

Article

Mitigating Risks for Effective Personnel Management in the Organization of the Energy Sector due to the COVID-19 Pandemic

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Abstract: One of the three most important components of the effective work of an organization or enterprise in the energy sector is properly organized staff work. Thus, all the risks arising in this process should be given proper consideration. Conventional methods can hardly be of any assistance, which is why this paper proposes the innovative rapidly adaptive model for the evaluation of existing risks and the forecasting of emerging ones due to the COVID-19 pandemic in modern personnel management. The model employs a probability theory and applies it to four major risk groups, which are related to many factors. It also describes the methods of mitigating these risks. This made it possible to improve personnel management efficiency, thus offsetting the adverse consequences of the COVID-19 pandemic.

Keywords: effectiveness; human resource management; human resource systems; COVID-19; model; organization; pandemic; personnel management; risk; staff



Citation: Podolchak, N.; Martyniuk, V.; Tsygulyk, N.; Skowron, S.; Wołowiec, T. Mitigating Risks for Effective Personnel Management in the Organization of the Energy Sector due to the COVID-19 Pandemic. *Sustainability* **2022**, *14*, 10055. <https://doi.org/10.3390/su141610055>

Academic Editor: Lucian-Ionel Cioca

Received: 13 July 2022

Accepted: 12 August 2022

Published: 14 August 2022

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1. Introduction

The eighth global goal of sustainable development is to ensure decent work and economic growth by 2030. Economic growth primarily depends on the success of enterprises and organizations in important sectors of the economy [1–5]. The success of enterprises is measured by the amount of profits received, whereas the number of goals and objectives met indicates success for non-profit organizations [6]. The authors of the work [7] showed that the most dangerous issues facing sustainable development are the risks associated with the sphere of work and the health of the population. The authors built a model of the concentration of social risks that affect sustainable development. However, risks related to staff were not considered in detail. Today, it is widely understood that all of them, in turn, directly depend on skillful personnel management. It is this line of business, along with an adequately developed strategy and proper work with consumers, that form the basis for everything else [6,8].

Today, the concept of personnel management includes the following areas of work within human resources:

1. Planning.
2. Formation.
3. Redistribution.
4. Rational use.

Developing a loyal attitude to the company, which is based on the nurturing of internal corporate culture and suppression of negativity in cases of dismissal can be considered a separate application area. Moreover, all areas of staffing are not separate, but interconnected, creating a personnel management system. When using such a system of personnel management, a synergistic effect is achieved, which significantly exceeds the usual total effect [9].

In the process of the organization's activities, especially in difficult conditions, risks are created that threaten its financial and economic security [2,4,5]. In order to reduce their consequences or their full level, these risks should be predicted and assessed in time. This is especially important for organizations that work in important sectors of a country's economy and provide normal living conditions for the population. Therefore, the purpose of the article is to propose an innovative fast-adaptive model for assessing existing risks and forecasting new ones arising as a result of the COVID-19 pandemic in modern personnel management in the organization of the energy sector.

To achieve this goal, the following tasks were set:

1. To propose a list of risks that may arise in personnel management in the organization of energy sector.
2. To build an innovative rapidly adaptive model for the evaluation of existing risks and forecasting of emerging ones due to the COVID-19 pandemic in modern personnel management.
3. To use the developed model to estimate the total risk associated with personnel management in the organization of energy sector.

The set goal is also conditioned by the lack of tools for adequate assessment of rapidly changing risks that arise as a result of complex conditions, in particular, a pandemic. After all, in the works related to the study of the impact of the pandemic on the activities of the organization, new strategies for personnel management system, risk management strategies, and risks of COVID-19 infection were considered. At the same time, the assessment of existing risks and forecasting the emergence of new ones in connection with the COVID-19 pandemic in personnel management was not considered. This direction is very important for the correct choice of risk-mitigation strategy.

In the article [10], the authors developed a conceptual framework for a human resources management strategy based on data from the literature to combat the COVID-19 pandemic. It was based on flexibility, strengthening internal efficiency, attracting talent, and implementing innovative changes based on organizational assessment, and is necessary for uninterrupted business operations. However, the effects of risks were not taken into account.

The authors of the works [6,10–13] established that in the context of the global COVID-19 pandemic, the risks facing the effective functioning of the personnel management system increase significantly as organizations and enterprises operate in conditions of high uncertainty. The authors of the works [1,14] emphasized that the risks in personnel activities are dominant among all other risks, and the risks of the effective functioning of the personnel management system are particularly sensitive to the influence of even minor factors. The impact of COVID-19 on personnel safety indicators was considered in detail in the work [14]. This work also built a model for assessing the level of personnel security during difficult conditions. However, all risks affecting the organization's personnel were not taken into account. Considerable attention was paid to personnel turnover, including personnel losses due to morbidity and mortality.

It should be noted that models that assess the risk of infecting personnel in the workplace [12], as well as the overall risks to businesses during the COVID-19 pandemic, have already been developed [15]. There are descriptive works on the impact of the pandemic on staff work [6,16–21]. However, there are no models that take into account all risk groups in personnel management, so the goal was to build a highly adaptive, high-precision model for assessing existing risks and forecasting new ones in personnel management, taking into account all risks arising in the workflow.

Given the need for not only the rapid but also correct prediction of these risks, we have developed a highly adaptive model for assessing existing risks and predicting the emergence of new ones in personnel management [6].

2. Materials and Methods

The Delphi expert assessment method was used to create a list of risks that may arise in personnel management (personnel risks). The experts were 6 doctors of economic sciences and 4 associate professors—employees of higher educational institutions in Poland and Ukraine. Each of them made an individual assessment of the table with lists of risks in personnel management formed by the authors. This table was created by the authors of this study based on a review of literary sources with the possibility of adding factors that affect the level of personnel security. At the same time, the suggestion was made to evaluate the influence of factors on personnel risks on a scale from 0 to 1, with 0—showing influence, 1—very strong influence. To determine a single list of risks, which is ensured by personnel management according to experts' assessments, the arithmetic mean method, taking into account the weighting factor, is used. For a doctor of economic sciences, the weighting factor was 2, and for an associate professor it was 1. Acceptability of the expressed opinions was achieved by evaluations with repeated clarifications, which were carried out 5 times until a consensus of experts was reached. At the same time, the degree of unanimity of experts was 5, which confirms the high accuracy of the obtained results.

For building a model for forecasting and assessing the risks associated with personnel management, the methods of scientific analysis, logical synthesis, scientific abstraction, and generalization were used. The results of expert assessments using the Delphi method were taken as a list of risks that arise in personnel management. Dialectical and formal-logical methods were used to interpret the results.

The assessment of the total risk associated with personnel management was carried out in an energy sector organization with a medium-sized vertical linear organizational structure with 210 employees.

3. Results

Using the method of expert assessments, it was established that all risks related to personnel management can be divided into 4 groups:

1. Wrong choice of personnel policy.
2. Poor selection of staff.
3. Improperly designed staff motivation system.
4. Insufficient protection of information that is unacceptable for dissemination.

Risks associated with the wrong choice of personnel policy include risks associated with unreasonable prioritization of personnel management strategies. They are usually related to internal factors, namely:

1. Erroneous assessment of short-term and long-term plans for the implementation of development strategy by top managers.
2. Incorrectly assessed prospects for the development of the organization or incorrect assessment of its financial condition and capabilities.
3. Selected management style.
4. Inclusion in the personnel policy of those areas of activity that are unfeasible or ineffective at this stage of the life cycle of the organization due to certain reasons.

When developing the model, the condition was used that all random risks constitute a single set of risks in each subgroup. In this case, each risk is random and is characterized by a mathematical expectation and standard deviation, i.e., the degree of deviation from the expected value. Each risk is characterized by the event that causes this risk, the probability of the risk, and the consequences that this risk can cause (Figure 1).

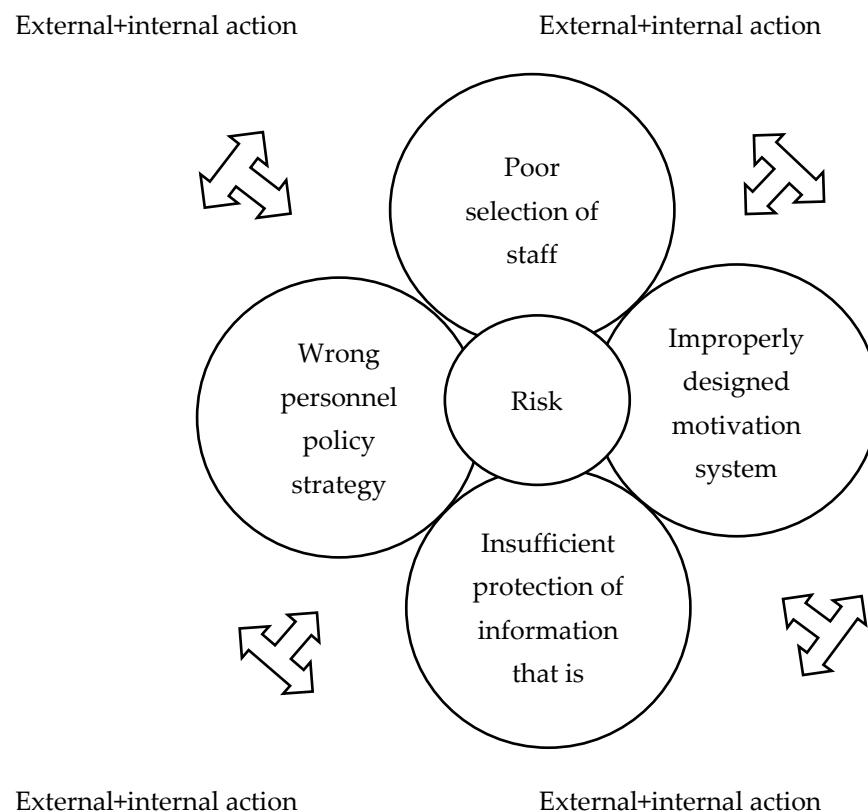


Figure 1. A scheme for developing a model for forecasting and assessing the risks associated with personnel management. Source: Compiled by the authors.

According to our model, the expert assesses all the risks that may arise using Table 1 and puts them in a set or a matrix of risks ($X_1, X_2, X_3, \dots, X_n$) for each of the four risk groups. Risks have the property of additivity. In this case, the expert assessment of risk probability is estimated by a dimensionless value from 0 to 1, taking into account similar cases or expert judgment. It should be noted that the expert must have sufficient practical experience in qualitative risk assessment.

To simplify the work of the expert, each group of risks in Table 1 is divided into subgroups, according to risk assessment. Each of these subgroups is affected by external and internal factors, and the risks themselves are accidental or non-accidental. When calculating the proposed model, it is necessary to take into account that the action of one factor can cause a chain reaction resulting in additional risks. While internal risk factors can be managed, the external ones are management-exempt. These external risk factors are the key to determining the degree of risk. It should be noted that when unforeseen situations occur, such as, for example, the outbreak of the COVID-19 pandemic, this unforeseen factor adds additional risks to all the already-existing risks. This results, in particular, in additional staff losses due to increased staff turnover, or a possible sharp change both in the vector of the organization's development and its rate. The effects of COVID-19, according to our model, belong to external risks, thus directly affecting the first group of risks and having an indirect influence on the second and third groups.

When working with the model, it is necessary to impartially identify existing risks from the proposed list, assess the level of their threat, and, following the recommendations, develop methods for their reduction or offsetting.

Table 1. A list of risks that may arise in personnel management.

Risk Group	Risks	Maximum Frequency of Occurrence (from 0 to 1)	Action Needed to Eliminate or Offset
Wrong choice of personnel policy	Incorrect assessment of short-term and long-term plans for the implementation of development strategy by top managers	quite often 0.75	Monitoring and regulation of short-term and long-term plans for the implementation of development strategy by at least 3 experts
	Incorrectly assessed prospects for the development of the organization or (incorrectly assessed) its financial condition and capabilities	quite often 0.75	Continuous monitoring of the financial condition of the organization by at least 3 experts. Monthly assessment of the organization development prospects by at least 3 experts. Under adverse circumstances the assessment is done every 2 weeks
	Inappropriate management style (autocratic, democratic, liberal)	often 0.5	Uniform management style which is adopted at the meetings of top managers of the organization, depending on the goals and stage of the life cycle of the organization. When the situation changes, the management style is reviewed at the meeting of top managers.
	Inclusion in the personnel policy of those areas of activity that are, due to certain reasons, unfeasible or ineffective at this stage of the life cycle of the organization	quite often 0.75	Involvement of at least 3 experts in the selection of new areas of activity.
Poor selection of staff	Lack of professionalism of the organization's recruiter	often 0.5	Evaluate the recruiter's efficiency once a month or less if necessary.
	Lack of professionalism of the employment agency staff	often 0.5	Evaluate the effectiveness of the employment agency personnel once a month or less, depending on the need.
Improperly designed staff motivation system	Motivation system is established without taking into account the employees' system of values	often 0.5	Involvement of highly qualified HR managers in the development of the motivation system.
	Unfair motivation system	quite often 0.75	Involvement of highly qualified HR managers in the development of the motivation system. Review of the motivation system for each employee at least once a year.
	Low-quality motivation system	often 0.5	Involvement of highly qualified HR managers in the development of the motivation system.
	Insufficient motivation compared to major competitors	less often 0.25	Involvement of highly qualified HR managers in the development of the motivation system. Continuous monitoring of the situation with motivation in the industry.
Insufficient protection of information that is unacceptable for dissemination	Lack of a precise system of information protection	often 0.5	Establishment of an organizational department that deals with the protection of information that constitutes a trade secret
	Lack of clearly identified information that is subject to protection against disclosure	quite often 0.75	Establishment of an organizational department that deals with the protection of information that constitutes a trade secret

Source: Compiled by the authors.

Based on the results of the expert's assessment of the risks that may arise, the amount of damage is estimated. The amount of damage is a random variable and is calculated as a general distribution function:

$$F(x) = \sum_{i=1}^n P(X_i < x) \cdot f(y), \quad i = 1, 2, \dots, n \quad (1)$$

where x is a real number; $P(X < x)$ is the probability of accidental risk ($X < x$), X is the magnitude of the risk, $f(y)$ —estimated income from activities.

Since the distribution function is arbitrary, the problem is reduced to being nonparametric.

Using the central limit theorem of probability theory, the nonparametric lower confidence limit for mathematical expectation is the mean value of a random risk, which is calculated taking into account the probability of each of its values, and in our case is written as follows:

$$\bar{X} - U(p)s_0/n^{1/2}, \quad (2)$$

where $\bar{X}$ —selective arithmetic mean;

p is the confidence probability (the true value of the mathematical expectation is between the lower confidence limit and the upper confidence limit with a probability that is equal to the confidence probability);

$U(p)$ in model is a number given by the equality $\Phi(U(p)) = (1 + p)/2$, where $\Phi(x)$ is a function of the standard normal distribution with mathematical expectation 0 and variance 1. s_0 is the sample standard deviation.

The nonparametric upper confidence limit for mathematical expectation appears as follows:

$$\bar{X} + U(p)s_0/n^{1/2}, \quad (3)$$

It should be noted that the mathematical expectation of a random variable contains quite significant but incomplete information about the random variable of risk. While informing about the mean value of a random risk, it does not provide any information on the parameter spread of random values of risk relative to this mean. A variance was used to estimate these values. A point estimate of the variance is a sample variance. Confidence limits are found by the formula:

$$d_i^2 = \frac{m_i - ((n-1)/n^i \cdot s^i)}{n}, \quad (4)$$

where m_i is the sample i -th central moment, which is calculated as:

$$m_i = ((X_1 - \bar{X})^i + (X_2 - \bar{X})^i + \dots + (X_n - \bar{X})^i)/n \quad (5)$$

The lower confidence limit for the variance of a random variable is as follows:

$$s_0^2 - U(p)d, \quad (6)$$

where s_0^2 —selective variance;

$U(p)$ is the quantile of the normal order distribution $(1 + p)/2$;

d —square root of d_i^2 .

The upper confidence limit for the variance of a random variable appears as follows:

$$s_0^2 + U(p)d. \quad (7)$$

The point estimate is the sample standard deviation. The variance of the random variable, which is the selected standard deviation s_0 , is estimated in our model as a fraction:

$$d^2/4s_0^2 \quad (8)$$

The lower confidence limit for the standard deviation of the initial random variable is presented as:

$$s_0 - U(p)d/2s_0 \quad (9)$$

where s_0^2 —selective variance;

$U(p)$ is the quantile of the normal order distribution $(1 + p)/2$;

d —square root of d_i^2 [8].

The upper confidence limit for the standard deviation of the initial random variable appears as follows:

$$s_0 + U(p)d/2s_0, \quad (10)$$

The application of such an approach enabled us to make the model rapidly adaptable and accurate due to the application of the probability theory approach, further allowing us to take the risks that clearly affect the organization's activities as a basis, as they were determined by experts. In addition, the model takes into account the influence of each risk, which increases the accuracy of forecasting, which is a positive difference from other models, which were also based on the theory of probability. An additional feature of the built model is the overlay of the upper and lower confidence limit for the variance of a random variable appearing, which also increases the accuracy of forecasting.

The proposed model evaluated the total risk associated with personnel management in the organization of energy sector. The expert assessment of all risks in personnel management in the organization of the energy company is presented in Table 2.

Table 2. Expert assessment of all risks that arise in personnel management in the organization of the energy company during the COVID-19 pandemic.

Risk Group	Risks	Risk Magnitude from 0 to 1	Action Needed to Eliminate or Offset
Wrong personnel policy strategy	Incorrect assessment of the seriousness of the COVID-19 pandemic's impact on the implementation of short-term and long-term plans for development strategy by top managers	0.25	Monitoring and regulation of short-term and long-term plans, depending on the situation, i.e., the development of the pandemic, by at least 3 experts: the Director of Strategic Development, the Head of the Human Resources Department, and the Personnel Manager
	Incorrectly assessed prospects for the development of the organization under the influence of the COVID-19 pandemic or incorrect assessment of its financial condition and capabilities	0.4	Continuous monitoring of the financial condition of the organization by at least 3 experts once a month: Head of Accounting, Director of Strategic Development, and Head of Marketing. Under adverse circumstances, the assessment should be performed every 2 weeks.
	Inappropriate management style (autocratic, democratic, liberal)	0.6	The management style in the organization must be autocratic.
	Inclusion in the personnel policy of those areas of activity that, due to the COVID-19 pandemic, are not feasible or are ineffective at this stage of the organization's life cycle	0.6	Involvement of at least 3 experts in the selection of new areas or options for action, as the COVID-19 pandemic imposed extra difficulties on the situation prediction process, thus forcing the administration to postpone a lot of pre-planned activities or conduct them online.

Table 2. Cont.

Risk Group	Risks	Risk Magnitude from 0 to 1	Action Needed to Eliminate or Offset
Poor selection of staff	Lack of professionalism of the organization's recruiter or the need for recruitment in a very limited time	0.2	Since the recruitment process in this organization is organized at a high level, the COVID-19 pandemic-caused risk can occur only if the majority of the personnel department employees or those responsible for peopleware become ill. Therefore, it is necessary to possibly fully automate all personnel selection and personnel management processes. It should be noted that extensive work is being done in this direction.
	Company's motivation system has been unreasonably established without taking into account the employees' systems of values	0.2	It is necessary to speed up the development of the corporate culture. Work in this direction is underway; however, there is a risk that the COVID-19 pandemic might somewhat hinder it.
Improperly designed staff motivation system	Unfair motivation system	0.3	Due to the large number of employees, there may be situations regarding the fair distribution of premiums and bonuses. To reduce this risk, it is necessary to inform staff about the results of work even more widely.
	Low-quality motivation system	0.3	It is necessary to expand the system of motivation by adding a non-material component to it. For this purpose, highly qualified HR managers should be involved in the development of the motivation system.
	Insufficient motivation compared to major competitors	0.3	Since this organization is private and is located in Lviv, where salaries and overall material incentives are not higher, it naturally has less opportunities in this area. However, the involvement of highly qualified and efficient HR managers with proper skills in the motivation system improvement process can make it possible to reinforce material incentives with nonfinancial ones. In any case, the situation with motivation in the industry should be constantly monitored.
Insufficient protection of information that is unacceptable for dissemination	Lack of a clear system of information protection	0.1	The organization has a department that effectively protects information, so the risks are minimal.
	Lack of clearly identified information that is subject to protection against disclosure	0.1	The organization has a department that effectively protects information, so the risks are minimal.
High staff turnover due to the COVID-19 pandemic	A high percentage of seriously ill workers	0.1	Protective screens are installed in every department, staff work in masks, and vaccination is constantly carried out, all of which minimize the risks at this stage of the pandemic.

Source: Compiled by the authors.

Based on the results of an expert assessment of the risks that may arise, the amount of damages has been determined. It amounted to EUR 132 in losses in 1 month. To assess the reliability of the model, after 1 month, the actual loss of the energy organization was estimated. It amounted to EUR 130.

4. Discussion

As the results of the expert assessment of all risks affecting personnel management showed, four groups of risks are the most significant. The risk of poor recruitment depends largely on the professionalism of the recruiter or recruitment agencies whose services the organization uses. This indicator is also influenced by the time factor. Ideally, the time allotted for finding new staff should neither be too short nor too long. In the first case, there is a risk of closing the vacancy by staff who meet the minimum requirements or the vacancy will remain open in case of the shortage of such specialists on the labor market. In the second case, there is a risk of losing the required applicant due to interview procedure prolongations or a relaxed search pace. In case these risks turn into reality, both the first and the second scenario result in financial losses for the organization. These losses occur not only due to overspending on personnel selection procedures, but also due to the lack of income that could have been generated by employee's professional activities, had the position been taken.

Risks of loss are also associated with improper staff motivation. If the motivation system of competitors is better set up and operating better than that of the organization, then there is a high probability that the best employees can be headhunted at any time. The consequence of this will be the need to find a replacement in a very limited time frame, or a high risk of passing confidential information about the organization to competitors. If the information that constitutes a trade secret for the organization is not sufficiently protected and is available to a larger number of people than needed, the risk of its transmission to the interested circle of people also increases significantly. It will also inevitably lead to financial losses and even more to the bankruptcy of the organization.

Analyzing the experts' assessment of the risks presented in Table 2 that affect personnel during the COVID-19 pandemic in a medium-sized energy sector organization, a number of features should be noted. In the most threatening period, the staff, together with administrative and auxiliary personnel, was at half duty, and during the full lockdown they worked in their homes and in the office. In an attempt to streamline the organization of work in new conditions, the management had to review the work of the virtual learning environment in the shortest possible terms, as server overloads resulted in frequent failures. This issue was successfully resolved without delays. In addition, there is the threat of increased staff turnover due to more frequent cases of disease. This risk was also dealt with almost instantly, and resulted in the introduction of strict control over quarantine requirements, placement of disinfectors, and the installation of protective screens in the administrative staff offices [11].

Using the law of risk additivity, taking into account the variance and mathematical expectations, it was found that the total risk associated with personnel management is 0.19, which characterizes the organization of this energy company as a stable organization that has arranged its work with staff at a very high level. Even the worst-case scenario of the situation caused by the COVID-19 pandemic did not cause significant financial damage to this organization. During the pandemic, this organization suffered insignificant losses compared to the amount of profit. On the one hand, this is due to a properly constructed management system and the effective work of its top managers, and on the other hand it is due to the peculiarity of the industry in which it operates. The small losses that did occur are related to the type of risk management system, which is an integrated type. This type is characterized by a relatively slow reaction to instantaneous influences and therefore needs to be replaced.

After analyzing the open report on the activities of the organization, it is established that the assessment according to our model is accurate. Comparing the forecasted data for 1 month with the real data showed that the prediction error was 1.5%, which is a completely acceptable value for modeling and confirms the acceptable degree of adequacy of the model. This proves that our mathematical model can be used to solve practical problems.

To reduce the impact of the COVID-19 pandemic on the organization's performance, its top managers and the HR team should take care of the following:

1. Clearly control the compliance of the organization's short-term and long-term development plans to the current situation;
2. Apply personnel management methods, taking into account the principles of empathy;
3. Use enhanced control over the implementation of tasks, especially in the case of remote work from home;
4. Review the existing system of staff motivation;
5. Involve additional staff training.

It should be noted that the proposed model for evaluating existing and forecasting emerging risks can be used for other organizations in various industries. However, they must have a vertical linear type of organizational structure. This is related to taking risks into account and countering them. The limitation of the application of the model is the incompetence of the experts who perform the assessment, as they will not be able to correctly assess the risk magnitude.

5. Conclusions

1. Based on the results of the Delphi evaluation, the main of risks in the organization of the energy sphere are: wrong choice of personnel policy; poor selection of staff; improperly designed staff motivation system; insufficient protection of information that is unacceptable for dissemination.

2. An innovative fast-adaptive model for assessing existing and forecasting the emergence of new risks in connection with the COVID-19 pandemic has been built to determine losses in modern personnel management. The model is based on expert assessment and probability theory. It differs from previous models in the application of risk restrictions and the need for expert evaluation.

3. It was found that the total risk associated with personnel management in the organization of the energy sector is 0.19. The level of loss is EUR 132, which is not a significant amount compared to the level of profit of the organization. This characterizes the company as a stable organization that has arranged its work with its staff at a very high level. The difference in the predicted and actual amount of losses is 1.5%. This confirms the possibility of applying the proposed model in practice.

The proposed model can be used for the assessment of existing and forecasting of emerging new risks due to the COVID-19 pandemic in modern personnel management in all industries for organizations with a vertical linear organizational structure. This will make it possible to predict and assess risks affecting personnel quickly and accurately. As a result, this will significantly increase the personnel security of the organization or enterprise, which means it will increase their financial and economic security.

In the future, our proposed model can be used as a basis for software to reduce the risks to the effective functioning of personnel management in conditions of high uncertainty.

Author Contributions: Conceptualization, N.P., N.T. and V.M.; methodology, N.T.; software, V.M.; validation, T.W., and N.P.; formal analysis, N.T.; investigation, N.T.; resources, T.W.; data curation, S.S.; writing—original draft preparation, V.M.; writing—review and editing, S.S.; visualization, N.T.; supervision, V.M.; project administration, V.M. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Conflicts of Interest: The authors declare no conflict of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript; or in the decision to publish the results.

References

- Chernyakhivska, V.V.; Bilyk, O.I.; Charkina, A.O.; Zhayvoronok, I.; Farynovych, I.V. Strategy for improving the quality of life in countries with economies in transition. *Int. J. Manag.* **2020**, *11*, 523–531.
- Frolov, S.; Bogacki, S.; Shukairi, F.; Bukhtiarova, A. Evaluation of state budget structural changes based on the coefficient method. *Invest. Manag. Financ. Innov.* **2021**, *18*, 55–64. [\[CrossRef\]](#)
- Pluchino, A.; Biondo, A.E.; Giuffrida, N.; Inturri, G.; Latora, V.; Le Moli, R.; Rapisarda, A.; Russo, G.; Zappalà, C. A novel methodology for epidemic risk assessment of COVID-19 outbreak. *Sci. Rep.* **2021**, *11*, 1–20. [\[CrossRef\]](#) [\[PubMed\]](#)
- Skrzypek-Ahmed, S. Legal liability of administrative enforcement in case of local taxes and fees. *Int. J. Leg. Stud.* **2020**, *2*, 195–204.
- Wołowicz, T.; Bogacki, S. Human resource management & resource planning in a public organization. *Int. J. New Econ. Soc. Sci.* **2021**, 95–108. [\[CrossRef\]](#)
- Valizade, D.; Stuart, M.; Ali, M. 'We Are Not All in This Together': Understanding International Inequalities in the Impact of the COVID-19 Pandemic on Work and Employment; CERIC Working Paper; University of Leeds: Leeds, UK, 2021.
- Zelinska, H.; Andrysiv, U.; Galtsova, O.; Dmytrychenko, M. Management of Social Risks and their Impact on the Spheres of Human Life in the Conditions of Sustainable Development of Ukraine. *Probl. Ekorozw.—Probl. Sustain. Dev.* **2021**, *16*, 116–124. [\[CrossRef\]](#)
- Kotaskova, A.; Belas, J.; Bilan, Y.; Ajaz Khan, K. Significant Aspects of Managing Personnel Risk in the SME Sector. *Manag. Marketing Chall. Knowl. Soc.* **2020**, *15*, 203–218. [\[CrossRef\]](#)
- Zhuravka, F.; Filatova, H.; Šuleř, P.; Wołowicz, T. State debt assessment and forecasting: Time series analysis. *Invest. Manag. Financ. Innov.* **2021**, *18*, 65–75. [\[CrossRef\]](#)
- Azizi, M.R.; Atlasi, R.; Ziapour, A.; Abbas, J.; Naemi, R. Innovative human resource management strategies during the COVID-19 pandemic: A systematic narrative review approach. *Heliyon* **2021**, *7*, e07233. [\[CrossRef\]](#) [\[PubMed\]](#)
- Butterick, M.; Charlwood, A. HRM and the COVID-19 pandemic: How can we stoop making a bad situation worse? *Hum. Resour. Manag. J.* **2021**, *31*, 1–10. [\[CrossRef\]](#)
- Mnykh, O.; Dikan, O.; Yukhnov, B.; Kvasova, L.; Shkvaryluk, M. The role of personnel motivation in the risk management system of energy companies with employee stock ownership. *IOP Conf. Ser. Earth Environ. Sci.* **2021**, *628*, 012038. [\[CrossRef\]](#)
- Podolchak, N.; Tsygyluk, N.; Martyniuk, V.; Sokil, O. Predicting Human Resource Losses due to the COVID-19 Pandemic in the Context of Personnel Security of Organizations. In Proceedings of the 2021 11th International Conference on Advanced Computer Information Technologies (ACIT), Deggendorf, Germany, 15–17 September 2021; pp. 333–336.
- Martyniuk, V.; Tsygyluk, N.; Skowron, S. The Impact of the Covid-19 Pandemic on Key Indicators of Personnel Security: A Study with Neural Network Technologies. *Eur. Res. Stud. J.* **2021**, *XXIV*, 141–151. [\[CrossRef\]](#)
- Aleynikov, A.V.; Maltseva, D.A.; Sunami, A.N. Information Management of the Risks and Threats of the Covid-19 Pandemic. *Sci. Tech. Inf. Process.* **2020**, *47*, 200–206. [\[CrossRef\]](#)
- Barbieri, T.; Basso, G.; Schicchitano, S. Italian Workers at Risk During the COVID-19 Epidemic. INAPP WP n. 46. 2020. Available online: <https://oa.inapp.org/xmlui/handle/123456789/661> (accessed on 10 May 2021).
- Dyal, J.; Grant, M.; Broadwater, K.; Bjork, A.; Waltenburg, M.; Gibbins, J.; Hale, C.; Silver, M.; Fischer, M.; Steinberg, J. COVID-19 among workers in meat and poultry processing facilities—19 States. *Morb. Mortal. Wkly. Rep.* **2020**, *69*, 557–561. [\[CrossRef\]](#)
- Gerhart, B.; Wright, P.M.; McMahan, G.C.; Snell, S.A. Measurement error in research on human resources and firm performance: How much error is there and how does it influence effect size estimates. *Pers. Psychol.* **2000**, *53*, 803–834. [\[CrossRef\]](#)
- Nabe-Nielsen, K.; Nilsson, C.J.; Juul-Madsen, M.; Bredal, C.; Hansen, L.O.P.; Hansen, S.M. COVID-19 risk management at the workplace, fear of infection and fear of transmission of infection among frontline employees. *Occup. Environ. Med.* **2020**, *78*, 248–254. [\[CrossRef\]](#) [\[PubMed\]](#)
- Shpak, N.; Podolchak, N.; Karkovska, V.; Sroka, W.; Horbal, N. The application of tools for assessing the financial security of enterprises. *Forum Sci. Oeconomia* **2022**, *10*, 29–44.
- Widjaja, G. Impact of human resource management on health workers during pandemics COVID-19: Systematic review. *Int. J. Health Med. Sci.* **2021**, *4*, 61–68. [\[CrossRef\]](#)