his potential [29]. Internal and external factors determining the development of the management of educational institutions are shown in Fig. 6. Taking into account the specified factors will in a certain way contribute to the improvement of the quality of domestic education.

Innovative development is possible and real, which will meet world standards and provide the expanded potential for the labour market, will contribute to the significant growth of the intellectual and cultural potential of society and the individual in particular. Thus, education is a strategic vector for improving the well-being of government entities, ensuring national requirements and interests, and strengthening the state's competitiveness and authority both domestically and internationally..

In the modern economy, work motivation is considered a multi-component factor of efficiency. The more pleasure a person derives from work, the more it benefits society. Interest in work is manifested by a positive attitude towards it, which is expressed by discipline, labour and creative activity. Therefore, motivational systems are based on respect for the employee's personality, and attentiveness to his needs and requests [30-32]. Historical experience shows that a person is the bearer of certain interests and aspirations of both material and spiritual nature. They act, work, and participate in the socio-political and spiritual life of society under the influence of certain needs, without taking into account that it is impossible to properly manage employees, and organize them to solve a certain task. People's vital needs and interests are the main source of their social activity, an incentive to work.

Most authors tend to see in motivation a certain ratio of needs and interests of a specific person. In the economic dictionary, S.V. Mochernyi gave a slightly different concept: labour motivation is a conscious and purposeful encouragement of an employee to work through a stable influence on his needs, interests and goals [40]. Scientist D.P. The goddess sees in motivation the subjective side of human activity, which is represented by a wide range of needs, desires, feelings, and interests [23, p. 5-8]. Many scientists and authors perceive motivation as a process. As O.M. Kolot emphasizes, work motivation is the process of encouraging oneself

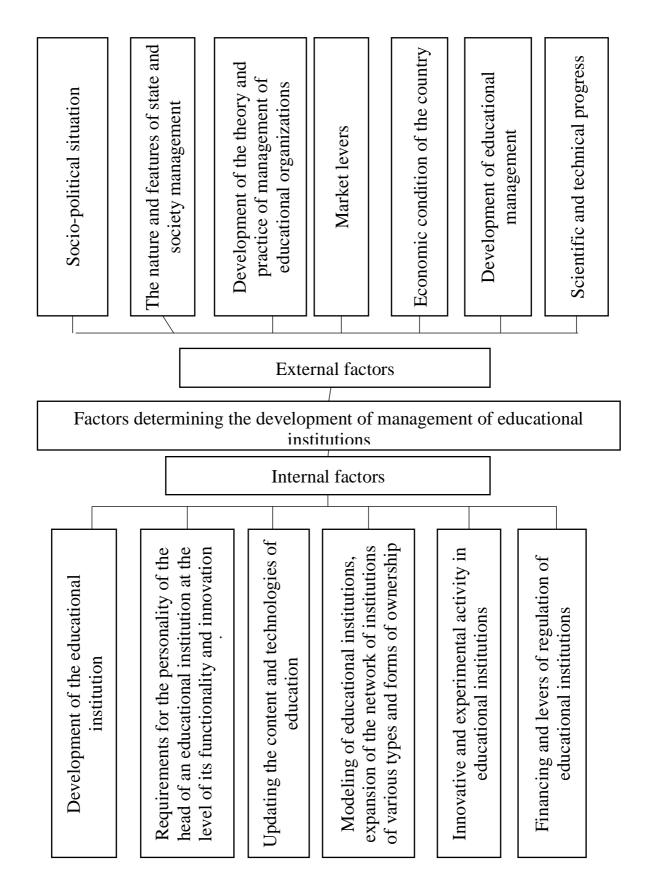


Fig. 6 Internal and external factors determining the development of management of educational institutions

and others to work to achieve personal and organizational goals; it is a set of internal and external driving forces that motivate the employee to work, determine the behaviour, forms of activity, give this activity a direction oriented towards the achievement of personal goals of the organization; a set of all motives that influence employee behaviour [28]. Y.V. Bogoyavlenska and E.I. Khodakivskyi also agrees with this.. In their opinion, work motivation is a process of internal motivation of an employee to active activity, achievement of set goals, a process of a conscious choice by an employee of a certain line of behaviour, which is based on internal and external factors or on motives and incentives [26, p. 54]. Work motivation is a difficult element, to ensure its effectiveness, it is necessary to combine efforts, worker abilities, work results, reward and satisfaction into a single system, as stated by V.O. Lukyanihin [41, p. 129]. According to S.I. Mykhaylova, work motivation is the very truth, since the manager achieves the goals of the organization through his subordinates [42]. Scientists O.V. Krushelnytska and D.P. Melnychuk note that the employee's desire to satisfy his needs through work; long-term influence on employees to change the structure of value orientations and interests according to the given parameters, the formation of an appropriate motivational system and the development of labour potential on this basis is work motivation [43, p. 282].

From the point of view of L.O. According to Lomovsky, the mechanism of work motivation is understood as a system of closely related economic, social, socio-psychological, and organizational factors that activate a person's labour activity. Socio-economic relations, the legal right to the means of production, and the results of work are the basis of the motivational mechanism [44, p. 427-433]. With the help of traditional forms of material stimulation and strict control, it is impossible to arouse real interest in work. Only those people who can reveal and realize their best qualities in their activities will work with maximum efficiency and achieve the highest results (as opposed to uninitiative, indifferent "screws"). A person works effectively only when he is personally interested in the results of his activity [45, p. 30]. In modern conditions of the development of various forms of ownership, and competitive struggle to determine the motivational core of a person, four groups of needs are indicated, which do not fully reveal the motives of a person, especially the aspect of production. The motives of the person laid down in the technological documents were not reflected in the motivational core of the person, since they revealed one side - the payment of labour. The motivational core of a person is a set of motives embedded in the technology of product production, in various

forms of ownership. A specific feature of a person's motivational core is the need for cash, which contains the equivalent of necessary goods [46].

The system of motives that determines specific forms of human activity or behaviour is called motivation. Motivation based on consideration of the noted motivational factors provides orientation and regulation of the employee's activity. All motives of activity are the result of a person's reflection on the conditions of his existence and awareness of needs. A motive is a perceived need to achieve the desired conditions and results of an activity that takes the form of a person's internal motivations, that is, it characterizes internal motivation [47, p. 97]. A stimulus is such an external action that sharpens in a person's consciousness specific significant needs and interests and forms a personal attitude to this action in the form of appropriate emotional-volitional and cognitive processes. Therefore, the effectiveness of external influences can be ensured only if they become motives that are subjectively significant for the employee and correspond to his needs and interests. The system of motives, which performs the function of prompting, directing and regulating activity, forms the motivational sphere of the individual. The motivational sphere is represented by: relevant motives that actually encourage activity; potential motives that are formed but do not manifest themselves in activity [48, p. 160-164]. In the structure of the motivational mechanism, the motivational circle occupies a special place. In our opinion, a motivational circle means an appropriate combination of forms, methods and means of motivation and the balance of the motivational core - full satisfaction of needs (motives) - components of the motivational mechanism in the motivational sphere [49, p. 80].

Note that a person's motivational sphere is dynamic, motivation can increase or decrease. There are two types of motivation: internal and external. Internal motivation is determined by the content and significance of work. If work interests a person, and allows him to realize his natural abilities and inclinations, then this in itself is a strong motive for activity, conscientious and productive work. External motivation can take two forms: administrative and economic. Sometimes external motivation is called stimulation. Administrative motivation means the performance of work by command, or order, that is, by direct coercion with appropriate sanctions for violation of established norms.

In our opinion, the main methods of motivation include material, immaterial, moral and combined, which are combination of the previous three. The motivation basket is a reserve fund (a source of coverage) for the implementation and formation of motivation methods. In personnel work on

personnel motivation, the following are distinguished: economic methods; psychological incentives; participatory methods; methods of expanding and enriching work; methods of eliminating negative stimuli; target methods; disciplinary methods.

There are various methods of motivation, in particular: persuasion encouraging a person to a certain behaviour through psychological action, suggestion, or informing; coercion - the use of condemnation and the application of punitive measures in the event of an employee's failure to comply with management requirements; stimulation - an indirect effect on a person due to a change in external circumstances, the use of incentives that encourage expected actions. Motivation is unattainable: it arises in the most unexpected cases and is absent in situations where it should be [50, p. 14]. Incentives and motives serve as the main levers of motivation. In the specialized literature, these concepts are often (and erroneously) used as identical, but it is necessary to distinguish: the motive characterizes the desire of the employee to obtain the specified benefits, and the incentive refers to these benefits themselves [49]. Motivation can change over time and with the development of an employee's career, both under the influence of external and objective factors, and with the development and change of personality.

Starting from the early stages of his development, a person has a certain set of needs that must be satisfied in order to ensure normal life activities. Needs and interests serve as an impetus for actions that mediate the satisfaction of an individual's needs. Depending on the cultural, political and economic level of development, a human worker is characterized by the presence of values and cultural foundations that were formed in the process of evolution of the person himself and his cultural heritage. On the basis of the value system, the motivational priorities of the individual are formed, which determine the need to have certain goods [51, p. 328]. Man is a social being, therefore his values and priorities are formed under the influence of society and depend on the level of socio-economic development of thelatter. A person's accumulation of production experience and skills for work is directly dependent on the degree of division of labour, on the specialization of workers in certain types of work. Technical progress is inextricably linked to the development of the social division of labour. The growth and deepening of the division of labour also affect the development of industrial relations. During the period of the primitive communal system, the first major social division of labour arose historically, which created conditions for regular exchange between tribes. The basis in this period is public

ownership of the means of production, there is no exploitation of man by man [52].

It is known from economic theory that the purchase and sale of labour power objectively take the form of the purchase and sale of labour, therefore the value of labour-power is transformed into wages, that is, it acquires a transformed form. The transformed form, since the wage hides the purchase and sale of labour power and blurs the lines between necessary and additional labour, hides the existence of exploitation.

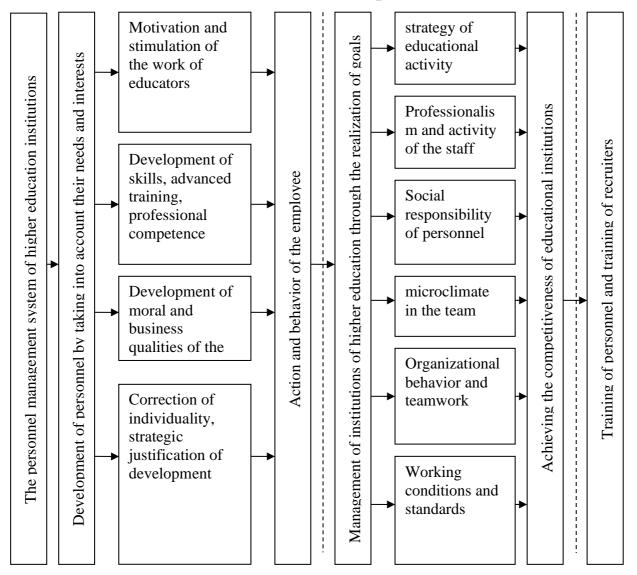


Fig. 7. The mechanism of personnel management of institutions of higher education through the motivation of the individual development of the employee

The value of labour-power, expressed in money, takes the form of the price of labour-power. So, the salary is a monetary calculation of the value and price of the labour force and the effectiveness of the functioning of the

labour force. Its tangible, material content is the number of life goods necessary for the reproduction of the labour force of the hired worker and his family members. This is the life fund of the worker, which in the conditions of commodity production has both a value and a monetary calculation. Since labour power is a commodity, its price, like all other commodities, is also regulated by the ratio between supply and demand. With a decrease in demand or an increase in supply, the price of labour-power, that is, wages, will decrease, and vice versa. The amount of wages is affected by the laws of growth of labour productivity and increase in the needs of the population, etc.

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