

# Managing Workplace Risks as Part of Organisational Competitiveness

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## Abstract

The field of risk management in the workplace is undergoing a significant transformation. (Mendes, 2024). New trends highlight the expanding risk environment, the shift towards proactive and preventive approaches, and the increasing use of data and technology (Mohamed, 2025). Implementing these new trends into organisational management is currently becoming a significant sign of competitiveness. This paper describes the relationship between the quality of risk management in the workplace and the size of the organization, the level of stakeholder involvement, the level of advanced information technology, the level and use of advanced tools for risk management in the field of occupational health and safety (OHS), the level of employee satisfaction, and the level of interpersonal relationships. Primary quantitative research focused on occupational risk management was conducted. Questionnaires were sent to 1,107 manufacturing companies within the Czech Republic. In the final phase, 160 responses were received. Standard statistical tests, such as the chi-square test, binomial test, and correlation analysis were used to analyse the data. Data was processed using R software version 4.3.1. The analysis showed that the level of OHS risk management is significantly related to the organisation's size. The quality of documentation of OHS risk management procedures increases with the organisation's size. Most organisations do regularly use OHS risk assessment techniques. Organisations with established OHS risk management policies show a better social climate. The correlation between the established OHS risk management policy and the quality of interpersonal relationships was not statistically significant.

**Keywords:** OHS risk management, work environment, occupational diseases

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## 1 INTRODUCTION

This paper draws attention to the changes currently taking place in the field of occupational health and safety (Sorensen et al., 2021). Capturing these changes and implementing them into integrated management systems of organisations is becoming an essential component of competitiveness (Cebulla et al., 2023). In this context, quantitative research was conducted to describe the relationship between the quality of risk management in the workplace and the size of the organization, the level of stakeholder involvement, the level of advanced information technologies, the level and use of advanced tools for risk management in the field of occupational health and safety, the level of employee satisfaction and the level of interpersonal relationships. The quality of risk management expresses how well and effectively an organization identifies, assesses and manages all risks that could affect its objectives, processes, security or reputation. The work is original in this sense. The focus of the research is oriented towards the management system of production organisations in the Czech Republic.

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The structure of the work consists of a literary study on the given topic, followed by a description of the methodology, definition of hypotheses, and subsequent quantitative research. This is followed by data processing, discussion of the research results and conclusion.

Occupational hazard risk management (OHRM) is an interdisciplinary field that draws on knowledge from occupational psychology, ergonomics, management, law and other disciplines. The main objective of OHRM is to identify, assess and manage risks associated with the work environment to minimise the risk of accidents, occupational diseases and other negative impacts on the health and well-being of employees.

The official website of the World Health Organisation (WHO) shows that occupational diseases significantly impact the economy. The latest studies show that occupational diseases cost the economy globally EUR 2.68 trillion every year, with EUR 468 billion in Europe alone. (Takala, 2020; Elsler, 2021). Therefore, the company's costs for occupational injuries and illnesses are high. They are caused by problems related to work, the working environment, and people's social backgrounds, so there is a direct link to the risks arising in the workplace. Inadequate occupational health and safety can exacerbate these risks, which, in the final assessment, is likely to affect the organisation's performance (Alabdullah, 2022). In economically adverse times, inadequate occupational health and safety costs money. Moreover, case studies show that good company occupational safety and health (OHS) management is associated with better performance and higher profitability (Hou, 2021). Everyone loses when OHS is neglected, from individual workers to national health systems. But, this means that everyone can benefit from better policies and practices.

Countries with inadequate occupational health and safety systems spend valuable resources treating injuries and illnesses that could have been avoided. A strong national strategy brings numerous benefits, such as improved productivity through fewer absences due to sickness, reduced health care costs, retention of older workers, stimulation of more efficient work methods and technologies, and a reduced number of workers who have to reduce their working hours to care for a family member (Sorensen et al., 2021).

An example of an organisation that pays significant attention to OHS is the international company Nestlé. Nestlé's long-term goal is zero workplace injuries. Nestlé believes that all its employees and managers should strive to prevent occupational injuries and illnesses and that even one workplace accident is too many. Therefore, it strives not only to create a "perfectly safe" working environment for all persons in the company (both for core employees and for employees of external companies working on Nestlé premises) but also to contribute to their health and well-being: this applies at every workplace throughout the company. In addition, they guide employees through targeted programs and activities to adopt a safe and healthy lifestyle in their free time. This holistic approach protects employees and the people we work with (Odeleye, 2021)

## 2 THEORETICAL BACKGROUND

The work environment comprises a dynamic interplay of physical, psychosocial and organizational factors that affect the health, safety and well-being of employees. A workplace risk is the possibility that a certain factor or situation in the work environment will cause harm to health, injury, or property damage. Risk management in this context has traditionally focused on accident and injury prevention, but recent trends reveal a broader, more holistic approach involving emerging risks and innovative strategies. Security risk management is a concept that combines security, risk and management into one systematic approach. It is the process by

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which an organization systematically identifies, evaluates, controls and monitors risks that could threaten the safety of people, property, information or the environment.

Workplace risk management is a critical aspect of safety, organizational effectiveness and employee well-being (Lee et al., 2025). The following literature review explores this area's latest developments and findings.

As far as the importance of risk management is concerned, numerous studies underline the importance of effective risk management in minimizing occupational accidents, injuries and illnesses (Barkhordari, 2019). A proactive approach to risk management not only protects the health of employees but also contributes to increased productivity, reduced healthcare costs and improved employee morale (Jetha, 2021). General guidelines for proactive risk management can be found in the ISO31000 and ISO 31010 standards (Selvaseelan, 2018).

Effective risk management begins with a thorough risk identification and assessment. Tools such as job hazard analysis (JHA) and failure mode and effects analysis (FMEA) are commonly used (Aziz, 2019).

Recent advances include integrating machine learning and artificial intelligence for predictive risk analysis (Cioffi, 2020). These technologies enable organizations to anticipate potential risks and take proactive measures.

Every organization should strive to have a mitigation strategy, which varies from sector to sector but generally includes administrative controls, engineering controls and personal protective equipment (PPE) (Fraser, 2021). Organizational culture and leadership play a critical role in implementing these strategies (Can, 2021). A safety-oriented culture and proactive leadership can significantly reduce the number of incidents in the workplace.

Reactive risk management, which focuses on responding to incidents after they occur, is being replaced by proactive and preventative approaches (Qureshi, 2023). Proactive risk management involves identifying potential risks before they occur, while preventative strategies aim to reduce the likelihood or severity of risks through targeted interventions (Iavicoli, 2021). This shift towards prevention emphasizes the importance of early intervention and risk mitigation rather than simply responding to incidents after they occur.

It is important to keep abreast of current regulation changes (Karanović et al., 2021). Organizations must keep track of updated regulations to ensure compliance and avoid legal penalties. Compliance goes beyond simply following the letter of the law; it also involves taking a proactive approach to risk management and identifying and addressing potential risks before they become compliance issues (Martinez, 2020). Effective communication and training are essential to ensure that employees understand and comply with relevant regulations (Blanchard, 2023).

Increasing attention is being paid to psychosocial risks, including stress, workplace violence, and harassment (Beck, 2019; Balducci et al., 2021). Strategies to mitigate these risks often include training, organizational change, and employee support programs (Buselli et al., 2021; Heath et al., 2020).

The scope of risks in the work environment has expanded beyond traditional physical risks to include psychosocial risks such as stress, burnout, and harassment (Derdowski, 2023; Jain et al., 2021). In addition, the increasing prevalence of digital technologies has introduced new risks such as cyberbullying, online harassment, and data breaches (Alismaiel, 2023). The COVID-19 pandemic also highlighted the need to address infectious diseases as a workplace risk (Daniels et al., 2021). This expanded risk environment requires a more comprehensive

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approach to risk management, incorporating strategies to address both traditional and emerging risks.

The role of technology in risk management is expanding with innovations such as portable safety devices, real-time monitoring systems and advanced simulation tools (Fanti et al., 2022). Digital transformation in risk management processes is associated with improved efficiency (Ivanov et al., 2019).

The availability of big data and advanced analytics is revolutionizing workplace environmental risk management (WERM). Organizations use data to identify risk patterns, predict future risks, and adapt mitigation strategies (Patel et al., 2022). Machine learning algorithms can analyse vast amounts of data to identify correlations between different factors and incidents in the workplace, enabling more targeted and effective risk management interventions (Hegde, 2020). This data-driven approach allows for a more comprehensive and detailed understanding of risks, leading to more informed decision-making and resource allocation.

Technological advances are changing working environment risk management (WERM). Wearable devices, internet of things (IoT) sensors and artificial intelligence (AI) are being deployed to monitor workplace conditions, identify hazards and automate risk assessment (Ghosh et al., 2021). For example, wearable devices can monitor employee physiological parameters such as heart rate and body temperature to alert supervisors of potential health risks (Bustos et al., 2021). Using artificial intelligence, video analytics can detect unsafe behaviours and conditions in real time, allowing immediate intervention (Davila-Gonzalez et al., 2024). Virtual reality (VR) and augmented reality (AR) are also used for training and simulations that allow employees to experience and learn to manage risk in a safe environment (Erten et al., 2022).

Other studies highlight the economic benefits (economic impact) of effective risk management, including reduced incidents, lower premiums and increased productivity (Kim et al., 2021). Cost-benefit analyses are essential to justify investments in risk management (Daniels et al., 2019).

WERM is no longer considered a stand-alone function but is increasingly integrated with the overall business strategy (de Araújo et al., 2020). This integration recognizes that effective risk management is not just about compliance or cost reduction but also about creating a sustainable competitive advantage. Organisations are linking their WERM initiatives to their strategic objectives to ensure that risk management contributes to long-term value creation (Landi et al., 2022). This strategic alignment increases the perceived value of WERM and facilitates its implementation at all levels of the organization.

Training and education play an important role in security risk management. Ongoing training and education of employees is essential to maintain a safe work environment (Hatzivasilis et al., 2020). Innovative training methods such as virtual reality (VR) simulations are gaining popularity (Habbal et al., 2024). Effective risk communication is essential to ensure employees understand the risks and mitigation measures (Abrams et al., 2020). Clear and transparent communication helps build trust and promotes an organization's safety culture (Bisbey et al., 2021).

Behavioural safety approaches focus on modifying employee behaviour to prevent accidents and incidents (Zahiri et al., 2020). Techniques such as behaviour-based safety (BBS) programs have been shown to reduce workplace injuries (Rashid et al., 2023).

Employee involvement and empowerment are critical components of effective WERM (Ababneh, 2021). Organizations are increasingly involving employees in risk identification and assessment, as well as in developing and implementing risk mitigation measures (Reaser et al., 2020). This participatory approach promotes a safety culture and shared responsibility for risk management, leading to better risk identification and mitigation. Allowing employees to report hazards and near misses without fear of retaliation is essential to creating a safe and healthy work environment (Falcone et al., 2022).

Emergency preparedness for emergencies, including natural disasters and industrial accidents, is also integral to risk management (Bodas et al., 2020). Developing and regularly updating emergency response plans can significantly reduce the impact of such events (Righi et al., 2021). WERM must account for cross-cultural differences in risk perception and management practices as businesses become increasingly global. Organizations operating in different contexts need to develop culturally sensitive risk management strategies that respect local values and norms while ensuring the safety and well-being of their workforce (Ilo et al., 2020). This requires understanding how different cultures perceive and respond to risk and tailoring risk management approaches to fit specific cultural contexts.

This expanded review provides a comprehensive overview of the current state of risk management in the workplace. It highlights the importance of integrating technological, regulatory, psychological, and economic considerations to create a safe and productive work environment.

The literature review on workplace risk management highlights this field's complexity and multifaceted nature. Effective risk management strategies enhance safety and contribute to an organization's overall success.

The field of occupational risk management is undergoing a significant transformation. New trends highlight the expanding risk landscape, the shift towards proactive and preventative approaches, the increasing use of data and technology, and the growing importance of employee engagement and empowerment. By embracing these trends, organizations can create safer, healthier, and more productive work environments that contribute to long-term success. In addition, a comprehensive and adaptive WERM strategy is essential for organizations to thrive in an increasingly complex and connected world.

Despite considerable progress, risk management still faces various challenges. Identifying and mitigating emerging risks, such as psychosocial risks and risks associated with new technologies, remains a pressing issue (Pavlista et al., 2024). Ensuring effective risk management in SMEs, often constrained by limited resources, is another challenge (Crovini et al., 2021). Future research should focus on developing adaptive risk management tools and methods that can respond to the changing nature of work and associated risks. In addition, it is essential to investigate the impact of emerging technologies, including artificial intelligence and virtual reality, on risk management practices.

Based on the relevant literature review, there are research gaps in the area of monitoring the relationship between the quality of workplace risk management and the size of the organization, the level of stakeholder involvement, the level of advanced information technology, the level and use of advanced tools for managing occupational health and safety (OHS) risks, the level of employee satisfaction, and the level of interpersonal relationships.

### 3 RESEARCH OBJECTIVE, METHODOLOGY AND DATA

Primary quantitative research was conducted on occupational risk management. Questionnaires were sent to 1,107 companies, and 160 responses were received at the final stage. After excluding incomplete and irrelevant records, 127 valid responses remained for analysis. Two columns were removed from the analysis due to missing data (No. 17, No. 23). The research sample comprised approximately 20% small, 25% medium-sized, and 55% large companies.

The list presents the frequency of occurrences for various industries categorized by their NACE codes. The data indicates that the NACE codes in the data are as follows:

- NACE Code 28 has the highest frequency with 18 occurrences.
- NACE Code 24 follows closely with 14 occurrences.
- NACE Codes 22 and 10 each have 13 and 11 occurrences, respectively.
- Other notable frequencies include NACE Code 20 with 5 occurrences, and NACE Codes 19, 29, and 33 with 1 to 6 occurrences.
- The least represented codes, such as NACE Code 26, show only 1 occurrence.

Overall, the distribution reflects varying levels of representation across different industries, with certain codes significantly outpacing others in frequency.

All these organisations were represented by managers of manufacturing companies operating in the Czech Republic. Data were collected via an online questionnaire on the Google Forms platform between February 2024 and September 2024. The survey was anonymous, but respondents were allowed to volunteer their company name or email address for further contact.

#### 3.1 QUESTIONNAIRE AND DATA PROCESSING

The questionnaire contained mostly closed-ended questions, with only one question focusing on the software used and being open-ended. Standard statistical tests, such as the chi-square and binomial tests, were used to analyse the data. Respondents were excluded from the analysis if more than 80% of the answers were missing from their questionnaire. Data was processed using R software version 4.3.1.

#### 3.2 STUDY OBJECTIVES

The objective of the study was to analyse the relationship between the level of compliance with the requirements of quality occupational risk management and the following factors:

- the size of the organization,
- the level of stakeholder involvement,
- the level of application of advanced information technology,
- the use of advanced OHS risk management tools,
- worker satisfaction,
- the quality of interpersonal relations.

A questionnaire survey was chosen as the primary data collection tool based on a literature search and comparison of known management models. Thirty-two research questions were defined and further developed into six hypotheses.

The main research question was as follows:

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To what extent do principles based on the OHS model influence the performance and behaviour of organizations of different sizes and focus?

To answer the main research question, the following hypotheses were posed:

- *H1*: The level of OHS risk management is influenced by the organization's size as measured by the number of employees.
- *H2*: The quality of documentation of OHS risk management procedures is influenced by the organization's size as measured by the number of employees.
- *H3*: Using advanced information technology leads to more frequent reassessment of OHS risks in organizations.
- *H4*: Most organizations do not regularly use OHS risk assessment techniques.
- *H5*: Organizations with an established OHS risk management policy have a better social climate.
- *H6*: Organizations with an established OHS risk management policy have better interpersonal relationships.

Contemporary literature highlights different approaches to managing organizations and OHS. This study focused on evaluating the effectiveness and relevance of well-designed workplace risk management in relation to these factors.

### 3.3 DATA

The following data were collected by questionnaire survey, their enumeration, and calculated data modus. See Appendix 1 for descriptive statistics.

Tab. 1 – Chi-square test for hypothesis H1. Source: own research

Size of the organization	Level of OHS risk management				$\Sigma$
	We do not deal with the risks	We deal with risks by legal requirements	We have a risk register	We have a process in place to manage OHS risks	
Small	4 (0.81;3.55)	17 (12.27;1.35)	9 (13.24;-1.16)	6 (9.69;-1.18)	36
Medium	0 (1.19;-1.09)	22 (18.06;0.93)	19 (19.49;-0.11)	12 (14.26;-0.6)	53
Large	1 (3;-1.16)	37 (45.67;-1.28)	54 (49.27;0.67)	42 (36.05;0.99)	134
$\Sigma$	5	76	82	60	223

$$\chi^2=24.05 \cdot df=6 \cdot Cramer's V=0.23 \cdot Fisher's p=0.0045$$

The test result is  $\chi^2(6, N = 223) = 24.05, p < 0.01$ . We have sufficient evidence to reject the null hypothesis. Furthermore, in the text, we will assume that there is a statistically significant relationship between the size of the organization and the level of OHS risk management. The value of the strength of the relationship is  $V(df = 6) = 0.23$ , indicating a weak relationship.

H2: The quality of documentation of OHS risk management procedures is influenced by the size of the organization in terms of the number of employees.

Tab. 2 – Chi-square test for hypothesis H2. Source: own research

Size of the organization	Quality of documentation of OHS risk management procedures						$\Sigma$
	Establishing OHS management process	an risk	Uncontrolled documentation	Only verbally agreed	Controlled documentation	We have not defined	
Small	<b>0</b> (5.91;-2.43)		2 (1.18;0.75)	2 (0.79;1.37)	12 (14.57;-0.67)	<b>9</b> (2.56;4.03)	25
Medium	3 (7.56;-1.66)		2 (1.51;0.4)	0 (1.01;-1)	24 (18.65;1.24)	3 (3.28;-0.15)	32
Large	<b>27</b> (16.54;2.57)		2 (3.31;-0.72)	2 (2.2;-0.14)	38 (40.79;-0.44)	<b>1</b> (7.17;-2.3)	70
$\Sigma$	30		6	4	74	13	127

$$\chi^2=43.13 \cdot df=8 \cdot Cramer's V=0.41 \cdot Fisher's p=5e-04$$

The test result is  $\chi^2(8, N = 127) = 43.13, p < 0.01$ . We have sufficient evidence to reject the null hypothesis. In the following, we will assume that there is a statistically significant relationship between the size of the organization and the quality of documentation of OHS risk management procedures. The strength of the relationship is  $V(df = 8) = 0.41$ , indicating a moderate dependence.

H3: The use of advanced information technology is leading to more frequent reassessment of OHS risks in organizations.

A binomial test was conducted with the alternative hypothesis that more than 50% of organizations using advanced information technology lead to more frequent reassessment of OHS risks in organizations. The p-value obtained (0.9519) is greater than 0.05. This means that we do not reject the null hypothesis that the use of advanced information technology does not lead to more frequent reassessment of OHS risks in organizations.

H4: OHS risk assessment techniques are not regularly used in most organizations.

A binomial test was conducted with the alternative hypothesis that OHS risk assessment techniques are not regularly used in more than 50% of organizations. Only 8 out of 127 organizations do not use OHS risk assessment techniques ( $p > .05$ ).

H5: Organizations with an established OHS risk management policy exhibit a better social climate.

Tab. 3 – Chi-square test for hypothesis H5. Source: own research

You have an established policy for risk mitigation	How important social climate is to your workplace					$\Sigma$
	Not important	Less important	Moderately important	Important	Highly important	
Yes	2 (2.32;-0.21)	0 (1.55;-1.24)	15 (17.81;-0.67)	48 (42.58;0.83)	31 (31.74;-0.13)	96
No	1 (0.68;0.39)	<b>2</b> <b>(0.45;2.3)</b>	8 (5.19;1.23)	7 (12.42;-1.54)	10 (9.26;0.24)	28
$\Sigma$	3	2	23	55	41	124

$\chi^2=12.15 \cdot df=4 \cdot Cramer's V=0.31 \cdot Fisher's p=0.016$

The test result is  $\chi^2(4, N = 124) = 12.15, p < 0.05$ ; we have sufficient evidence to reject the null hypothesis. In the following, we will assume that there is a statistically significant relationship between the traits “8. You have an established policy for risk mitigation” and “26. Generally speaking, how important social climate is to your workplace.” The strength of the dependence value is  $V (df = 4) = 0.31$ , indicating a moderate dependence.

H6: Organizations with an established OHS risk management policy have better interpersonal relationships.

Tab. 4 – Chi-square test for hypothesis H6. Source: own research

You have an established policy for risk mitigation	How important is social climate to your workplace					$\Sigma$
	Not important	less important	Moderately important	Important	Highly important	
Yes	2 (2.34;-0.22)	1 (1.56;-0.45)	8 (10.13;-0.67)	44 (38.98;0.8)	44 (45.99;-0.29)	99
No	1 (0.66;0.42)	1 (0.44;0.84)	5 (2.87;1.26)	6 (11.02;-1.51)	15 (13.01;0.55)	28
$\Sigma$	3	2	13	50	59	127

$\chi^2=6.5 \cdot df=4 \cdot Cramer's V=0.23 \cdot Fisher's p=0.0745$

The result of the test is  $\chi^2(4, N = 127) = 6.5, p > 0.05$ ; we do not have enough evidence to reject the null hypothesis. In the following, we will assume that there is no statistically significant relationship between the traits “8 you have an established policy for risk mitigation” and “26 generally speaking, how important social climate is to your workplace.”

## 4 RESULTS AND DISCUSSIONS

### *H1: Relationship between organization size and risk management*

The chi-square test showed a statistically significant relationship between organization size (measured by number of employees) and the level of OHS risk management,  $\chi^2(6, N = 223) = 24.05, p < 0.01$ . The strength of the dependence, expressed by Cramer's  $V = 0.23$ , indicates a weak dependence. Larger organizations are more likely to have comprehensive risk management processes, while smaller organizations are more likely to limit themselves to meeting minimum legal requirements.

### *H2: Relationship between organization size and documentation quality*

The quality of documentation of OHS risk management procedures was significantly influenced by the organization's size,  $\chi^2(8, N = 127) = 43.13, p < 0.01$ . A Cramer's  $V = 0.41$  indicates a moderately strong relationship. Larger organizations were more likely to have guided documentation, whereas smaller organizations relied more on informal or verbal agreements.

### *H3: Using advanced IT technologies and reassessing risks*

The binomial test examined whether more than 50% of organizations using advanced IT technologies reassess risks more frequently. The results ( $p = 0.9519$ ) do not indicate statistically significant evidence supporting this hypothesis. Thus, the use of advanced IT technologies does not in itself lead to more frequent risk reassessment.

### *H4: Regular use of risk assessment techniques*

A binomial test was performed to examine whether the use of OHS risk assessment techniques is less common than expected in organizations. The alternative hypothesis proposed that these techniques are not regularly used in more than 50% of organizations. The results showed that only 8 out of 127 organizations do not utilize OHS risk assessment techniques, which indicates that the proportion of organizations not using these techniques is significantly less than 50% ( $p > .05$ ).

### *H5: Impact of risk management policy on social climate*

A chi-square test revealed a significant relationship between the existence of a formal OHS risk management policy and the perception of a positive social climate,  $\chi^2(4, N = 124) = 12.15, p < 0.05$ . A Cramer's  $V = 0.31$  indicates a moderately strong relationship. Organizations with formal policies showed a better social climate than those without.

### *H6: Impact of risk management policy on interpersonal relationships*

The relationship between the risk management policy in place and the quality of interpersonal relationships was not statistically significant,  $\chi^2(4, N = 127) = 6.5, p = 0.0745$ . The Cramer's

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$V = 0.23$  indicates a weak relationship, but the results do not provide sufficient evidence to support this hypothesis. The results highlight the importance of organization size as a determinant of the implementation and quality of OHS risk management processes.

Larger organizations have more resources to implement robust procedures and documentation, which is supported by previous studies emphasizing the resource dependence of organizational behaviour, such as the study by Mixafenti et al. (2025a).

Interestingly, the introduction of advanced IT technologies did not significantly impact more frequent risk reassessment. This suggests that technology alone is insufficient to change organizational processes, and that other strategies, such as training or supporting changes in the organization's culture, may need to be introduced, as seen in the study by Thulani et al. (2024). The significant relationship between established risk management policies and a positive social climate points to the wider benefits of formalized OHS systems. However, the lack of a significant association with interpersonal relationships suggests that factors beyond formal policies may also influence these relationships, as observed in the publication (Mixafenti et al., 2025b).

Overall, the results highlight the need for targeted interventions to support smaller organizations and the introduction of comprehensive approaches to risk management that go beyond simply meeting legislative requirements and technological developments.

## 5 CONCLUSION

Based on quantitative research data, this paper describes the relationship between the quality of workplace risk management and the size of the organization, the level of stakeholder involvement, the level of advanced information technology, the level and use of advanced OHS risk management tools, the level of worker satisfaction and the level of interpersonal relationships.

The dataset was collected through an internet survey implemented using a Google form. This survey was designed to reach managers working in manufacturing companies in the Czech Republic. The questionnaire aimed to identify the perception of risks in the working environment, assess the effectiveness of current risk management strategies and determine the extent of modern technologies and data analysis in this area.

Findings:

The analysis showed that the level of OHS risk management is significantly related to the organization's size, with larger companies more likely to implement advanced risk management processes.

The quality of documentation of OHS risk management procedures increases with the organization's size, with larger enterprises more likely to have controlled documentation.

Statistical analysis has not shown that using advanced information technology leads to more frequent reassessment of OHS risks.

Most organizations do regularly use OHS risk assessment techniques; however, there is still room for improvements.

Organizations with established OHS risk management policies show a better social climate, indicating the positive impact of these policies on the work environment.

The correlation between having an OHS risk management policy in place and the quality of interpersonal relationships was not statistically significant.

**Research Limitation/Implication:**

**Sample size:** Although the sample size was large enough for the main analysis, its distribution by organization size may have affected the accuracy of the results for smaller subgroups.

**Subjective responses:** data were collected through a questionnaire survey, which may have led to subjective responses influenced by respondents' personal views.

**Limited focus on specific sectors:** The research did not consider specific characteristics of each sector that could affect OHS risk management.

**Character of the data:** The prevalence of nominal and ordinal data limited the possibilities of applying more advanced statistical methods.

**Geographical location:** The study focused on organizations in a specific geographical region, which may limit the generalizability of the results to other areas. These were organizations operating in the Czech Republic.

**Originality/Value of paper:**

The current research findings offer practical and theoretical implications. In theory, the research extends the literature on modern occupational risk management trends that are directly related to Industry 4.0.

The research results will benefit managers in the field of occupational risk management as well as senior management. New insights may enable them to maintain an optimal level of occupational risk management and meet future requirements for comprehensive enterprise integration.

The literature on workplace risk management highlights this area's complexity and multifaceted nature. Effective workplace risk management strategies improve safety and contribute to an organization's success.

Future research should focus on the evolving challenges posed by technological progress, the changing regulatory environment, and the growing recognition of psychosocial risks.

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Appendix 1. Descriptive statistics of the obtained data

Column Name	Mode
1 current number of employees	Large enterprise: 250 or more
2 what is the ownership structure of the company	Majority local owner
3 do you have a certified OHS system	Yes
4 according to which norms do you have a certified OHS system	ČSN ISO 45001:2018: Occupational health and safety management systems
5 which elements of OHS management have you established in the organization	Management documentation is in place, including an organizational structure based on processes. Risks are addressed by legal requirements. We have a risk register (risk list), and risks are assessed. We have an established process for managing OHS risks based on the OHS policy
6 what is the hourly risk response of OHS in your company	
7 how long have you been dealing with OHS risk management	More than 10 years
8 you have an established policy for risk mitigation	Yes
9 how do you have a described risk management approach OHS rules for individual phases of risk management definitions, analysis, assessment, treatment, and risk monitoring	The description of OHS risk management is described in the controlled documentation (e.g. guidelines)
10 When defining OHS risks, you start from the context of the organization and aspects of the stakeholders	High
10 when defining OHS risks, you come from the strategic goals and vision of the company	High

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11.1 how are the individual stakeholders involved in defining OHS risks	They are part of the risk management team (100%)
11.2 how are the individual stakeholders involved in defining OHS risks for employees in the process employees	Verbal information that risks are being defined is sufficient (25%)
11.3 how are the individual stakeholders involved in defining the risks of the OHS the quality manager	They remind of the defined risks (75%)
11.4 how are the individual stakeholders involved in the definition of the risks of the OHS management of the company	They want to be informed (ask for input (50%))
11.5 how are involved in defining the risks of OHS the individual stakeholders of the company owners	They want to be informed (ask for input (50%))
11.6 how are involved in defining the risks of OHS the individual stakeholders of customers	They are satisfied with verbal information that risks are being defined (25%)
11.7 how are the individual stakeholders involved in the definition of OHS risks of the suppliers	They are not involved at all (0%)
11.8 how are involved in the definition of the risks of the OHS individual stakeholders other external party offices, controlling authorities	They want to be informed (ask for documents (50%))
12.1 determine the intensity of the use of selected methods for defining OHS risks based on existing expertise	High
12.2 determine the intensity of the use of selected methods for defining the risks of OHS brainstorming in the team	Medium
12.3 determine the intensity of the use of selected methods for defining the risks of OHS brainwriting in the team	Very low

12.4 determine the intensity of the use of selected methods for defining risk of OHS multi-criteria evaluation	Very low
12.5 determine the intensity of the use of the selected methods for defining OHS risk, external environment analysis, e.g. pest analysis	Very low
12.6 determine the intensity of the use of selected methods for defining the risks of OHS internal analysis, e.g. swot analysis	very low
12.7 determine the intensity of the use of selected methods for defining OHS risk cause and effect analysis, Ishikawa diagram	very low
13 Based on which parameters do you determine the level of commitment or level of risk of OHS	Probability (frequency of occurrence), b) Level of severity of the consequence (relevance to the company)
14 what risk levels of OHS evaluation do you use	There are 3 levels of risk assessment: Low risk = Acceptance of risk, Medium risk =
15 what additional information beyond the description of the risk, its level of measure and the person responsible for the defined risk of the OHS, have you yet to identify	Cause/Source that may trigger the risk, c) Scenario or Consequence (what happens when the risk occurs)
16 is there a position or role in your company with the risk management of OHS	Yes
18 indicate which methods from a norm CSN EN 31010:2011 risk assessment techniques you use in your company	Checklists - lists of risks that are created based on experience
19 after implementation of a measure for a given risk of OHS, you verify the effectiveness of the measure	Yes, for each measure
20 how you have set reporting data on OHS risks	Monitor and evaluate risk indicators or other signals - regularly (once a month)

21 how often does the review of OHS risks occur	Once a year, during the review of the quality management system
22 do you use for risk management of OHS any monitoring software or other application tool	No
24.1 express the level of risk of individual OHS risks in your company a ergonomic physiological risks	50% risk
24.2 express the level of risk of individual OHS risks in your company Biological risks	0% risk
24.3 express the level of risk of individual OHS risks in your company Psychosocial risks	25% risk
24.4 express the level of risk of individual OHS risks in your company Chemical risks	25% risk
24.5 express the level of risk of individual OHS risks in your company, Physical risks	75% risk
25 it can be stated that OHS management affects the performance of the organization	Affects
26.1 generally speaking how important social climate are to your workplace	Important
26.2 generally speaking how important interpersonal relationships are to your workplace	Highly important
27 which of the below-mentioned psychosocial risks do you monitor	Not Monitored
28 do you know that increasing the efficiency of optimizing the process in the organization causes an increase in psychosocial risks	Yes
29 do you execute the increase in the efficiency of psychosocial risk management planning	Not executed (0%)
30 what is your position in the company	Specialist
31 how long have you worked in the company	More than 3 years
32 Predominant industry: your company's name	Other manufacturing (NACE 32)

*H1:* The level of OHS risk management is influenced by the organization's size as measured by the number of employees.

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