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**OPTIMAL MANAGEMENT OF HOUSING AND UTILITY WORKERS DURING THE DEVELOPMENT OF INDUSTRY 4.0 THE VUCA WORLD**

*This article considers the peculiarities of management of apartment buildings by homeowners' associations in the aspect of comparative analysis of domestic and foreign practice. It reveals the Ukrainian specifics and the main differences in the formation and development of housing self-government in Ukraine, due to historical, objective, and subjective features. It is concluded that in modern Ukraine it is possible to build its own unique model of management of apartment buildings based on homeowners' associations, which can be based on the best foreign analogs, but at the same time transformed considering the specifics and peculiarities of the Ukrainian economy in general and housing economy.*

**Keywords:** *apartment house, Homeowners Association, competition, commercial, optimal management, traditions, private property.*

**Formulation of the problem.** The problem of studying the world experience of management of housing and communal services employees and adaptation of enterprises to modern economic and political conditions in Ukraine is still relevant in scientific circles. Currently, the problems of management in housing and communal services are not given due attention. To solve these problems, it is necessary to use non-standard approaches. And one of such approaches is alternative management of housing and communal services in the period of development of industry 4.0 in the world of VUCA. The issues of management of housing and communal services employees have long been studied by Ukrainian and foreign scientists, among which it should be noted (Rosenberger, 2021), (Werkmann-Karcher, Rietiker, 2020), (Kelly, 2022), (Dolgalova, Yeshchenko, Fasolko, Moukhalchenko, Udovychenko, 2020), (Loop, 2016), (Lazear, 2016).

**Purpose of the study.** The choice of the optimal model of management of housing and communal facilities, considering the study and analysis of trends in world experience and their adaptation to the current socio-economic and political conditions in Ukraine.

**Methodology:**theoretical and empirical methods: analysis, synthesis, generalization, and comparison.

**Presentation of the main research material.** In the study of management of housing and utilities organizations in crisis conditions, today it is customary to highlight such basic tasks as determining the development of a progressive personnel management system; identifying the so-called “problem areas”, i.e. phenomena that slow down the successful development of the enterprise; assessing the adaptive capabilities of the team and its readiness for change. Additionally, quantitative statistical data are collected: personnel costs, statistical data on the characteristics of the total workforce at the enterprise; labor productivity indicators, etc. A revolution is taking place before our eyes concerning everything related to management methodology in the changing VUCA world: organizational structure, processes, tools and, most importantly, managers themselves. These revolutionary requirements allow organizations to build skills to get out of the discomfort zone and develop leadership skills in the VUCA world. [1, p. 353-360].

**Analysis of recent research and publications.** The publications of Dolgalova O., Yeshchenko M., Fasolko T., Taiichi Ohno., Udovychenko I., Ruzhynska N., Loop M., Brauer K., Kitsay A., Sarris V., Werker S. and several others are devoted to the analysis of foreign experience in the management of apartment buildings and activities of homeowners' associations. The conducted research allowed to reveal Ukrainian specifics and main differences of formation and development of housing self-government, as well as its role in the formation of an effective system of management of apartment buildings.

In the economic process, for more effective anti-crisis management, individual human behavior is becoming increasingly important: his personal, not subject to external control, conscientiousness and responsibility in production, economic policy, etc. Of relevance in this sense is the use of existing personal potential in the management of apartment buildings, since the housing and communal services industry has always deserved special “subtle” attention both from municipal authorities and the owners themselves. In this connection, let us turn to the practice of managing apartment buildings in various countries.

It is not hard to see that the VUCA world is linked to the 4th industrial revolution, but it affects not only economies or national interests but also people, each one of us. Today's world is characterized by instability, uncertainty, complexity, and ambiguity. It has come to be known as the VUCA world and is characterized by rapid change, unpredictability, considerable difficulty in determining the future based on the past, a diversity of evidence, causes and influencing factors, and multidimensional situational conditions. In these volatile times, human resources are critical. Only those companies that use their human resources to their fullest potential will stay afloat.

Today's world is changing faster, and changes are affecting different areas of businesses. This shows that personnel must gain knowledge in different areas. Achieving success requires changes in the development of not only new personnel skills but also new and more attractive career heights. Along with this, organizations need to focus on leadership development, structural issues, cultural diversity, technology, and employee experience enrichment with new and more interesting ways of working. Given the pace of change and the constant need to adapt, it's no surprise that CEOs of large companies have identified building the organization of the future as the most important challenge of the coming decades. [2, p. 415-421].

The term VUCA was coined by the U.S. Army War College in the 1990s to describe the changed conditions after the Cold War. The world was no longer characterized by clear and stable power structures, but by dynamic and often chaotic developments. This term quickly found resonance in the business world, as companies are faced with similar challenges. With increasing globalization, technological advances, and geopolitical changes, VUCA became a central concept to understand and manage the complexity and uncertainty of modern markets and business environments.

The system of housing and communal services needs to cope with the problem of lack of qualified personnel, to solve the issue with motivation and incentives for working personnel, to introduce more modern methods of personnel management, which would consider the specifics of the organizations in the industry in the period of industry 4.0 development in the VUCA world. VUCA is an acronym that describes four characteristics that make the modern world uncertain and complex:

Volatility: Rapid and unpredictable changes, such as sudden market shifts or technological breakthroughs; Uncertainty: Difficulty predicting future events, even when information is available; Complexity: Many interrelated factors that make it difficult to identify causes and effects; Ambiguity: Unclear or contradictory information that allows for different interpretations.

These factors demand a high level of adaptability and innovative solutions from managers and organizations. To successfully overcome the challenges of a VUCA world, companies and managers must apply a variety of strategies that promote adaptability, proactive planning, continuous improvement. Here are some general approaches:

*Agility and flexibility:* organizations must be able to respond quickly to change. This requires flexible structures and processes that allow adjustments to be made quickly. Agile methods such as Scrum or Kanban can help to manage projects dynamically and react to new information. Example: A technology company uses agile methods to shorten its development cycles and respond more quickly to customer feedback. Teams work in short sprints, continuously evaluate their progress, and adapt their strategies as needed. This flexibility allows the company to bring new products to market faster and adapt to changing market conditions.

*Scenario planning and risk management:* By developing various scenarios and plans, companies can be better prepared for unforeseeable events. This includes identifying potential risks, assessing their impact, creating measures to minimize risks. Example: A multinational company develops various scenarios for geopolitical changes and their potential impact on supply chains. By regularly reviewing and adapting the scenarios, the company can react quickly to political instability and identify alternative suppliers or transportation routes. This proactive approach minimizes disruption and ensures business continuity. [3, p. 190-196].

*Strong communication and leadership:* Clear and open communication is critical to managing uncertainty and building trust. Leaders need to be transparent and empathetic to effectively lead their teams and foster a culture of trust and collaboration. Example: A company implements a communication system that allows for transparent and regular updates. Managers hold weekly video conferences to discuss current challenges and ensure that all employees stay well informed and motivated.

*Innovation and continuous learning:* A culture of innovation and continuous learning helps companies to constantly evolve and find new solutions to complex problems. This requires the promotion of creativity and a willingness to learn from mistakes. Example: A technology company promotes a culture of innovation by organizing “innovation sprints” where employees are encouraged to develop and test new ideas. The company also invests in ongoing training and workshops to enhance employees' skills. [4, p. 121-122].

*Technological integration:* The use of modern technologies can help companies to work more efficiently and make better decisions. Data analysis and artificial intelligence (AI) can be used to identify trends and make informed decisions. Example: A retail company uses data analysis and artificial intelligence (AI) to analyze the purchasing behavior of its customers. These insights are used to create personalized marketing campaigns and optimize the product assortment in the stores.

*Empowerment and employee participation:* Involving employees in decision-making processes and promoting personal responsibility can strengthen a company's ability to adapt and innovate. Employees who feel involved are more motivated and actively contribute to solving problems. Example: A start-up company introduces flat hierarchies and open offices to promote collaboration. Employees are involved in decision-making processes and have the freedom to initiate their own projects. This increases the team's commitment and innovative strength. [5, p. 134].

*Case studies and examples of successful leadership in a VUCA environment*

The following examples illustrate the importance of flexible, visionary, resilient leadership in a VUCA world. Leaders must be able to inspire their teams while developing pragmatic solutions to complex and uncertain situations.

*Company during the COVID-19 pandemic*

A large company overcame the challenges of the pandemic by quickly switching to remote working. Managers used agile methods and communicated regularly with teams to ensure employee productivity and wellbeing. By being adaptable and using modern technology, the company was able to operate successfully despite global uncertainties and even open new areas of business.

This mechanism should be formed, first, considering the need to create a development platform based on the synthesis of technological and managerial competencies of personnel to support and develop a strategic portfolio of innovations of the enterprise. [6, p. 87-88].

To use the innovative potential of employees more fully, determined by their qualification level in the field of innovation, activation, and effectiveness of innovative activity of the enterprise can be applied various tools of motivational nature, for example:

1. material and moral encouragement of not only innovation but also innovation associated with the commercialization of the results of intellectual work through the creation of innovative products and their commercial implementation;

2. ensuring the maintenance of effective communication with colleagues both within and outside the firm; [7, p. 67].

3. recognition of the intellectual contribution of innovators and developers in the innovative development of the enterprise;

4. provision of possibility of career development of employees with a high level of formed competences, necessary for increasing the efficiency of innovative processes. [8, p. 56-57].

In total it is possible to allocate the following features of motivation of the personnel at the enterprises of innovative type in the conditions of activization of innovative processes within industry 4.0:

1. Motivation system should be formed in terms of the motivation of creative activity and creativity of employees in the sphere of innovations: employees should be provided with such conditions, under which they will be able to fully realize their personal innovative potential in the interests of economic development of the enterprise. [9, p. 45-46].

2. One of the essential motives inducing employees to unlock their innovation potential is "feeling their place" in an industrial company, namely, awareness of their importance and involvement in the development of the innovative activity of the enterprise.

3. The value of intangible incentives in modern industrial enterprises increases significantly, among them the provision of career development opportunities is actualized. [10, p. 22-23].

As the final target function of the innovation-oriented motivation of employees, it is possible to designate the effect of innovation, assuming the achievement of the effect of active influence of personality (labor collective) on change of public (economic and other) institutions with awareness of the moral responsibility for the initiated changes. And this effect becomes a determining factor in the deep transformation of existing or the emergence of new economic institutions. [11, p. 11].

At the theoretical level, this effect has been substantiated by various positions. Its philosophical, psychological, sociological, anthropological, and economic justifications are known. In particular, the economic foundations of innovation are argued within the scientific school of Hays D., whose approach reveals the innovative essence of entrepreneurship and the conditionality of innovative development of socio-economic systems by the activity of entrepreneurial activity, aimed at creating a new combination of production factors, generating new goods, markets, methods of production, sources of involvement of production factors, structural changes at the enterprise and branch level. Entrepreneurship of this kind is innovative in its subject and sphere of activity, and therefore, has a specific resource base, formed by the intellectual resources of employees (at individual and collective levels). [12, p. 15-16].

In this regard, the need to develop not only managerial approaches but also tools for their implementation, allowing to increase the labor efficiency of employees of innovatively active industrial enterprises becomes more acute.

**Conclusions.** As a rule, at present, the motivation of employees focused on the innovative result, contributing to the formation and development of their qualification level in the field of innovation, is not sufficiently systematic. This managerial aspect is present at best in the management of large, advanced companies, but as part of other functions of personnel management or intellectual resources of the enterprise. At the same time in the Ukrainian practice of management today, there is a lack of competent employees, trained for the specifics of innovation activities, who understand the logic of the innovation process at the modern level of industry 4.0. The subjects-practitioners of the Ukrainian economy have an increasing need for intra-firm organization of motivation of formation and development of qualification level of employees in innovation, which leads to the practical importance of the proposed tools to attract, motivate, and retain persons with the necessary qualification level in the field of innovation.

It should also be emphasized that the approach to the management of apartment buildings, which is followed by managers in most Western countries, is since the manager or management organization works based on an agreement with an association of homeowners, and not with individual owners. All major management decisions, primarily regarding the management of finances and the conclusion of contracts for the purchase of goods and services, are made not by the manager, but by the governing bodies of the homeowners’ partnership (association). The manager prepares and substantiates recommendations for the board of the partnership.

Summarizing the results, the author considers it possible to note that the specificity of the housing sector development in Ukraine, due to historical, objective, and subjective features, does not allow to fully copy the foreign experience of homeowners' associations (even the most progressive, proven for decades). It is possible to build its own unique model of management of apartment buildings based on homeowners' associations, which will be based on the best foreign analogs, but at the same time transformed considering the specifics and peculiarities of the Ukrainian economy in general and housing economy.

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