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«Personnel administration of the critical infrastructure enterprises and organizations in the context of a pandemic and martial law»

ANALYTICAL RESEARCH

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Introduction

Working in the current conditions for Ukrainian enterprises, especially in critical infrastructure, is a difficult challenge. During martial law, organizations mostly change their management and administration style to a more flexible one, which helps to overcome the challenges of time, make appropriate management decisions and quickly respond to the changing situation.

According to the Kyiv School of Economics, as of 5 September 2022, since the beginning of Russia's invasion to Ukraine, at least 412 enterprises and factories were damaged, destroyed, or captured by the occupiers. Most of them are large industrial enterprises located in the east and south of the country. Factories that survived or were not damaged are operating at 30-50% of their capacity or have temporarily stopped operations [1].

In the current environment, enterprises are faced with the urgent problems of introducing rapid changes in the classical HRM systems and introducing the latest management models, strategies and goals aimed at preserving and developing the potential of human resources of enterprises

The problem of administering the enterprises' personnel is relevant not only for CI objects of Ukraine, but also for any modern enterprise. When planning the human resources of CI facilities under martial law, it is advisable to reconsider the attitude to human resources policy in order to maintain the composition and number of personnel, as well as to maintain employee productivity and motivation. This requires a change in the strategy of administering the enterprise's human resources potential, as well as the influence of external factors

The purpose of this study- is to analyse the influence of external environment factors on the staff of enterprises and organizations of critical infrastructure on the basis of safety-oriented administration and build a methodology for interchange of personnel in order to improve the quality of work, maintain stress resistance and a certain level of risk and safety of enterprises. The prospect of continuing this project is the creation of a software product to support management decision-making.

According to the aim of the study, the research objectives have been detetermined: indentification of the main challenges that the war poses to territorial communities in Ukraine; the identification of important opportunities for improving the work of communities and state-owned enterprises that emerged during and after the war in Ukraine; the identifaction of mechanisms that can be used and best operational practices that can be developed to exploit these opportunities.

The results of the study will be unique for forecasting the development of enterprises and institutions in other countries in an unstable external environment. A feature of the study is the impossibility of operational expansion of the staff of critical infrastructure enterprises.

The problem statement

The COVID-19 pandemic and the Russian Federation's invasion of Ukraine have had a significant impact on the functioning of CI companies. The pandemic and martial law may have serious consequences for human resources management in the country. For example, the pandemic may lead to a reduction in the number of jobs and a decrease in demand for certain types of work, which may lead to increased unemployment and more difficulty in finding work for the unemployed. For employers, this may mean changing their strategies for finding, attracting and retaining employees, including reducing salaries and using more flexible forms of work, such as remote work.

Martial law may have serious consequences for personnel management due to restrictions on citizens' freedom and the possibility of closing down infrastructure enterprises in the country. This may make it more difficult to develop business activities and more difficult to attract and retain employees. Martial law may also lead to a shift in labour force recruitment priorities, including increased recruitment in sectors related to national security, and a reduction in free competition in the labour market.

One of the consequences of the pandemic and martial law may be an increase in the use of technology in work and learning. This may require new skills and knowledge from employees, and may also require thr employees' retraining and education.

Thus, it is important to identify the factors that affect the personnel administration of enterprises and critical infrastructure organizations in the context of the epidemic and martial law

Analysis of recent research and publications

Both Ukrainian and foreign scientists dedicated their works to the problems of studying the administration of the personnel potential of the enterprise:: I. Kramar, V. Potiuk [2], V. Smachylo, K. Tseselska [3], Y. Vorzhakova, K. Polishchuk [4], O. Havrysh [5], C. Leskova [6], O. Prodius, A. Zaporozhskaya [7], N. Lebid, O. Balan [8], V. Dergacheva, I. Zima [9], O. Krushelnytska, D. Melnychuk, [10], G. Josan, N. Kirichenko [11], K. Kozak, N. Korsikova, Y. Petrenko [12], Z. Iksan, F. A. Abdussalaam [13], S. D. Amelia Para, A. R.Dilapanga F. H. Mamonto [14], A. Hadianto, A. Purnomo [15], H. M. Alzoubi, T. M. Ghazal, M. E Khatib, M. T. Alshurideh, R. Alami, T. Al. Masaeid [16] and others; S. Filippova, M. Sukhoterina [17]; Y. Tarasenko, Y. Savchenko [18], L. Kozubtsova, V. Podoliak, I Kozubtsov [19], A. Balan, V. Tymoniuk, L. Voloshchuk [20], O. Shafaliuk [21], L. Florova, I. Boyko [22], O. Sukhodolia [24,24], O. Yermenchuk [25], O. Nikoluk, N. Dobrianska, Y. Levchuk [26], Z. Ciekanowski, S. Żurawski, H. Wyrębek [27] and others.

Unresolved aspects of the problem

Despite the large number of studies dedicated to the personnel potential administration of enterprises, not enough attention has been paid to the administration of the human resources potential of critical infrastructure enterprises, forecasting the development of such enterprises and institutions in an unstable external environment

The main part

At the legislative level, critical infrastructure is defined as a set of critical infrastructure facilities, which are infrastructure objects, systems, their parts and their aggregate that are important for the economy, national security and defence, the disruption of which may harm vital national interests [2]. In general, the main provisions of the national policy on the functioning of the IC correspond to the content of the CER Directive. The Directive itself, according to O. Sukhodolia [23], "formulates the obligations of the EU Member States and defines the limits of implementation of national policies to ensure the sustainability of the provision of vital services by *CI operators*". An enterprise identification (institution, organisation) as a CI operator of pan-European importance is fundamental.

Table 1.1 systematizes the main legislative acts regulating the functioning of the CI.

Table 1.1 – Main Legislative Acts Regulating the Functioning of Critical Infrastructure

Name of the legislative act	A meaningful characteristic
Directive on sustainability of critical facilities (CER) – 28.06.2022 "DIRECTIVE (EU) 2022/2557 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 14 December 2022 on the resilience of critical entities and repealing Council Directive 2008/114/EC (Text with EEA relevance)	Forms the legislative basis and requirements for the policy implementation in the field of ensuring the sustainable functioning of CI. The basis of the system for ensuring the safety and stability of the CI operation is based on market approaches, the stimulation of PPPs and the maximum use of the CI operators' own interest in the sustainability of their service provision and the continuity of business processes.
The Law of Ukraine "On Critical Infrastructure" No. 1882-IX, edition dated 12.05.2022, basis -2684-IX/https://zakon.rada.gov.ua/laws/show/1882-20#n20	"...regulates relations in the field of operation and protection of critical infrastructure as a whole and its objects in peacetime." "Peculiarities of the protection and legal regime of critical infrastructure objects in the conditions of emergency situations, state of emergency and martial law, special period are regulated by the laws of Ukraine"On the legal regime of martial law","On the legal regime of the state of emergency","On the functioning of the unified transport system of Ukraine in a special period"and"On the Defense of Ukraine"."
Resolution No. 1109 dated 09 September 2020 " Some Issues of Critical Infrastructure Objects", with changes from 12.29.2021, which entered into force on 12.31.2021 / https://zakon.rada.gov.ua/laws/show/1109-2020-%D0%BF#Text	"...determines the mechanism of assigning objects to critical infrastructure and their categorization."
The procedure for monitoring the security level of critical infrastructure facilities, approved by by Resolution of the Cabinet of Ministers of Ukraine dated 22 July 2022 No. 821 /https://zakon.rada.gov.ua/laws/show/821-2022-%D0%BF#Text	"...determines the mechanism for monitoring the security level of critical infrastructure objects and its periodicity."

Regulation of exchange of information between subjects of the national system of protection of critical infrastructure, app. by Resolution of the Cabinet of Ministers of Ukraine dated October 14, 2022 No. 1174 /https://zakon.rada.gov.ua/laws/show/1174-2022-%D0%BF#Text(Regulation No. 1174)	"...determines the mechanism of information interaction between subjects of the national critical infrastructure protection system in order to ensure the protection and stability of critical infrastructure." The approved form of Notification of the occurrence of a crisis situation at CI facilities.
Some issues of information submission in the field of critical infrastructure protection approved by Resolution of the Cabinet of Ministers of Ukraine dated October 14, 2022 No. 1175 /https://zakon.rada.gov.ua/laws/show/1175-2022-%D0%BF#Text(Resolution No. 1175)	Approved forms of reports separately for sectoral bodies and for CI operators, frequency and time of reporting
Methodological guidelines for the categorization of critical infrastructure objects, approved by order of the Administration of the State Service of Special Communications and Information Protection of Ukraine dated 15.01.21 No. 23 /https://zakon.rada.gov.ua/rada/show/v0023519-21#Text	The procedure for including business entities in the OCI and their distribution by certain sectors has been determined. "The methodology and categories of criticality of critical infrastructure objects are necessary mechanisms of the procedure for classifying objects as critical infrastructure objects and are intended to minimize the costs of economic entities for cyber protection measures and determine the optimal model for classifying objects as critical infrastructure objects , according to which critical infrastructure objects of various categories will be subject to cyber protection requirements, which are adequate to the level of negative consequences for the population, society, socio-economic condition and national security and defense of Ukraine in the event of a violation of their functioning or failures or interruptions in the provision (implementation) of basic services"

The criteria for assessing the state of security, their indicators and the methodology for assessing the state of security are determined by the authorized body in the field of critical infrastructure protection [29].

To ensure the OCI protection, the Law of 1882 defines their categorization, namely (Table 2):

Criticality category	Description
I category of criticality	especially important facilities that are of national importance, have a significant impact on other critical infrastructure facilities, and the disruption of which will lead to a crisis situation of national importance
II category of criticality	vital objects, the malfunctioning of which will lead to the emergence of a crisis situation of regional importance
III category of criticality	important objects, the malfunctioning of which will lead to the emergence of a crisis situation of local importance
IV category of criticality	necessary objects, the malfunctioning of which will lead to the emergence of a crisis situation of local significance

Accordingly, OKI personnel management is carried out within the limits of industry compliance. Table 3 summarizes information on the legislative framework for the administration of OKI personnel in the section of individual branches.

Table 3 – The current legislation on the administration of personnel of OKI in the fields of critical infrastructure

The field of critical infrastructure	Laws of personnel activity	Description of legislation
Management and provision of the most important public (administrative) services	1. Law of Ukraine “On Civil Service” [30] 2. Law of Ukraine “On Local State Administrations” [31] 3. Law of Ukraine “On Service in Local Self-Government Bodies” [32] 4. The Labor Code of Ukraine [33] 5. Law of Ukraine “On Collective Agreements and Contracts” [34] 6. Law of Ukraine “On Employment of Population” [35] 7. Law of Ukraine “On Vacations” [36] 8. The Law of Ukraine “On Remuneration of Labour” [37]	Personnel activity laws are a set of legal norms that regulate the organization and management of personnel in state and public organizations. These laws aim to ensure the effective performance of state functions and the provision of the most important public services to citizens. These laws contain requirements for personnel policy, selection, employment, performance evaluation, remuneration, training and retraining of civil servants and employees of public organizations. They also establish the rights and obligations of civil servants and employees of public organizations, as well as procedures for considering complaints and conflicts arising in connection with personnel activities.
Energy supply	1. Law of Ukraine “On Energy Industry” [38] 2. The Labor Code of Ukraine [33] 3. Regulations of the Ministry of Fuel and Energy of Ukraine [39] 4. Law of Ukraine "On the Implementation of the State Personnel Policy of the Ministry of Energy of Ukraine" [40]	The legislation of Ukraine in the field of energy supply establishes rules regarding the personnel structure that performs the functions of ensuring energy security and development of the energy complex. One of the most important documents regulating the personnel structure in the field of energy is the Law of Ukraine On “Energy Industry”. It defines the main principles and tasks of state policy in the field of energy, as well as establishes rules for managing the energy complex, including personnel policy.
Water supply and drainage	1. Law of Ukraine “On Water Drainage and Wastewater Treatment” [41] 2. Law of Ukraine " On Drinking Water, Drinking Water Supply and Sewerage” [42] 2. Code of Labor Laws of Ukraine [33] 3. Law of Ukraine "On Service in Local Self-Government Bodies" [32]	These laws contain general provisions on the organization of water supply and sewerage in Ukraine, including requirements for the personnel of enterprises engaged in these types of activities, as well as provisions on organizing the activities of employees of local self-government bodies, including issues related to the management of water supply and drainage at the local level. They regulate the workers’ issues engaged in water supply and sewerage, in particular, the rights and obligations of workers, working conditions, wages, social protection, etc. They establish the legal status and basic principles of management of communal enterprises, in particular, enterprises engaged in water supply and drainage.
Defense, state security	1. Law of Ukraine "On the Armed Forces of Ukraine" [43] 2. Law of Ukraine " On Security Service of Ukraine" [44] 3. Law of Ukraine "On National Security of Ukraine" [45] 4. Law of Ukraine "On Civil Service" [30]	The Law of Ukraine “On the Armed Forces of Ukraine” defines the structure and functions of the Armed Forces of Ukraine, as well as their status and legal status. It also regulates personnel policy in the Armed Forces of Ukraine, including personnel recruitment, training and retraining. The Law of Ukraine "On Security Bodies and Services of Ukraine" regulates the activities of security bodies and services of Ukraine, it also

		defines procedures for recruiting and training personnel of these security bodies and services. The Law of Ukraine "On the National Security of Ukraine" defines the general principles and tasks of the national security of Ukraine, and also regulates the activities of state authorities and local governments in ensuring national security. It also contains provisions on training and retraining of personnel dealing with national security issues. The Law of Ukraine "On Civil Service" regulates the activities of the civil service in Ukraine, including recruitment, training and retraining of states
Civil protection of the population and territories, rescue services	1. Civil Protection Code of Ukraine [46] 2. Resolution "On Approval of the Regulation on the State Emergency Service of Ukraine" [47]	The Law of Ukraine "On Civil Protection" establishes the general principles of civil protection, the powers of state authorities and local governments in this area, defines the rights and obligations of citizens during emergencies and other events that pose a threat to people's lives and health. environment and property. The Law of Ukraine “On Rescue Service” regulates the organization and activity of rescue services, establishes their powers and functions, and determines the rights and obligations of employees of these services. The Resolution of the Cabinet of Ministers of Ukraine On Approval of the Regulation on the State Emergency Service of Ukraine" defines the legal principles of the organization of the state civil protection service, the procedure for hiring, transferring, firing and other aspects of personnel activities in this area. The Resolution of the Cabinet of Ministers of Ukraine "On Approval of the Regulations on the Ministry of Emergency Situations of Ukraine" defines the structure and organization of the Ministry of Emergency Situations of Ukraine, the powers of managers and employees of this service, as well as the rules for providing their services.

Therefore, international and national current legislation on the functioning of enterprises and organizations of critical infrastructure of Ukraine has been summarized and systematized, including the conditions of martial law.

Investigating the state of OCI personnel management processes, the dynamics of the employment rate at business entities of critical infrastructure were analyzed. Table 4 shows the results for the period from 2020 to 2022.

Table 4 – The number of personnel of enterprises in 2020 – 2020

Subject of state donation	Code according to KVED–2010/ Code NACE, Rev.2	Number of employees by year		
		2020	2021	2022
Agriculture, forestry and fishing	A	575954	576093	488555
Industry	B+C+D+E	2184999	2167166	1808528
Transportation and storage	H	877331	853646	747103
Information and communication	J	383362	437117	423367
Financial and insurance activities	K	209579	205442	178488
Human health and social work activities	Q	793644	772976	694972

For greater clarity, we will present the table data in the form of Figure 1

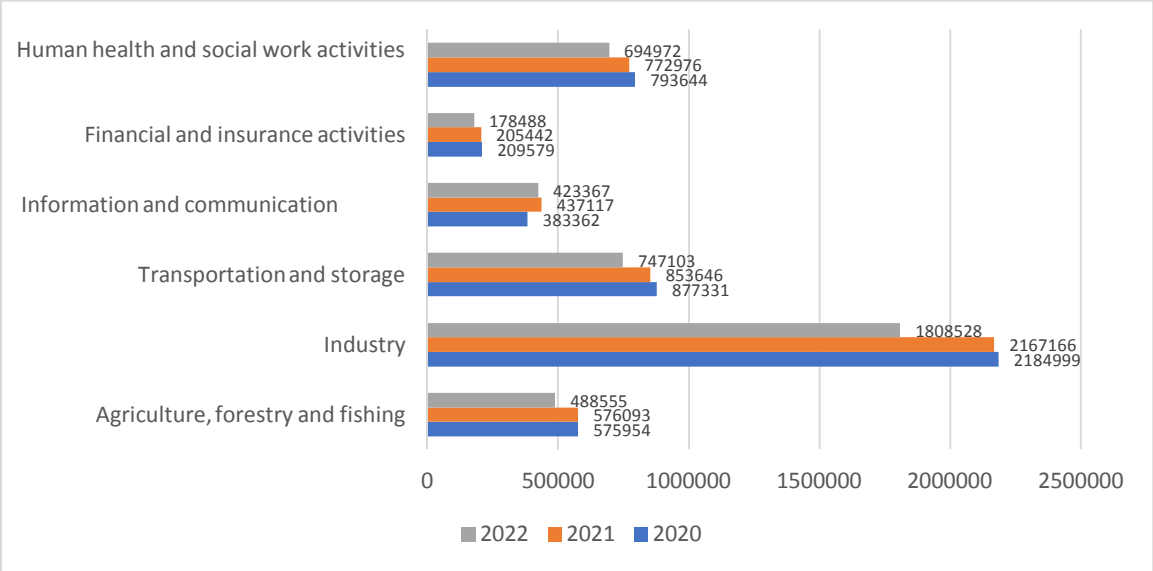

Figure 1 – The number of personnel of enterprises in 2020 – 2022

So, as we can see, the obtained results show a negative trend towards staff reduction.

Among the reduction/change in the number of employees at enterprises, such factors as retirement, maternity leave, moving to a new place, voluntary dismissal, change of field of activity can be distinguished. But the most important things today are the COVID-19 pandemic and hostilities.

Pandemic and martial law can have serious consequences for personnel administration in the country. The pandemic may lead to fewer jobs and less

demand for some types of work. This can lead to higher unemployment and make it more difficult for the unemployed to find work. For employers, this may mean changing strategies for finding, attracting and retaining workers, including reducing wages and using more flexible forms of work such as telecommuting.

Martial law can have serious consequences for personnel administration due to restrictions on citizens' freedom of and the possibility of closing infrastructure enterprises on the territory of the state. This can lead to more difficult business development and more difficult to attract and retain employees. Martial law may also lead to a shift in labour recruitment priorities, including an increase in labor recruitment in sectors related to national security, as well as a reduction in free competition in the labor market.

One of the consequences of the pandemic and martial law may be an increase in the use of information technologies in work and education. This, in turn, may require new skills and knowledge from employees, and may require retraining and retraining of employees.

The COVID-19 pandemic has had a significant impact on HR administration and their work. Here are some of the implications of the pandemic for HR administration:

1. The need to change the mode of work. Many companies have introduced changes in the mode of work, such as the transition to remote work or flexible work schedules, which may require new approaches to personnel management.

2. The need to develop new skills. Changing working conditions may also require employees to develop new skills, such as using new technologies to communicate and collaborate with colleagues.

3. Changing priorities in career development. The pandemic may change career priorities for employees, who may prefer jobs that offer more stability and security.

4. Changes in relations with colleagues. The introduction of telecommuting can lead to changes in relationships with colleagues, as communication now takes place mostly virtually, which may require new approaches to communication and collaboration.

5. Increased focus on health and safety. The pandemic has increased the focus on employee health and safety, which may lead to the introduction of new company procedures and policies.

6. Financial challenges. The crisis caused by the pandemic can lead to financial challenges for companies, which may require changes in salaries, benefits and other aspects of management.

Martial law is a state of emergency introduced in the country in the event of a threat to national security and a violation of public order. The introduction of martial law can have serious consequences for the administration of personnel and their work, as it leads to changes in the political and economic environment of the country.

One of the main effects of martial law is that the government has more power over the population and businesses, which can lead to changes in personnel

policy and personnel management decisions. The introduction of martial law can also lead to a change in priorities in the work of companies and organizations, which may be forced to refocus on ensuring national security and helping to implement government decisions.

In addition, martial law can lead to a reduction in freedom of speech and freedom of assembly, which can be a hindrance to the work of personnel units, especially if they specialize in the free exchange of information and cooperation with the public.

The general instability and risks associated with martial law may also lead to reduced investment and development in the industry, which may have implications for employment and economic growth in the country. At the same time, if national security is prioritized over other aspects of the country's development, defense and security work may receive additional investment and support.

Table 5 – Changes in labor legislation during martial law [*48,9]*

Condition	According to the Code of Labor Laws of Ukraine	According to the new law
Form of employment contract	Usually in writing	The form is determined by agreement of the parties
Establishing a probationary period	It is forbidden to install certain categories	Can be installed by anyone
Transfer to another job/enterprise	It is allowed only with the consent of the employee	It is possible without the employee's consent
Hours of operation	It is determined by the rules of work schedule and shift schedules	Set by the employer
Normal working hours	No more than 40 hours/week	It can be up to 60 hours/week
Weekly uninterrupted rest	At least 42 hours	It can be 24 hours
The possibility of dismissal during the period of temporary incapacity/vacation	Not allowed	Possible
Number of working days	Set by an employer with a trade union	Defined by the employer
Annual leave	Minimum 24 days	May be limited to 24 days or denied at critical infrastructure facilities
Responsibility for non-compliance with payment deadlines	The employer is always responsible	The employer may not be liable if he proves that the violation was caused by force majeure

One of the main consequences is changing the rules and procedures for hiring and firing employees. Under martial law, additional requirements for appointment to positions may be introduced, such as mandatory military training, increased physical training requirements, etc. In addition, during martial law, contract terms, working conditions and other aspects may change, which may affect the work of employees.

Thus, changes were made to the labor legislation, which corrects the activities of enterprises, organizations and persons working under an employment contract: on March 15, 2022, the Law of Ukraine "On the Organization of Labor

Relations in Martial Law" entered into force [48]. Table 6 shows the main changes introduced by this Law.

Therefore, the need to develop and implement measures for the personnel potential administration of critical infrastructure enterprises becomes an urgent issue.

In order to identify the factors influencing the external environment on the personnel of enterprises and organizations of critical infrastructure based on safety-oriented management, a questionnaire was developed “Personnel administration of the critical infrastructure enterprises and organizations in the context of a pandemic and martial law”, which included the following blocks:

- The respondent’s identification;
- Field of activity at Organizations of Critical Infrastructure (hereinafter OCI) and Level of Satisfaction
- Career development
- Filling vacant positions
- Factors of influence

The respondent’s identification. The aim of this part of the survey was to determine whether the respondent could provide relevant information.

First, we needed to find out general information about our respondents: gender, citizenship, education, etc.

Thus, according to our survey, 57.4% of the respondents were women and 42.6% were men (Figure 2).

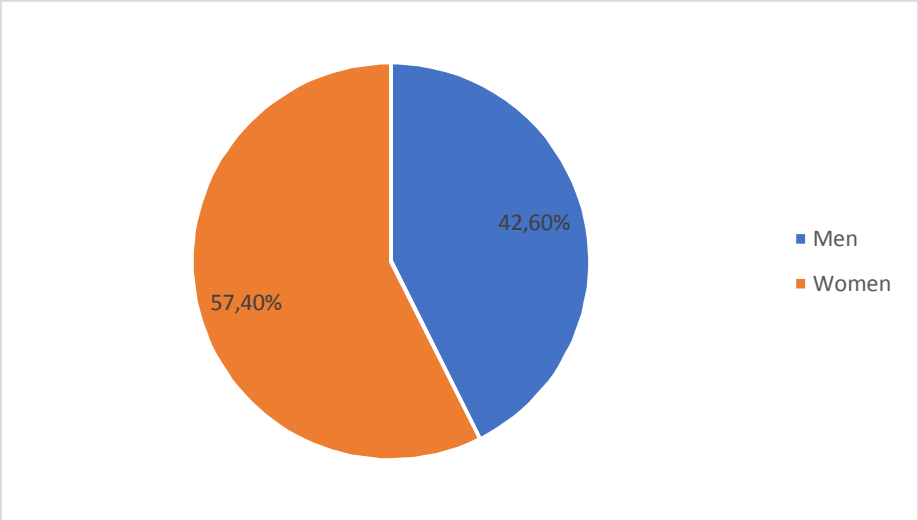

Figure 2 – The Respondents’ Gender

Thus, as can be seen from Figure 2, there are 14.8% more women than men.

At the time of the survey, 95.3% of respondents were citizens of Ukraine, 0.5% were citizens of Latvia and the United Kingdom, respectively, and 3.2% were citizens of other countries (Figure 3).

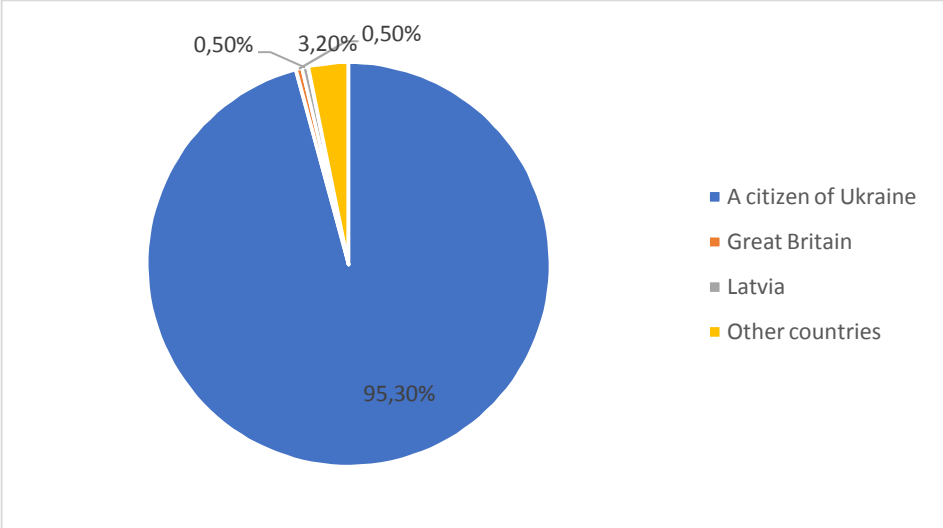

Figure 3 – The Respondents' Citizenship

Regarding the respondents' education, we have obtained the following results: complete general secondary education (31.8%), professional (vocational)education (7.8%), special pre-higher education (5.7%), higher education (49%), and a scientific degree (5.7%). For greater clarity, we present the data in Figure 4.

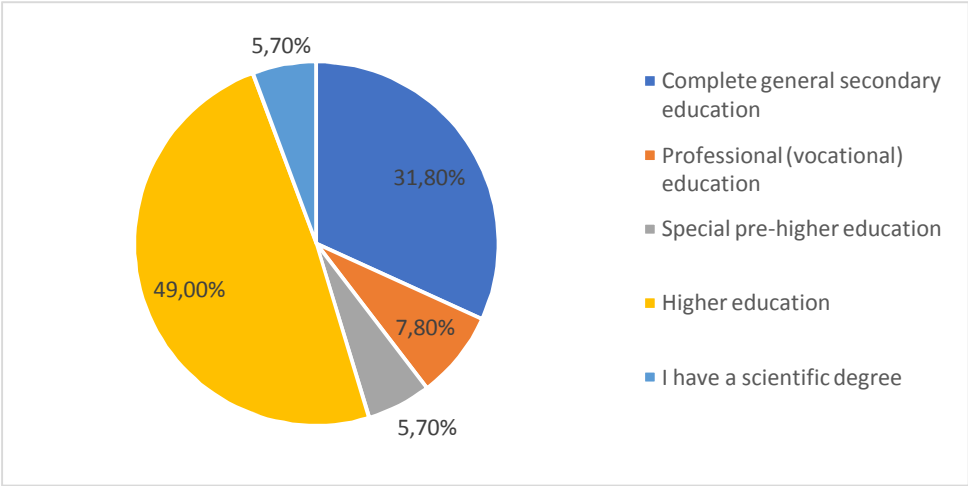

Figure 4 – The Respondents' Education

As can be seen from Figure 4, the largest number of respondents have a university degree (49%), and the smallest number have special pre-higher education or a scientific degree (5.7%).

During the survey, 72.6% of respondents indicated that their activities corresponded to the area of their speciality.

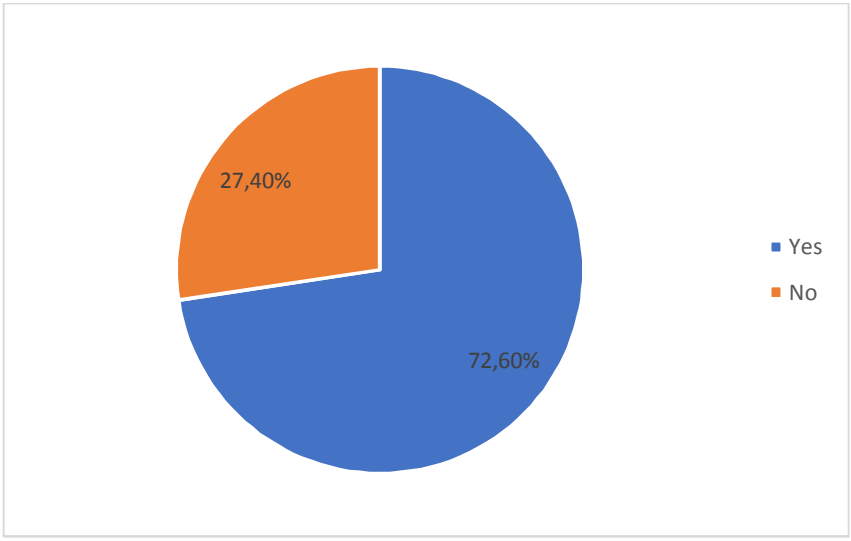

Figure 5 Correspondence of the Respondents' Education to the Received Speciality

In addition, 14.1% of the respondents indicated that they had the status of the Antiterrorist Operation participant or combatanti (Figure 6)

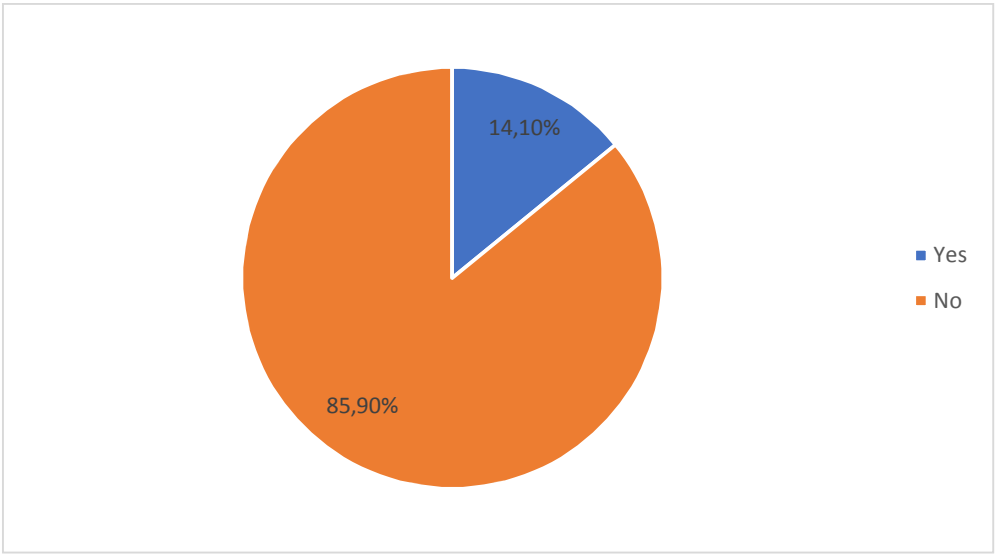

Figure 6 The Respondents' Status as ATO Participents or Combatants

27.5% of the respondents stated that they were not subjected to the Law of Ukraine "On Prevention of Corruption" (Figure 7).

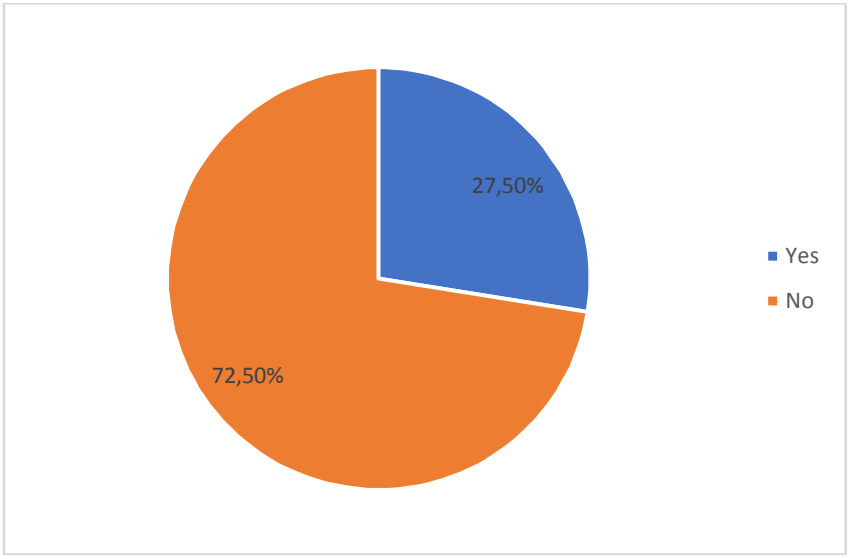

Figure 7 – Applicability of the Law of Ukraine "On Prevention of Corruption" to the Respondents

47.1% of respondents indicated that their workplace was a critical infrastructure facility (Figure 8)

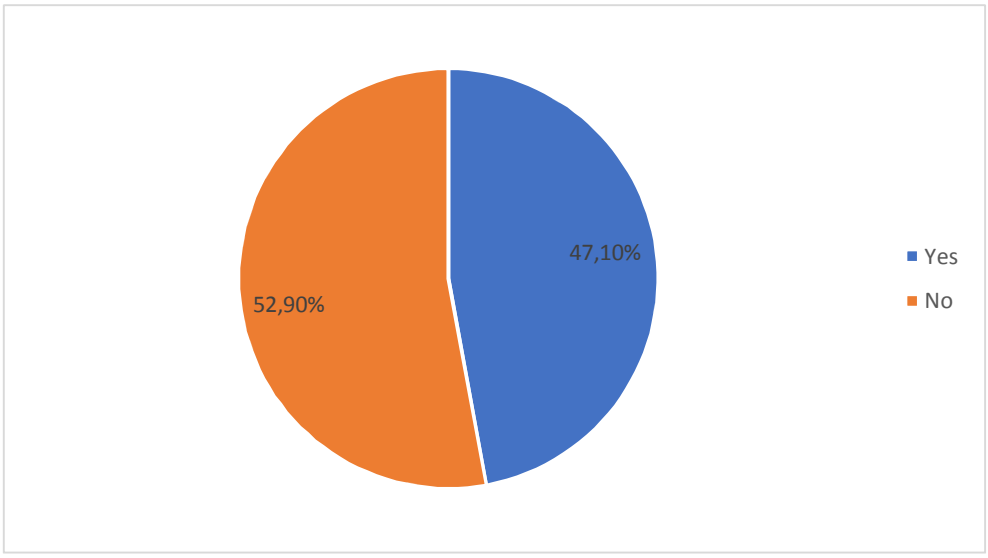

Figure 8 – The Respondents' at Critical Infrastructure Facilities

We were interested to know the type of the respondents's employment. Thus, 49.2% of respondents indicated that they were employed on a full or part-time basis (week) at enterprises, institutions, organizations, regardless of ownership, in international and foreign organizations in Ukraine and abroad; 21.7% – to the citizens who independently provide themselves with work, including entrepreneurs, individuals engaged in individual labor activity, creative activity, members of cooperatives, farmers and members of their families involved in

production; 6.3% – to those elected, appointed or approved for a paid position in public authorities, management or public associations ; 2.1% – to citizens citizens who serve in the Armed Forces, border, internal, railway troops, national security and internal affairs bodies; 9% – to the persons undergoing professional training, retraining and advanced training with separation from production; who study in day secondary schools, secondary special and higher educational institutions ; 9% – those engaged in raising children, caring for the sick, disabled and elderly citizens 2.6% -Øworking citizens of other countries who are temporarily in Ukraine and perform functions not related to ensuring the activities of embassies and mission. For greater clarity, we present the data in Figure 9.

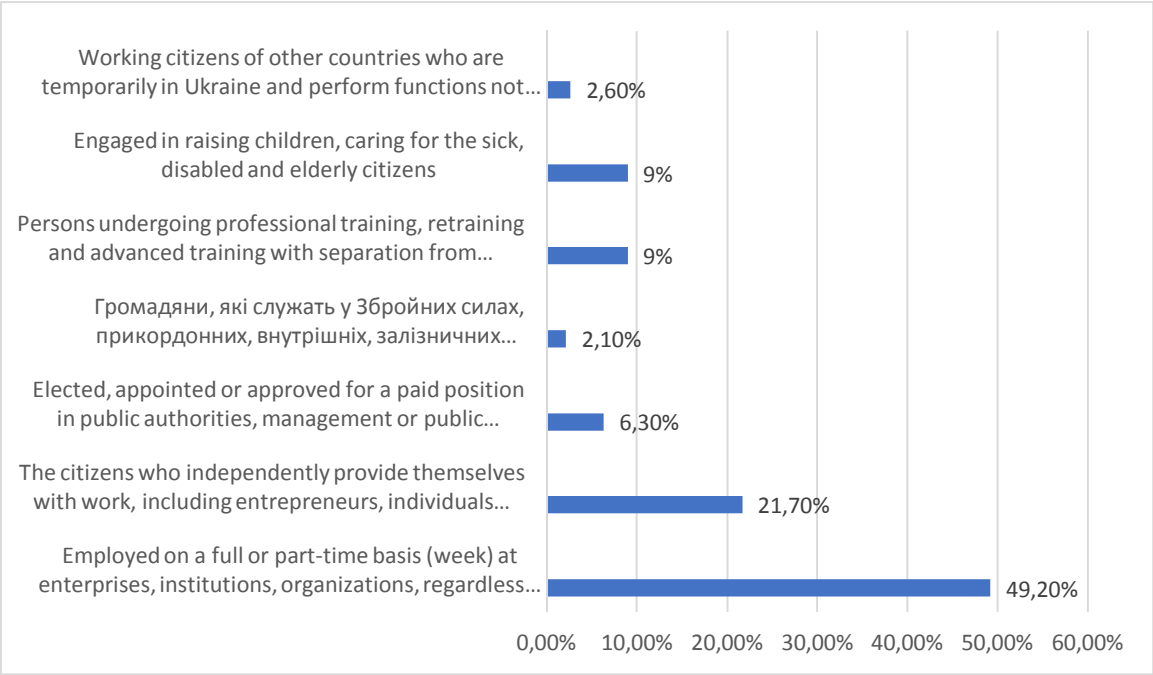

Figure 9 – Type of the Respondents' Employment

Analysing Figure 8, we can see that the largest percentage of respondents were employed on a full or part-time basis (week) at enterprises, institutions, organizations, regardless of ownership, in international and foreign organizations in Ukraine and abroad (49.2%), and the smallest (2.1%) were citizens serving in the Armed Forces, border, internal, railway troops, national security and internal affairs agencies.

Field of Activity at Organizations of Critical Infrastructure (hereinafter OCI) and Level of Satisfaction. The positions and areas of professional activity of the respondents included the following: managers, directors, education, electricians, marketers, accountants, students, tourism, healthcare, medical

services, repair, social work, transport technology, service stations, farming, economics, banking, finance, economics, security officer, trade, musician, energy, entrepreneurship, trade, clerical work, head of content, administration, etc.

During the survey, 46.2% of respondents indicated that they considered themselves to be managerial-level officials (Figure 10).

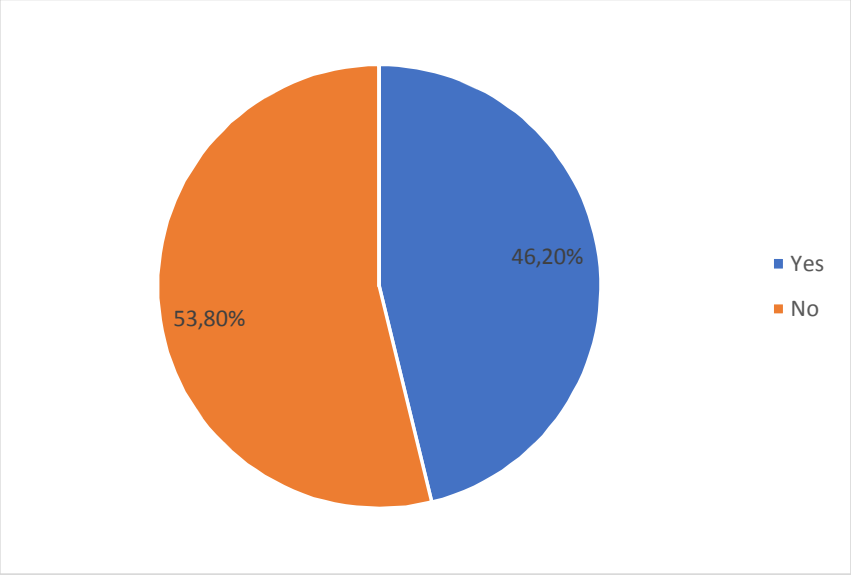

Figure 10 – Whether the Respondents Consider Themselves to Management Level official

Regarding the length of service (or cooperation) at a critical infrastructure facility, 60.7% of the respondents indicated that they had less than 5 years of experience (Figure 11).

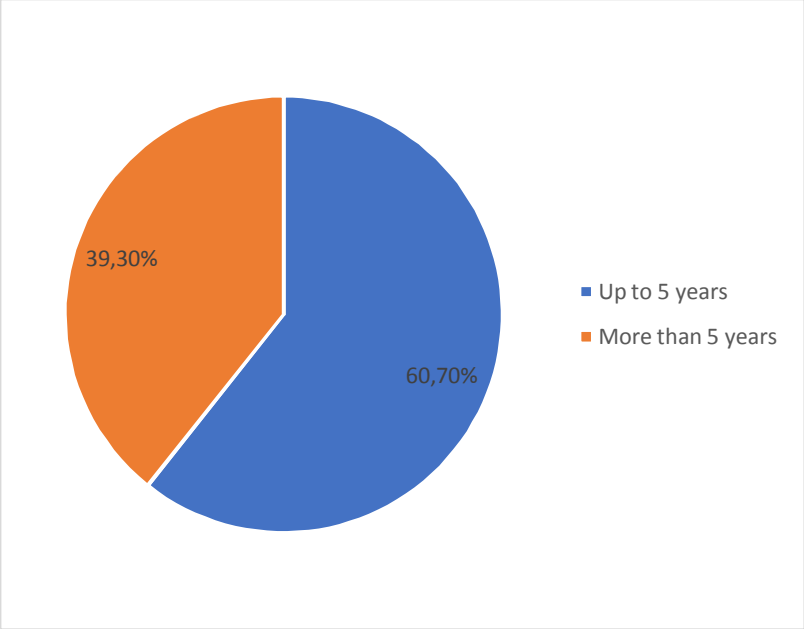

Figure 11 – The Respomdents' Work Experience (or Cooperation) at Critical Infrastructure Facility

At the same time, 35.1% of respondents said they had no experience of working at other companies (Figure 12).

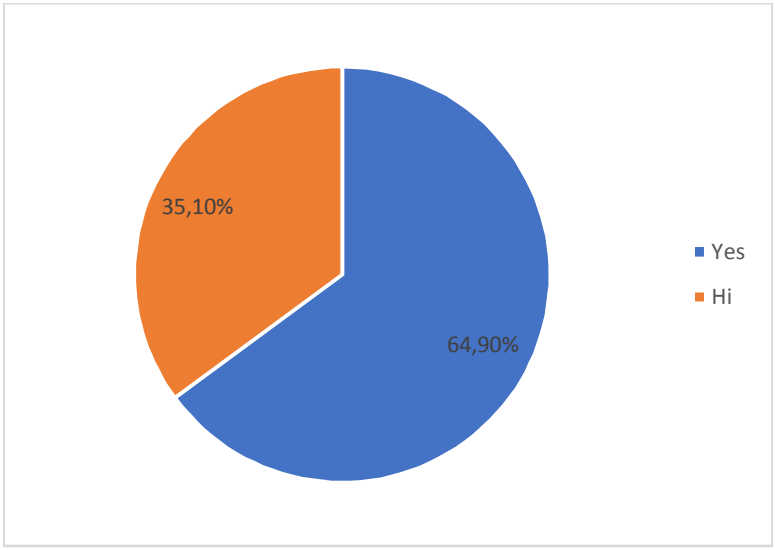

Figure 12 – Work Experience at Another Company

69.4% of the respondents indicated that they had attended additional educational events (advanced training).

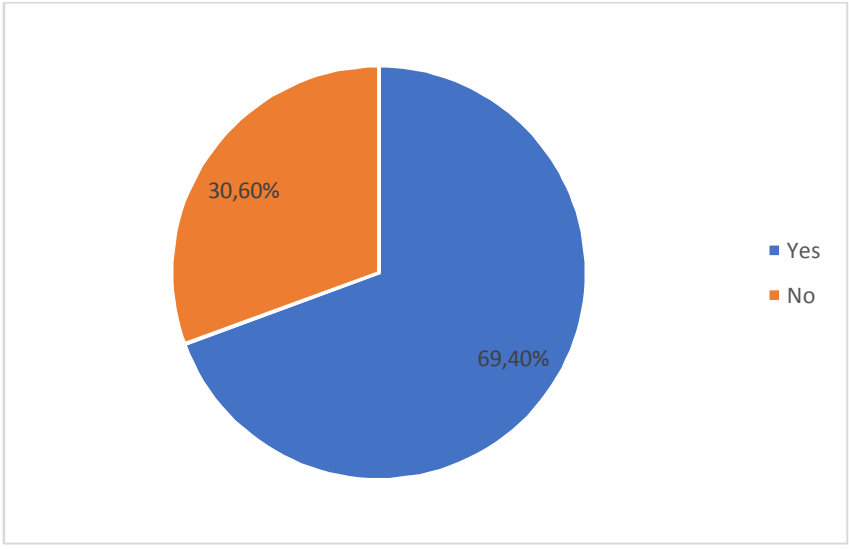

Figure 13 – Participation in Additional Educational Events (Advanced Trainings) by the Respondents

A fairly small proportion of the respondents were dissatisfied with the working conditions at the OCI. They amounted to 19.7% of the respondents (Fig. 14).

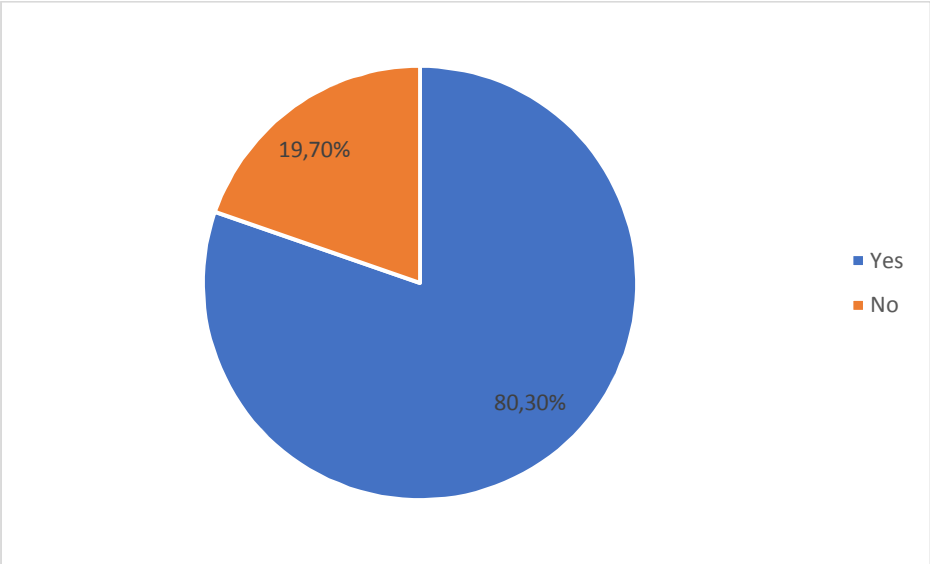

Figure 14 – The Respondents' Satisfaction with the Working Conditions at OCI

Regarding the availability of an additional source of income, respondents were almost equally divided. Thus, 50.3% of the respondents indicated that they did not have a source of additional income, while 49.7% did (Figure 15).

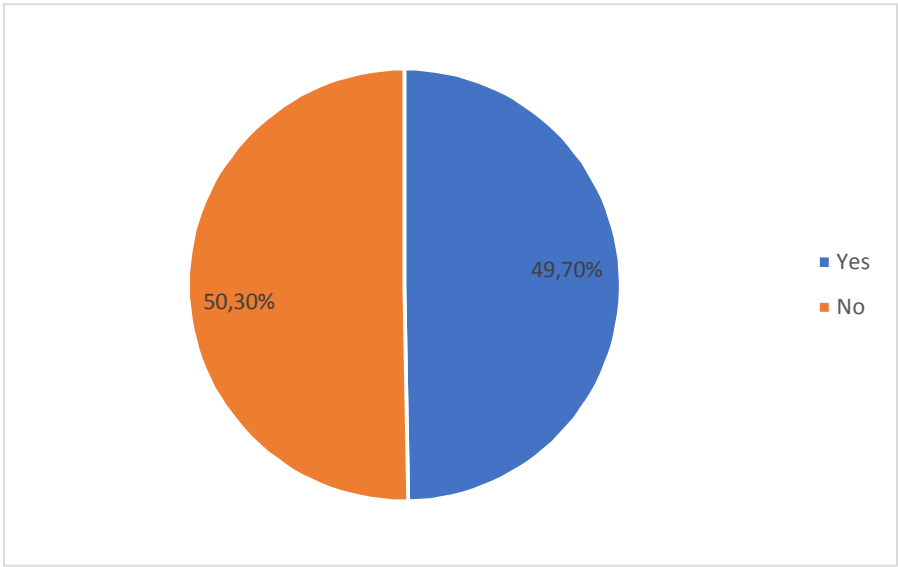

Figure 15 – The Respondents' Sources of Additional Income

Concerning workplace changes, 33.9% of respondents said they were ready to change workplaces and had several offers, 50.5% were not ready and were satisfied with everything, and 15.6% said their specialization did not allow them to change workplaces quickly, but they were monitoring. For greater clarity, we present the data in Figure 16.

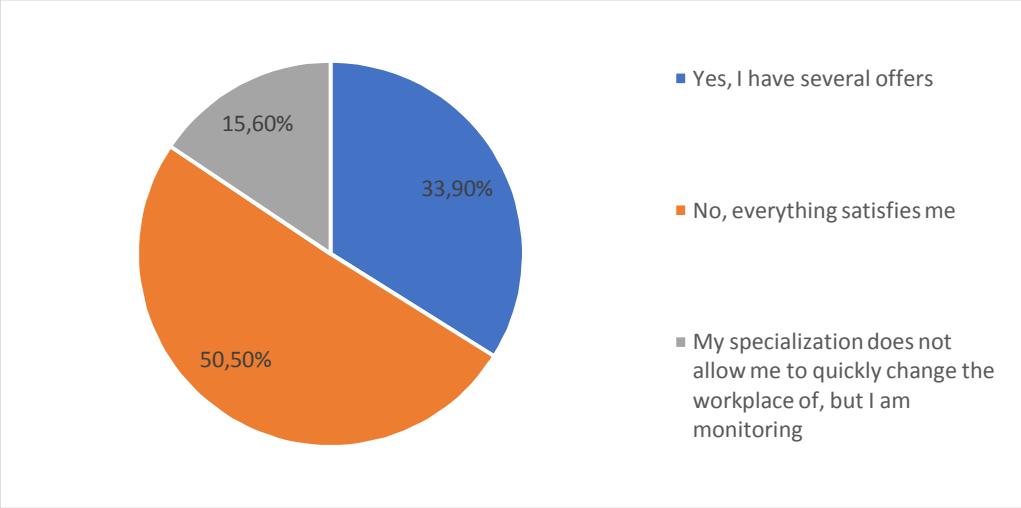

Figure 16 – The Respondents' Readiness to Change Workplaces

As we can see from Figure 15, the majority of respondents (50.5%) did not want to change their workplaces, they were satisfied with everything.

Regarding career opportunities, 83.7% of the respondents had this opportunity, 9.2% did not have this opportunity, 6% of the respondents' specialization did not allow them to change their job quickly, but they were monitoring it, 1.1% did not have or are not satisfied with it, and they are satisfied with everything (Figure 17).

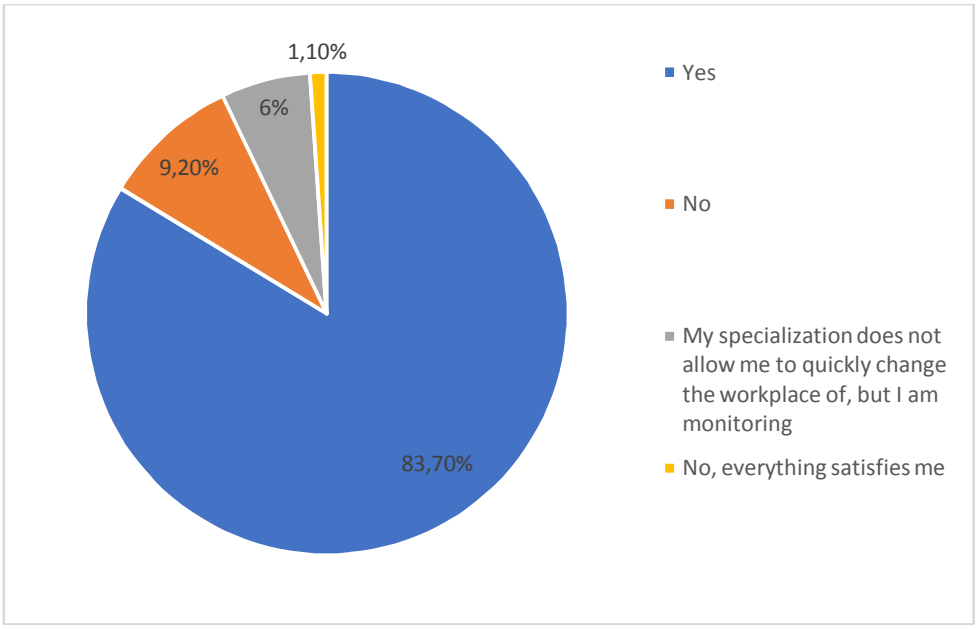

Figure 17 – Career Development Opportunities for Respondents

As we can see, the majority of respondents (83.7%) have the opportunity for career development.

In the course of the survey, we have found out that 51.2% had undergone professional development more than a year ago, 13.5% – more than three years, and 27.6% had not undergone any training for a long time (Figure 18).

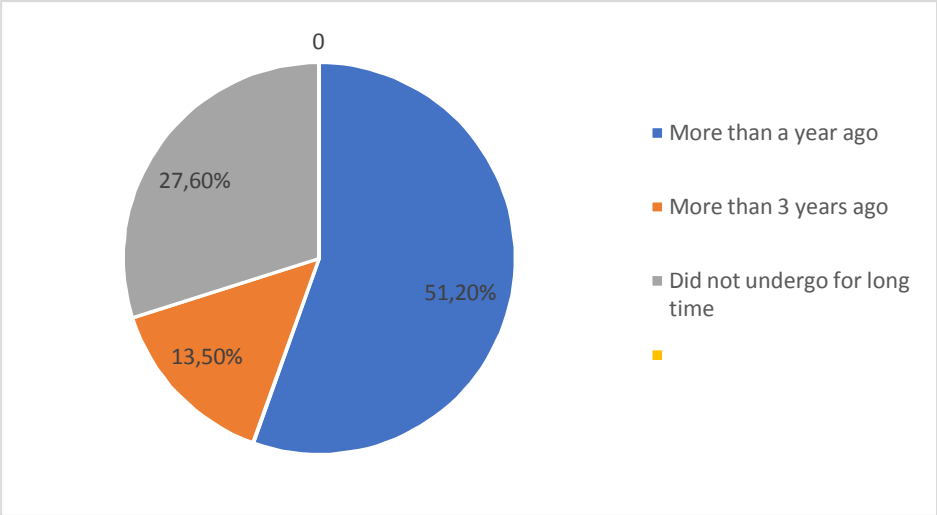

Figure 18 – Improving the Respondents' Qualifications

Career development. In this part of the survey, we determined the extent to which the respondent is motivated and ready for career development.

Thus, 72.2% of respondents indicated that they had the opportunity for career growth at this or another OCI enterprise and expected it, 10.6% of the respondents had the opportunity, but they were temporarily acting agents there (Fig. 19).

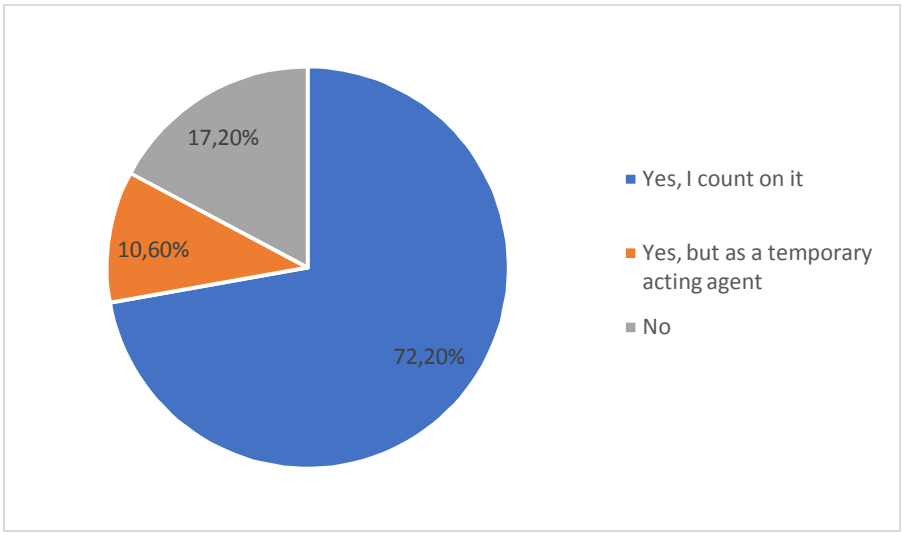

Figure 19 – Possibility of the Respondents' Career Growth at This or Another OCI enterprise

Thus, as we can see, a larger proportion of respondents (72.2%) have the opportunity for career growth and expect it.

At the same time, 66.5% of the respondents indicated that they needed advanced training (certification/attestation), 19.7% indicated that they need to obtain higher education (second higher education), and 13.8% of respondents do not need additional education (Figure 20).

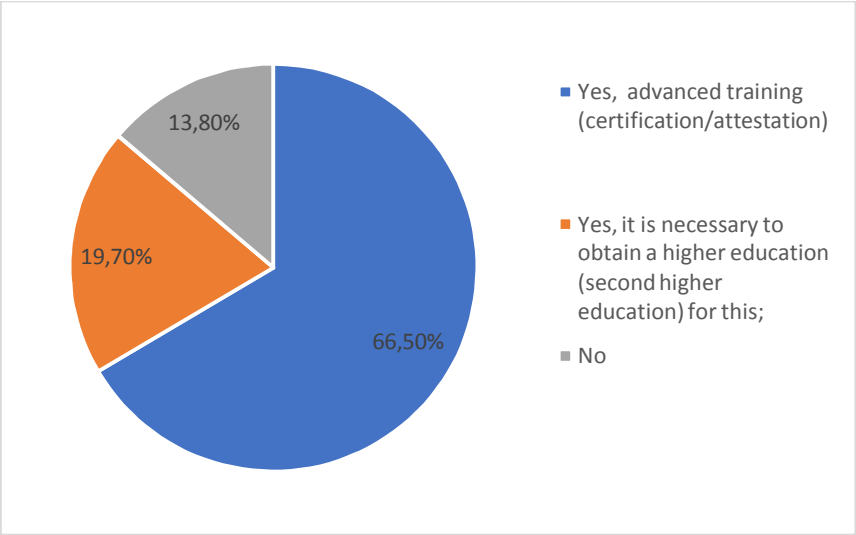

Figure 20 – The Need for Additional Education (Advanced Training) for Further Career Development

Thus, as we can see, the majority of respondents need to upgrade their qualifications (certification/attestation) or obtain higher education (second higher education) – 86.2%.

29.7% of the respondents indicated that they had undergone advanced training in the current year; last year – 28% of the respondents; 27.5% of the respondents indicated that in the last 5 years, they had received a level of higher education sufficient for their current position and further career development; 7.1% – had never undergone advanced training; other – 7.7% constantly take educational tests, courses, training; was a student; would take them the following year; had higher pedagogical education, but worked in medicine, etc.

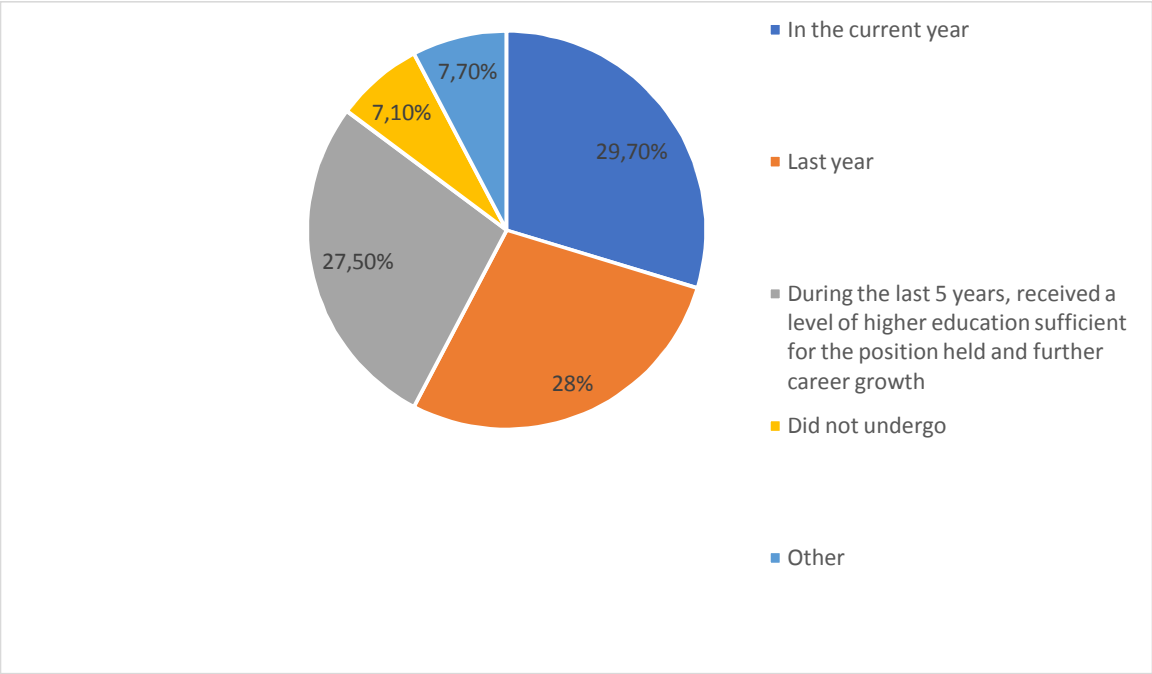

Figure 21 –Undergoing Advanced Training by the Respondents

48.9% of the respondents indicated that their companies (organizations) annually submit a plan for in-service training, 21.1% indicated that they had, but since 2020 (during the pandemic and martial law), no in-service training was conducted; 28.9% did not provide for in-service training, and 1.1% had other options (Fig. 22)

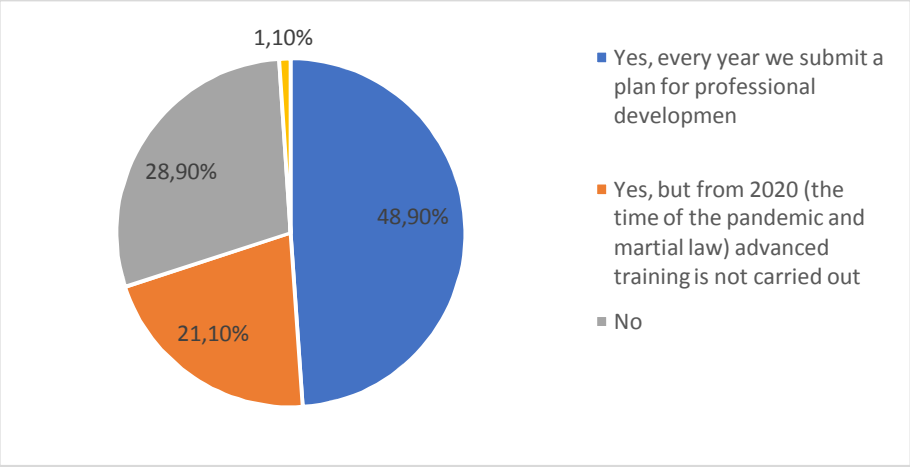

Figure 22 –Whether a CI Enterprise (Organisation) Provides For Systematic Ongoing Professional Development for Respondents

Vacancies replacement. The aim of this part of survey was to determine how much the procedure for vacancies replacement has changed since the introduction of martial law

Thus, 45.8% of respondents indicated that the need for OCI staff could be covered by external specialists, 51.4% – by own personnel, and 2.8% – by other options (Figure 23)

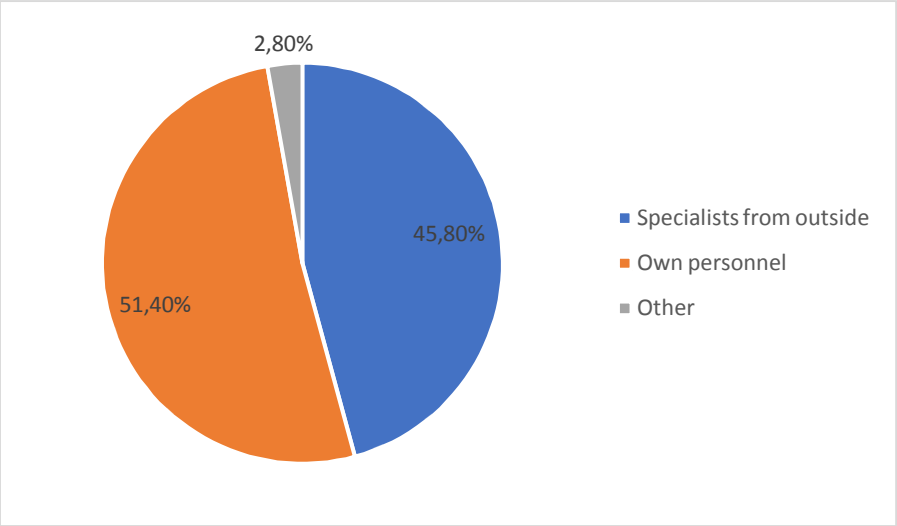

Figure 23 – Covering the Need for OKI Staff

47% of the respondents indicated that if external specialists filled the vacancy, they would offer professional development, 29.2% – practical training, 7% – short-term thematic educational activities; 14.6% – new education, and 2.2% – other options (Figure 24).

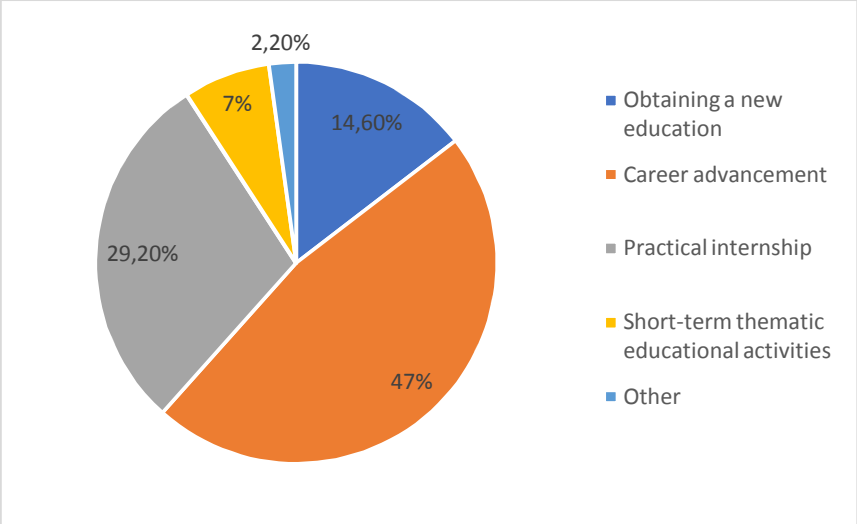

Figure 24 – Educational Activities if the Vacancy is Filled by External Specialists

As shown in Figure 24, the majority of respondents would offer advanced training (47%) in the event of a vacancy being filled by external specialists.

As for the percentage of personnel turnover, the following answers were received: up to 20% – 46.5%; 20-30% – 48.1%; over 50% – 5.4% (Figure 25).

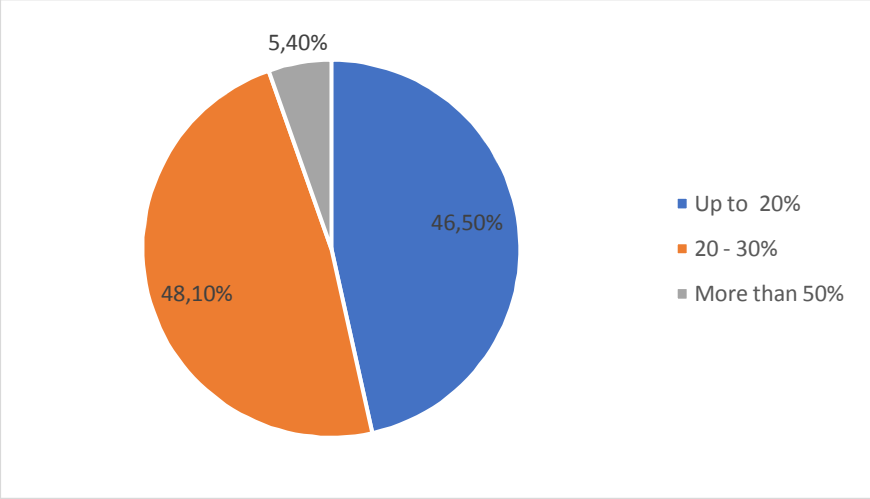

Figure 25 – Personnel Turnover in Percentage

When asked where staff leave and what motivates them to leave, we received the following answers: salary; to competitors; earnings; employees can leave work for various reasons, for example, due to workplace conflicts, mismatch of qualifications and responsibilities, career growth, etc.; business repurposing, changes in the direction of the company's development or reorientation to new markets may lead to reorganization and reduction of jobs; to a more prestigious place of work; old-age pension, change of residence-relocation; where there is more material motivation; burnout; in state structures, social security is better; low level of wages, unprofessional level of management, improper treatment of specialists as professionals; in private practice; they go for better working conditions, low wages, in addition: you need to spend a lot of time every working day to get to the place of work by bus; apathy and unwillingness to continue the process of life, which generally has no meaning; the reason for dismissal may be the lack of staff compliance with job requirements; collective; too many responsibilities at the workplace, hard work, looking for a job with less responsibilities; leave for better paid work abroad, etc.

We asked the respondents to assign a rank (from 1 to 10: 1 – not relevant, 10 – a very significant problem) to what extent the problem of a specialist leaving after receiving education (advanced training, undergoing costly training) at the expense of the enterprise (organisation) is significant for the OCI. We have got the following results: 1 – 4.3%; 2 – 3 – 6.4%; 4-5 – 22.7%; 6 – 7 – 16.3%; 8 – 9 – 17%; 10 – 16.3%; other options – 17% (Fig. 26)

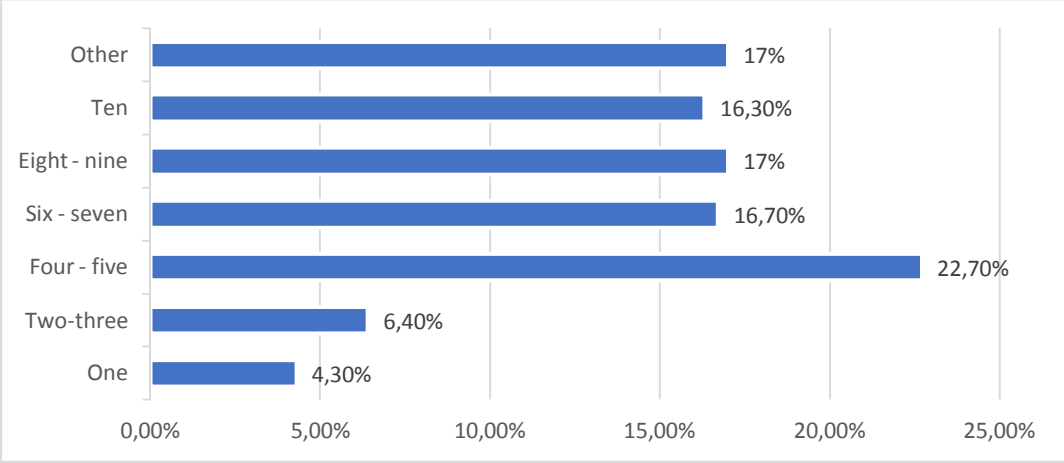

Figure 26 – To What Extent is the Problem of a Specialist Being Dismissed (Assigned a Rank) After Receiving Education (Advanced Training, Undergoing Costly training) at the Expense of the Enterprise (Organisation) Important for OCI

The respondents named the following reasons for a vacancy dismissal; staff turnover, maternity leave; retirement, special projects or organisational growth; retirement due to age, relocation or change of job, death of an employee, health reasons (deterioration of the condition that makes it impossible to perform job duties on the employee's initiative); new opportunities, going abroad; low salaries, unprofessional management, improper treatment of specialists as professionals; it may be due to resignation (personal desire) of employees for various reasons; low need to spend a lot of time every working day to get to the place of work by bus; transfer of staff to another position; team climate; conditions, etc.

55.1% of respondents indicated that there had been changes in OCI management during the pandemic (2020-2021) (Figure 27).

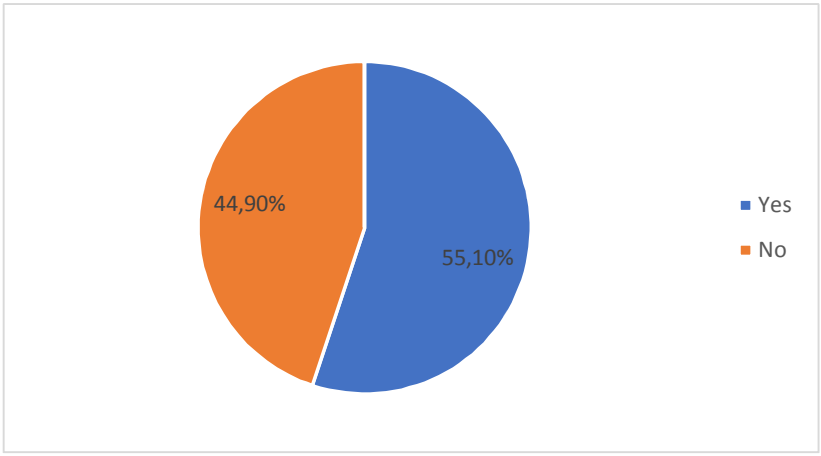

Figure 27 – Changes in OCI Management during the Pandemic (2020-2021)

In addition, 56.4% of the respondents indicated that there had been changes in the OKI management since introducing martial law.

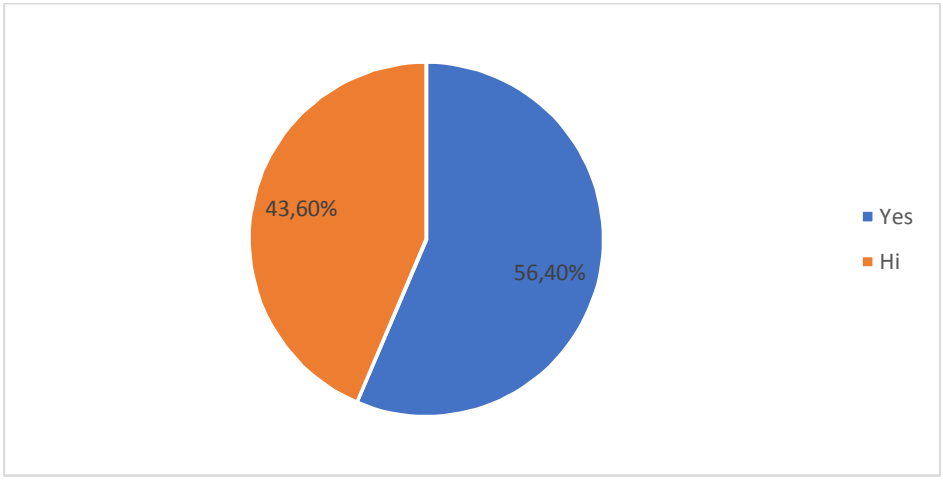

Figure 28 – Changes in OCI Management Since Introducing Martial Law

Regarding women's percentage in managerial positions at the enterprise (organisation/institution) where the respondents work worked, we have received the following data: up to 49% – 52.4%, 50% and above – 41.5%, 6.1% found it difficult to answer (Fig. 29).

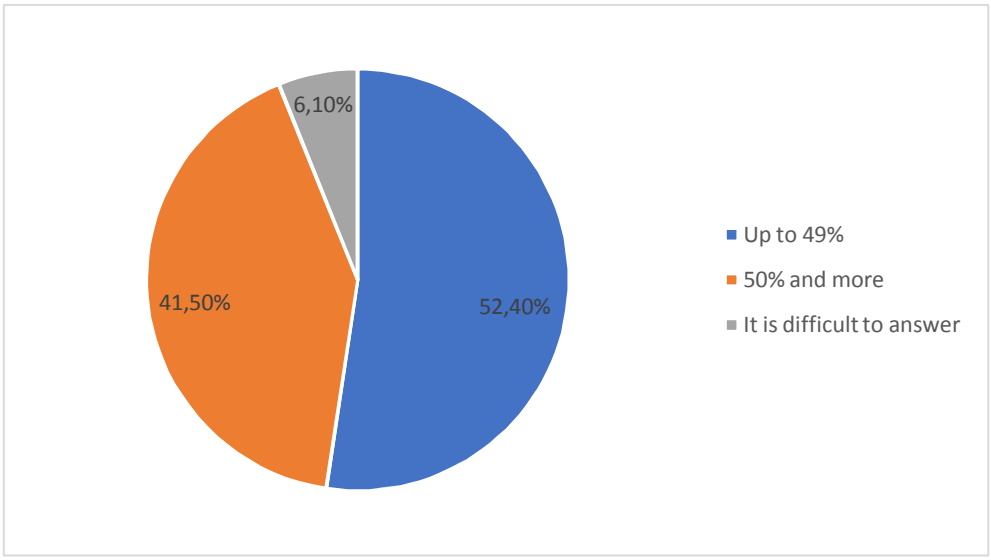

Figure 29 – Women's Percentage in Managerial Positions at the Enterprise (organisation/institution) Where the Respondents Work

40.9% of respondents noted that there were changes in the structure of the management team by gender during martial law (Figure 30).

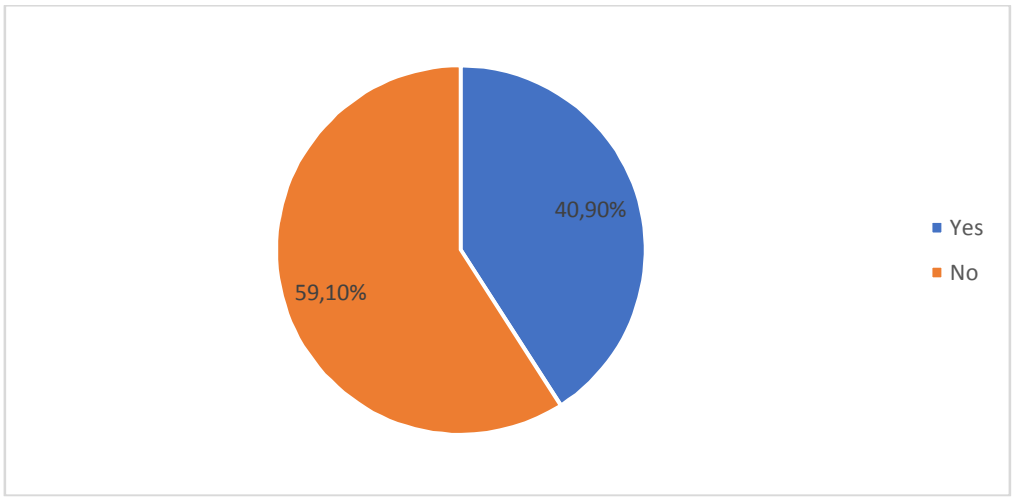

Figure 30 – Changes in Management Team Structure by Gender during Martial Law

Respondents named the following reasons: not called up; war; mobilisation; no need; almost all women; women managers went abroad mostly; men joined the Armed Forces; has not changed because our management team is booked; 70% of the staff are men; not subject to conscription; it is also a private business; managers are foreigners or too important; no good reason; the current management team performs their functions perfectly; the unstable situation in the country; during the war, many people started going abroad, etc.

54.7% of the respondents considered the experience of participation in combat operations to be useful for the managers of a CI enterprise (institution, organisation) (Figure 31).

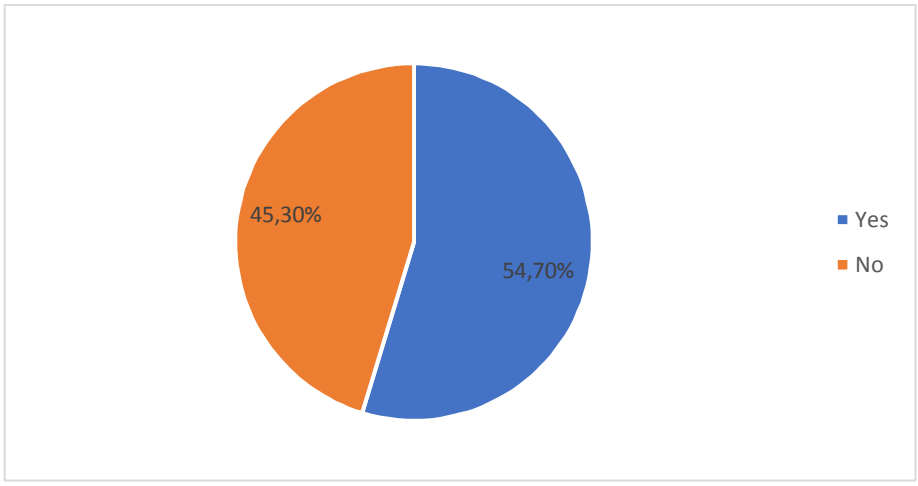

Figure 31 – Benefit of Combat Experience for a CI Enterprise (Institution, Organisation) Managers

Among the reasons, the respondents named the following: experience in critical situations; traumatized psyche; a new perspective on problems; new experience, patriotism; will see the problems of the organization from a different angle; organization, responsibility; the level of responsibility increases; determination, organization and courage are cultivated; initiative and organization are shown; revaluation of values; fosters mutual assistance and quick decision-making; the manager may get a mental disorder and his work capacity will drop; change of values; ability to work in noise; participation in hostilities is necessary for high-ranking company managers; it is not people who return from the war, but their dark copy that has seen death, and this changes a person not for the better; PTSD was not reversed; understanding what is happening around and how important the institution is; did not think; "as the head of the enterprise is a generator of increasing money to the budget, which has a positive effect on the provision of our soldiers, and if all good specialists are sent to the front, who will provide for the economic front?"; cohesion, discipline, emotional stability, leadership; other values; war affects a person psychologically, a person can think differently and treat his business not seriously; because our company belongs to critical infrastructure facilities and must work, and this is possible only in the presence of experienced management and its direct participation in affairs, etc.

We have received the following responses regarding the effectiveness of effectively replacing the CI enterprises (institutions, organizations) managers: a year, a month, six months, a week, promptly, only if there is a good replacement; almost impossible; it is a long process; must have experience in CI; I consider it unlikely only if a specialist; quickly, because there are many people with experience in construction; not quickly, because work experience is required; in a few days; operationally impossible; heavily; per month-2; it takes time, at least 3 months, or even half a year, for a person to understand everything that is happening at the enterprise and calculate a plan of action for the future; it takes a long time to effectively change; depends on conditions; the speed of replacement depends on the availability of candidates and resources for searching and evaluating candidates, and if the company has internal candidates, this can simplify the process; it is possible to quickly replace the managers of the enterprise (institution, organization) of the CI only if there is a ready candidate who has all the necessary qualities and experience for this position, and if there is no such candidate, then the replacement of the manager can take a considerable time; in general, the efficiency of replacing a manager can vary significantly, and it requires a comprehensive approach that takes into account the specific conditions and needs of the organization; the replacement of the manager may require a monitoring and evaluation system to ensure the effectiveness of the new management; 1-3 years, etc.

According to the respondents, the personnel reserve should include: students and trainees; deputies; difficult to answer; specialists with related specialities; qualified specialists; women; those with more practical experience and higher education; the talent pool includes employees of the organisation who have the potential and ambition to take up higher positions in the future; veterans; some positions that will become vacant in the near future and require specific training of candidates; young employees; trainees; leaders and middle managers; employees from other departments, etc.

The following answer was quite interesting: “High level of professional training. This means that employees have the necessary knowledge, skills and experience to perform the duties of a managerial position.mLeadership skills. This means that employees have the ability to coordinate the work of other employees, make decisions and solve problems. Motivation for career growth. This means that employees are eager to improve their skills and obtain more responsible positions.”

According to 80.3% of the respondents, at the time of the survey, there were up to 30% of vacant positions at the CFCs where they work 31 – 49%% – 5.7%, 50% and above – 1.6%. Other answers made up 12.4% (Figure 32).

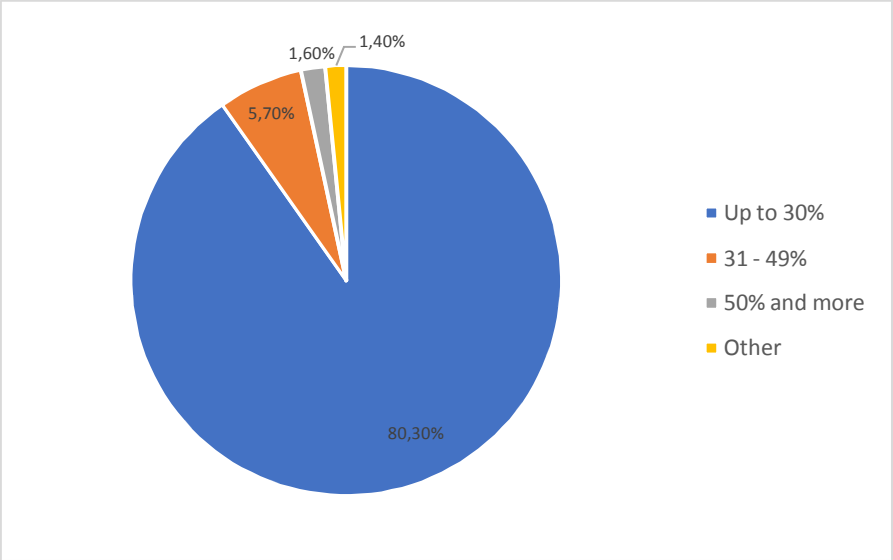

Figure 32 – Percentage of Vacant Positions at OCI during the Survey

When asked about the percentage of combatants who have returned to their professional duties, we have received the following answers: up to 30% – 52.2%; 31% – 49% – 7.8%; 50% and more – 12.2%, other options – 27.8% (Figure 33).

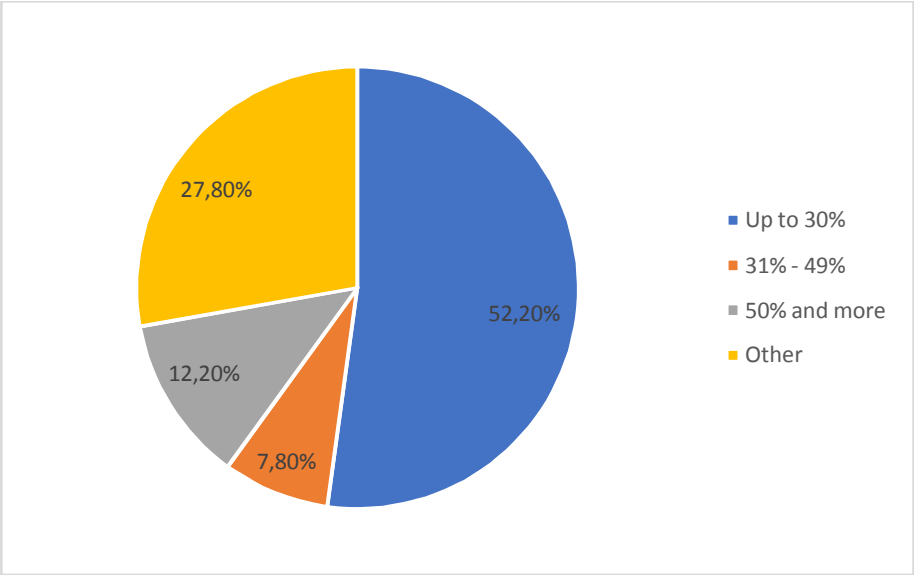

Figure 33 – Percentage of Combat Veterans Who Have Returned to Perform Their Professional Duties

As we can see, a fairly small proportion of combatants have returned to their professional duties (52.2%).

Influencing factors. The aim of this section of the survey was to identify the factors that influence the security-oriented management of CI during martial law.

Thus, among the environmental factors that affect performance, respondents identified the following: weather, war, anxiety, war, air raids, deadlines, increased demands from the team, economic instability, temperature, humidity, noise, technological progress, natural disasters and crises, demographic changes, competition, finance, salary, inflation, society and communication events, quality of Internet connection, and access to data.

During the survey, the respondents rated their stress level from 1 to 10 (1 – the psychological state is normal and allows you to perform professional tasks .... 10 – the psychological state is disturbing and does not allow you to perform professional tasks in full. We received the following data: 1 – 12 %, 2 – 8.7%, 3 – 9.8%, 4 – 11.5%, 5 – 24%, 6 – 7.7%, 7 – 8.2%, 8 – 8.2%, 9 – 2.7%, 10 – 7.1% (Fig. 32). (Fig. 34).

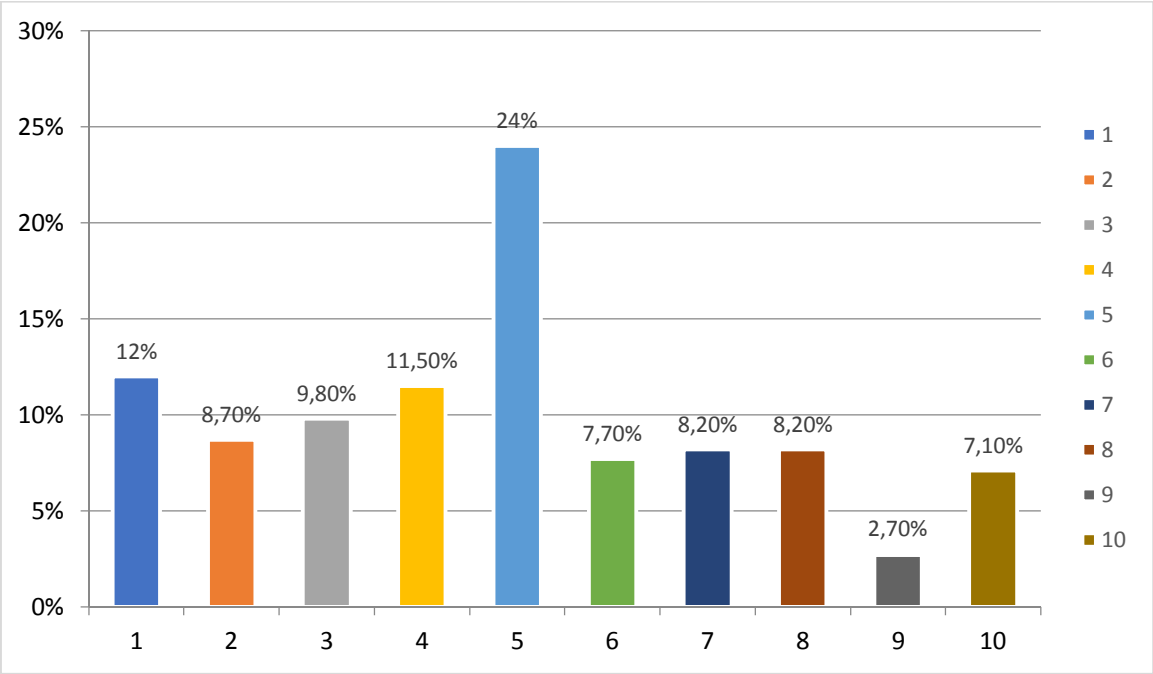

Figure 34 – The Respondents' Stress Level

Thus, as we can see, the stress level of the majority of respondents is at an average level (24%). For those with a stress level of 6-10, it is not recommended to work, because their mental state affects the quality of work. Respondents with a high level of stress are recommended to seek psychological help.

42% of respondents indicated that their OCI had internal organisational documents that provide for the possibility of staff exchange with similar OCI (Figure 35)

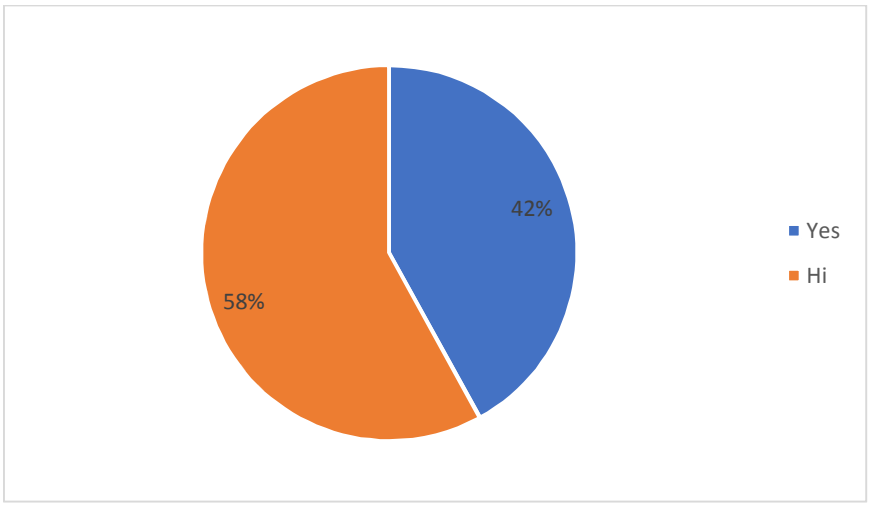

Figure 35 – Whether the Internal Organisational and Administrative Documents Provide for the Possibility of Staff Exchange with Similar OCI

We asked the respondents who answered "Yes" to the previous question to describe such a situation if it occurred. We have received the following answers: transfer of team leaders to train less experienced workers, an employee from another organisation came in, managers negotiate with the employee, no examples from personal experience, we take orders, we take a part of the earnings, we find a new office.

65.5% of the respondents indicated that their CI enterprise had implemented a quality system (Fig. 36).

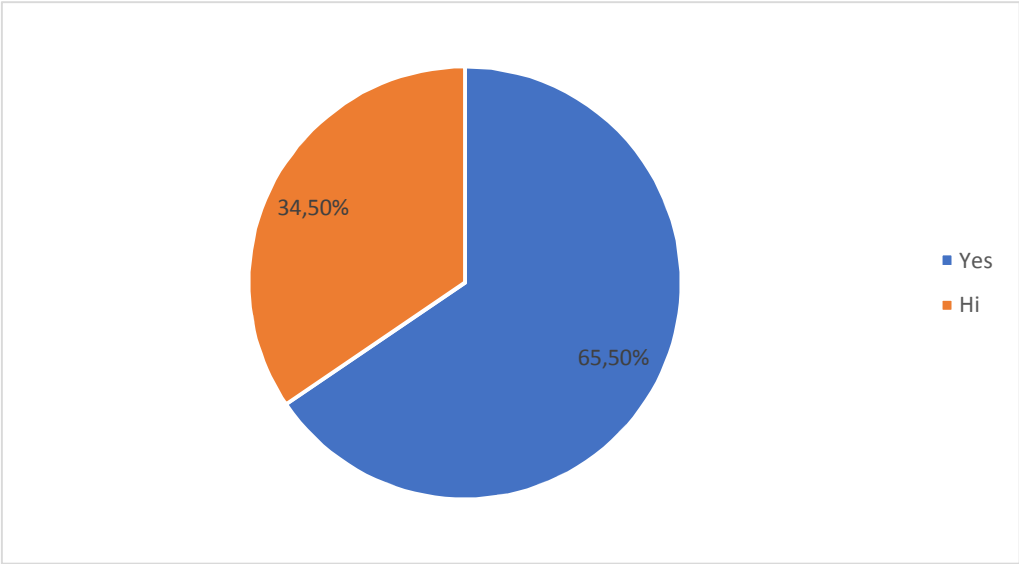

Figure 36 – A Quality System Implementation at CI Enterprises

Among the standards of the quality control system at the CCI, the respondents named the following: ISO 9001, international; don't know; none; monitoring of NHSU reports, monthly monitoring of implementation of approved plans, discussion of problematic issues at meetings; SO17025, fssc22000, etc. and; standards established at the enterprise (according to the current legislation); SOPs, checklists; Fssc 22000, iso17025, iso 22000, iso 9001; ISO 9001:2015 is an international standard that defines requirements for quality management systems; ISO 14001:2015 is an international standard that defines requirements for environmental management systems; OHSAS 18001:2007 is an international standard that defines requirements for occupational health and safety management systems.

The following answers were given to the question of whether the quality of the company's activities had changed: yes; insignificantly; not much; we are working on it every day; it has deteriorated; it has not changed, everything is functioning; yes, because of the constant shelling by Russians; yes, they are not responsible for their work, they try to break the law to make some dirty money.

Among the most likely risks of implementing CI activities by an enterprise, respondents named the following: war; hostilities; economic risks; staff turnover; bureaucracy; financial risks; excessive interference from regulatory authorities; education reform; transport; natural risks; unwillingness of young people to stay in rural areas, lack of doctors and nurses in some villages, aging of the team, professional burnout; inability to sell goods or services; responding to changes in the sales market; consumers not paying utility bills on time; illness/piracy/mobilisation; cybersecurity; not training existing employees to improve the quality of work and services, which in turn prevents them from accepting and serving more people; without stable operations, there will be a major slowdown in the financial sector of the state; Instability of technology platforms. CI technologies are developing very quickly, and there is a risk that the platforms used will become outdated or not meet market requirements. Insufficient staff qualifications. Highly qualified personnel are required to develop and use AI technologies. Lack of such personnel may lead to a decrease in the quality of products and services provided by the company; high competition, finding good advertising, showing ourselves to be better than others; technological risks (instability of technological platforms; insufficient qualification of personnel).

Conclusions

Working in the current conditions for Ukrainian enterprises, especially of critical infrastructure, is a difficult test. During martial law, organizations mostly change their management and administration style to a more flexible one, which helps to overcome the challenges of time, make appropriate management decisions and quickly respond to the changing situation.

Important for enterprises in the current environment are the urgent problems of introducing rapid changes, regarding classic personnel management systems and the introduction of the latest management models, strategies and goals, which are aimed at preserving and developing the potential of personnel support of enterprises

The problem of the administration of enterprises personnel, and especially of critical infrastructure, is relevant not only for the objects of CI of Ukraine, but also for any modern enterprise. When carrying out personnel planning of CI objects in the conditions of martial law, it is advisable to reconsider the relationship to the personnel policy in order to preserve the composition and number of personnel, as well as to maintain the productivity of employees and their motivation. It is necessary for this to change the strategy of administration of the personnel potential of the enterprise, as well as the influence of factors of the external environment

The purpose of this study was to analyze the influence of environmental factors on the personnel of enterprises and organizations of critical infrastructure based on safety-oriented management and to build a methodology for the exchange of personnel in order to improve the quality of work, maintain stress resistance and a certain level. risk and security of enterprises.

In accordance with the goal, the task of the research was determined: identification of the main challenges that the war poses to territorial communities in Ukraine; identification of important opportunities for improving the work of communities and state ownership of enterprises that arose during and after the war in Ukraine; identifying mechanisms that can be used and best practices that can be developed to exploit these capabilities.

During the research, it was found that the quantitative composition of the enterprise changed during the period of the COVID-19 pandemic and military operations. With regard to managerial positions by gender, women up to 49% – 52.4%, 50% and above – 41.5%.

According to the survey data, 80.3% of respondents noted that at the time of the survey, up to 30% of vacant positions were at OKI, where they work 31 – 49%% – 5.7%, 50% and above – 1.6%. Other answer options – 12.4%.

With regard to the percentage of combatants who returned to their professional duties, we received the following answers: up to 30% – 52.2%; 31% – 49% – 7.8%; 50% and more – 12.2%, other options – 27.8%.

During the survey, the respondents rated their stress level from 1 to 10 (1 – the psychological state is normal and allows you to perform professional tasks .... 10 – the psychological state is disturbing and does not allow you to perform professional tasks in full. We received the following data: 1 – 12 %, 2 – 8.7%, 3 – 9.8%, 4 – 11.5%, 5 – 24%, 6 – 7.7%, 7 – 8.2%, 8 – 8.2%, 9 – 2.7%, 10 – 7.1%. For those with a stress level of 6 – 10, it is not recommended to work, because their mental state affects the quality of work. We recommended that respondents with a high level of stress seek psychological help.

Respondents named the following among the most likely risks of the implementation of activities by the CI enterprise: war; hostilities; economic risks; personnel turnover; bureaucracy; financial risks; excessive interference by regulatory bodies, etc.

Therefore, the results of the study are unique for forecasting the development of enterprises and institutions of other countries in conditions of an unstable external environment. A feature of the study was the impossibility of operational expansion of the staff of critical infrastructure enterprises.

The main outcome identified in the study is considered the complexity of forming a personnel reserve in conditions of a pandemic and military time. Under these circumstances, the driving force behind personnel changes is the system of qualification improvement and the formation of reserves from within the employees. The research confirmed the technical feasibility of career advancement in 82.7% of the respondents. The necessity for training and the willingness of employees of critical infrastructure enterprises to undergo qualification improvement were demonstrated by 86.2% of the respondents. Among them, 66.5% of respondents indicated the need for qualification improvement (certification/attestation), while 19.7% noted that they require it and, for this purpose, it is necessary to obtain higher education (second higher education). Thus, there are prerequisites for further research into the issues of improving the qualifications of employees of critical infrastructure enterprises, creating training centers, and establishing special agreements regarding dual education.

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Appendix

Appendix 1

Personnel Administration of the Critical Infrastructure Enterprises and Organizations in the Context of Pandemic and Martial Law

Completing the questionnaire implies consent to the processing of personal data and survey results under confidentiality conditions.

I. The Respondent's Identification

(aim: to determine whether the respondent can provide relevant information)

1. Do you consent to the processing of personal data and survey results?*

- Yes;
- Other

2. What is your age?

- до 20
- 20-25 years old
- 26-30 years old
- 31 – 40 years old
- 41-50 years old
- 51 – 60 years old
- more than 60 years old

3. What is your gender:

- male
- female

4. At the time of the survey, you are:

- A citizen of Ukraine
- Your option:

5. What is your education:

- complete general secondary education
- Professional (vocational) education
- Special pre-higher education
- Higher education
- I have a scientific degree

6. Your professional activity corresponds to the direction of your education:

- Yes
- No

7. Do you have the status of the Antiterrorist Operation participant?:

- Yes
- No

8. Are you one of the persons subject to the Law of Ukraine "On Prevention of Corruption"?:

- Yes
- No

9. Does your workplace belong to critical infrastructure facilities?

- Yes
- No

10. What is the type of your employment

- employed on a full or part-time basis (week) at enterprises, institutions, organizations, regardless of ownership, in international and foreign organizations in Ukraine and abroad;
- the citizens who independently provide themselves with work, including entrepreneurs, individuals engaged in individual labor activity, creative activity, members of cooperatives, farmers and members of their families involved in production
- elected, appointed or approved for a paid position in public authorities, management or public associations;
- citizens who serve in the Armed Forces, border, internal, railway troops, national security and internal affairs bodies;
- persons undergoing professional training, retraining and advanced training with separation from production; who study in day secondary schools, secondary special and higher educational institutions;

- engaged in raising children, caring for the sick, disabled and elderly citizens;
- working citizens of other countries who are temporarily in Ukraine and perform functions not related to ensuring the activities of embassies and missions.

II. Field of Activity at Organizations of Critical Infrastructure (hereinafter OCI) and Level of Satisfaction

(aim: to establish how much the respondent is interested in keeping his/her job (possible shortage of personnel due to dissatisfaction with working conditions))

11. What is your job position or field of professional activity? Do you consider yourself to be a management level official?

- _____

12. Your work experience (or cooperation) at a critical infrastructure facility:

- Up to 5 years
- More than 5 years

13. Did you have work experience at another company?

- Yes
- No

14. Did you take additional educational measures (advanced training)?

- Yes
- No

15. Are you satisfied with the working conditions at OCI?

- Yes
- No

16. Do you have a source of additional income?

- Yes
- No

17. Are you ready to change your workplace?

- Yes, I have several offers;
- No, everything satisfies me;
- My specialization does not allow me to quickly change the workplace of, but I am monitoring

18. Do you have an opportunity for career growth?

- Yes;
- No, everything satisfies me;
- My specialization does not allow me to quickly change the workplace of, but I am monitoring

19. When was the last time you underwent advanced training?

- Yes;
- No, everything satisfies me;
- My specialization does not allow me to quickly change the workplace of, but I am monitoring

III. Career development

(aim: to determine how motivated and ready the respondent is for career growth)

20. Do you have an opportunity for career growth at this or another OCI enterprise?

- Yes, I count on it;
- Yes, but as a temporary acting agent;
- No.

21. Do you need additional education (advanced training) for further career growth?

- Yes, advanced training (certification/attestation);

- Yes, it is necessary to obtain a higher education (second higher education) for this;
- No

22. When was the last time you underwent advanced training?

- In the current year;
- Last year;
- During the last 5 years, received a level of higher education sufficient for the position held and further career growth;
- Your option _____

23. DOES your enterprise (organization) provide systematic continuous professional development?

- Yes, every year we submit a plan for professional development;
- Yes, but from 2020 (the time of the pandemic and martial law) advanced training is not carried out;
- No
- Your option_____

IV Vacancies replacement

(aim: to determine how much the procedure for vacancies replacement has changed since the introduction of martial law)

24. The need for OCI personnel can be covered by:

- Specialists from outside
- Own personnel
- Your answer _____

25. On the condition that the vacancy is closed by your own personnel, you will propose using the following educational measures:

- Obtaining a new education
- Career advancement
- Practical internship
- Short-term thematic educational activities
- Your answer _____

26. On the condition that the vacancy is closed by specialists from the outside, you will propose the use of the following educational measures:

- Obtaining a new education
- Career advancement
- Practical internship
- Short-term thematic educational activities
- Your answer _____

27. What is the percentage of personnel turnover?

- Up to 20%
- 20-30%
- 20-50%
- More than 50%

28. In your opinion, where do the personnel go and what is the motive for dismissal?

Your answer _____

29. How important is the problem for OCI when a specialist, having received education (advanced training, completed valuable training), is fired at the expense of the enterprise (organization) (assign a rank from 1 to 10: 1 – not relevant, 10 – a very serious problem):

Your answer _____

30. What is most often the reason for a vacant position appearance:

Your answer _____

31. WERE there any changes in the OCI management during the pandemic (2020-2021)?

- Yes;
- No

32. HAVE there been any changes in the OCI management since the martial law introduction?

- Yes;
- No

33. What is the percentage of women in management positions of the enterprise (organization/institution) where you work?

Your answer _____

34. Has management team structure changed based on gender during martial law? Why do you think?

- Yes;
- No

35. Why do you think?

Your answer _____

36. In your opinion, is the experience of participating in military operations useful for the heads of enterprises (institutions, organizations) of the CI?

- Yes;
- No

37. Why?

Your answer _____

38. How quickly do you think it is possible to effectively replace the heads of enterprises (institutions, organizations) of the CI?

Your answer _____

39. Who do you think will be part of the personnel reserve?

Your answer _____

40. At the time of the survey, what percentage of vacant positions are there at the OCI, where you work?

Your answer _____

41. What percentage of combatants has returned to professional duties?

Your answer _____

V.

(aim: to establish influencing factors on security-oriented management of the OCI during martial law)

42. What environmental factors affect your work capacity?

Your answer _____

43. Rate your stress level from 1 to 10 (1 – psycho-emotional exhaustion, under the influence of which you cannot perform your professional tasks in a disciplined manner .... 10 is the psychological state normal and allows you to perform professional tasks?

Your answer _____

44. Does the internal organizational and administrative documents provide for the possibility of mutual exchange of personnel with similar OKIs?

- Yes;
- No

45. If such a situation occurred, describe it:

Your answer _____

46. Has a quality system been implemented at your CI enterprise?

- Yes;
- No

47. Specify by what standards does the quality control system operate at OKI?

Your answer _____

48. In your opinion, has the quality of the CI enterprise's activity changed?

Your answer _____

49. Name the most likely risks of conducting activities by the CI enterprise

Your answer _____