

PECULIARITIES OF FORMING AN ENTERPRISE RISK MANAGEMENT SYSTEM IN THE CONTEXT OF MODERN TRANSFORMATIONS: THE EXPERIENCE OF EUROPEAN COUNTRIES AND UKRAINE

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Abstract. The contemporary technological, innovative, political, economic and social development of the world has exerted a dual impact on the operations of enterprises, giving rise to both beneficial and detrimental consequences, whilst concomitantly engendering novel threats and risks. Risks are an integral part of the activities of enterprises and involve deviations from planned indicators. The consequences and types of risk are contingent on the surrounding and internal environment, and may vary depending on the scope of activities of enterprises and the country (region) of residence. The *objective of this research* is to analyse and study the prerequisites and features of the formation of the enterprise risk management system under the conditions of modern transformations in the EU countries and Ukraine. *Research methods:* analysis, synthesis, extrapolation, generalisation, graphic, dynamics analysis, content analysis, etc. The *results of the study* indicate that a theoretical analysis has demonstrated the acute necessity of transforming traditional risk management from a reactive to a proactive enterprise risk management (ERM). It is recommended that this ERM should become an integrated element in the company's management system, and that it should be systemic, cyclical and holistic in nature. ERM is evolving into a system that facilitates a strategic approach to risk management at all levels of enterprise management. At present, the enterprise has numerous opportunities to enhance the efficacy of risk management. However, it should be noted that these same opportunities also engender novel threats and risks. The development of information technologies has given rise to a number of potential risks for enterprises. Chief among these are the threats posed by cyber-attacks, the leakage of information, and the transfer of important data to cyberspace. In this regard, it is imperative for management to comprehend the urgency and necessity of implementing an Enterprise Risk Management (ERM) system within their enterprise. A close examination of search queries has revealed a notable interest among business representatives in issues pertaining to risk. However, it is important to note the differences between Poland, Germany, France and Ukraine. Entrepreneurs from EU countries have been observed to engage in extensive research on risk and associated search queries. Consequently, it is imperative to adopt a more profound approach in examining this matter and to establish a comprehensive risk management system on a larger scale. It is imperative to utilise diverse avenues to enhance one's qualifications in this domain, fostering collaboration with a range of stakeholders, including communities, which can serve as a valuable source for effective risk management.

Keywords: risk, risk management, ERM, traditional risk-management, martial law, cyber threats, innovation, communities.

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1. Introduction

In the contemporary context of global economic development, enterprises are confronted with a myriad of both anticipated and unanticipated threats and opportunities. In this instance, the focus is on risks, which are an integral component of any business activity. As M. Tarashevs'kyy observes, "risk constitutes an integral element of the functioning of any enterprise." Each enterprise forms a risk management mechanism that is contingent on the specifics of its activities and is inherent to it (Tarashevs'kyy, 2020). In the contemporary context, the planning and organisation of activities necessitates the consideration of an expanding array of novel factors. These novel factors subsequently become prerequisites for the emergence of new risks or the exacerbation of potential consequences of pre-existing risks. For enterprises, it is imperative to establish an Enterprise Risk Management (ERM) system that would encompass the maximum number of potential risks, undertake their comprehensive assessment and facilitate the formulation of decisions regarding responses to them. It is imperative that this system becomes an integral component of the enterprise culture, with its application extending to the process of making both strategic and operational decisions. It is imperative that company management comprehends the significance of systematic and holistic methodologies in risk management, the necessity for uninterrupted monitoring of potential threats, and the validation of outcomes derived from risk probability assessment. Notwithstanding technological and innovative progress, the emergence of new risks and the threats that they carry has served to complicate the situation. Furthermore, it is important to acknowledge that risks are a consequence of various external events, which determine their possible level of impact on the activities and results of enterprises. Therefore, the greater impact of military risks is inherent for Ukraine, and for the EU, for example, the path to a climate-neutral continent, which affects the production process and creates certain threats to existing industries. The objective of this study is to analyse the prerequisites and features of the formation of the enterprise risk management system in the context of modern transformations in both EU countries and Ukraine.

2. Literature Review

In his study, Tarashevs'kyy conducted an analysis of the state of risk management at transport enterprises in Ukraine. He determined that this management system required revision in order to align with the new conditions and challenges that had arisen. He noted that it was an internal source of risk for transport enterprises, citing examples of loss-making activities, the accumulation of uncovered losses, and

inefficient management of activities. Furthermore, he identified the spread of COVID-19 as a separate source of risk (Tarashevs'kyy et al., 2020). The study's significance lies in its proposition of the utilisation of contemporary innovative tools that facilitate effective enterprise management and mitigate the risk of economic losses.

The features of risk management of digital transformation in the context of a pandemic were studied by R. Zvarych, Yu. Dudnyk, V. Homotiuk and S. Bodnar. In their study, the authors noted that in modern conditions of technological process growth, there is also an increase in uncertainty factors. They examined measures and areas of risk management in the context of digital transformation and a pandemic (Zvarych et al., 2022).

E. Tereshchenko and co-authors studied the effectiveness of using information risk assessment of business processes and also noted that the protection of information is important, which can be ensured by such mechanisms as cryptographic methods (encryption, message authentication, electronic recording) (Tereshchenko et al., 2021). This is important for the development of risk research, as technological development becomes not only a source of increasing the effectiveness of risk management, but also its source.

Researchers A. Kucher and L. Kucher conducted an in-depth bibliographic analysis of business risk management in the context of the transition to a circular economy. They note that business risk management in the context of the transition to a circular economy in the value system of sustainable development is carried out using both traditional or classical risk management tools and the concept of a circular economy and sustainable development. However, according to these authors, traditional risk assessment tools need to be improved and adapted, taking into account the specificities of the industry (Kucher et al., 2023).

Researchers J. Tupa, J. Simota and F. Steiner define risk management as one of the nine areas of knowledge promoted by the Institute of Project Management, and probably the most difficult to manage. They note that the concept of Industry 4.0 generates new risks related to the development of technologies, cyberspace and the use of outsourcing services. The results of the study show that most of the risks in production are part of information and communication technologies and, accordingly, require the implementation of information security management systems (Tupa et al., 2017). Outsourcing services certainly also increases the likelihood of risk situations, including the occurrence of information risk and the risk of poor quality and untimely performance of the task. This is due to the fact that outsourcing services does not involve direct presence

in the company, but rather the performance of services by third parties, or that they may not receive timely and high-quality information about the task, or that the information may be distorted due to the lack of information transmission channels for full-time employees in the main channels. All this can only affect the efficiency of the business and the quality of service delivery.

H. Tkachuk, V. Vyhovs'kyi and V. Renchkovs'ka studied the place of risk management in the enterprise management system. The authors carefully note that it is almost impossible to implement all European risk management technologies in the Ukrainian reality. They explain this by the following factors: a large share of the shadow economy in the country, corruption at all levels of government, distortion of business reporting to understate income and the real value of their assets, conducting a number of fictitious transactions to reduce the tax burden, VAT laundering and withdrawal of cash from circulation through shell companies, and so forth (Tkachuk et al., 2022). These factors are well-founded, but it is worth adding to them the full-scale war in Ukraine that has been going on since 2022. In this case, European risk management can demonstrate its imperfection due to the lack of such experience. One cannot but agree with these authors that risk changes in line with changes in time and new challenges and conditions. For example, during the global economic crisis of 2008-2009, the risks of Ukrainian enterprises were mainly associated with foreign exchange transactions and a decline in purchasing power. During the COVID-19 pandemic, companies faced health risks (due to the possibility of contracting the virus) and the risk of lost sales (due to lockdowns and quarantine restrictions). During a full-scale war, the range of risks became even wider. Accordingly, the measures to respond to them should change in line with the new challenges faced by businesses.

3. Research Methods

With the aim of elucidating the purpose of the present research, it was necessary to employ the general scientific methods of research and cognition.

In order to provide a theoretical basis for the prerequisites and features of the establishment of a risk management system in enterprises in the context of contemporary global transformations, a range of analytical, synthetic, comparative, extrapolative and generalising methods were employed.

In order to conduct an analytical study of representatives of the business and industrial sectors of the economy in terms of risk and other related categories, the following methods were used: analytical, generalisation, graphic, dynamics analysis, content analysis and comparative.

The collection of analytical data was facilitated by Google Trends, a tool that enables the acquisition of data pertaining to queries, their geographical distribution, and associated terminology and search phrases.

The utilisation of these methodologies enabled the acquisition of comprehensive results, the formulation of pertinent conclusions, and the provision of recommendations pertaining to the subject under investigation.

4. Results

4.1 Modern Prerequisites for the Formation of an Enterprise risk Management System: Theoretical Justification

The concept of risk is inherently multifaceted and open to interpretation. Fundamentally, it pertains to the potential for an event to occur, which may result in a deviation from the initially planned outcomes that is deemed to be undesirable.

As posited by Tsopa (2023), the sources of risk may be categorised as follows: the randomness of events; conflict of interests and trends; informational limitations; the inability to unambiguously recognise objects, processes and phenomena; and diversity of socio-psychological attitudes and assessments of individuals in the decision-making process.

In other words, the primary sources are various resources, states of constraint, and attitudes that can affect the emergence of risk. It is imperative to acknowledge that risk can materialise in any conditions and at all levels. The psychological attributes of the manager also exert an influence, given that, in the decision-making process, it is imperative to maintain composure and swiftly evaluate the potential ramifications of divergent decision pathways. Consequently, when establishing an ERM system, it is imperative to consider this aspect and devise various psychological training programmes and initiatives for the company's management and those directly involved in the decision-making process.

The prevailing wisdom is that risk is detrimental, yet this is not invariably the case. Primarily, risk is defined as the probability of deviation from planned indicators. However, it is important to note that indicators can also deviate in the direction of increase. For instance, during the pandemic, when individuals were compelled to remain at home due to the imposition of a quarantine period and sports clubs had not yet transitioned to an online format of operation, those fitness platforms that had not previously enjoyed significant success experienced a notable surge in sales.

However, it is possible to identify works in which scientists emphasise the positive role of risk, as

evidenced by its functions: analytical, regulatory, protective and innovative (Tsopa, 2023). This is a logical proposition, as a meticulously planned and organised risk management system at the enterprise enables constant analysis of the organisation's work, leading to the identification of potential "bottlenecks". These bottlenecks, in turn, provide the foundation and information necessary for effective decision-making. Similarly, appropriate measures are taken on the basis of the previous function, and risk accounting and analysis should become a system in the company, i.e., risk management should be a systemic and holistic process that is embodied in the company's regulatory documents. This is where the regulatory function manifests itself.

Consequently, the risk management process is rendered as automatic as possible from a managerial perspective, thereby safeguarding the company from potential risk occurrence.

It is also important to emphasise the innovative role of risk in this context. When making a decision on risk management, enterprises can implement innovative methods of managing both the risk itself and the company. For instance, it is not solely technological innovations that can emerge; organisational and managerial innovations can also emerge. With regard to innovations, there is a risk of deterioration in the work of personnel due to employees returning to work after the lockdown and remote work, or the need to preserve the team, of which part are abroad and are afraid to return to Ukraine due to hostilities. In such cases, decisions can be made that allow for the combination of remote work and regular work. For instance, the institution could allocate specific days on which employees based in Ukraine could work remotely, or alternatively, permit remote work for employees residing abroad. The decision regarding the employee's continued employment at the enterprise is naturally contingent upon the employee's qualifications and the enterprise's needs.

In a similar fashion, the technological characteristics of a product or service may be enhanced as a potential risk management strategy, which consequently results in improved product quality.

It is evident that risk management, or more precisely, the process of risk management, exerts a favourable influence on the enterprise.

In the contemporary world, the nature of risk has undergone significant changes, with the potential for risk exposure increasing. It is imperative to ascertain the potential risks involved and to formulate a strategy for their management. This will facilitate analysis and assessment of the potential consequences of the impact in the event of its occurrence, and will enable the implementation of measures to manage it. As previously mentioned, scientific research has indicated a direct correlation between the risk profile

of an enterprise and the nature of its operations. This assertion is both logical and justified. However, the risk is also related to the region where the enterprise is located. For instance, an enterprise located in Ukraine may currently face the risks of shelling, lack of electricity and Internet connection, as a result of which there may be a decrease in sales due to population outflow, etc. It is important to note that even within Ukraine, regional disparities exist in terms of the frequency and magnitude of these risks. European businesses are less affected by the possible risk of a war on the part of Russia, which also exists, but is very low. However, the risks associated with these activities are now more closely linked to the environmental initiatives of the EU government and the adoption of the Green Deal. In the context of the implementation of the Sustainable Development Goals (SDGs) in all areas of activity in the EU, there is an increasing demand for the production of goods that are more environmentally friendly and focused on improving the environment. The European Union has set itself the objective of achieving climate neutrality, a goal which has implications for all processes within this integration group.

As far as Ukraine is concerned, domestic companies are currently experiencing problems in finding and recruiting staff, due to the exodus of workers in the first years of the full-scale war and the current mobilisation of the population. The number of male workers is decreasing, and women cannot always perform the same types of work. In the EU, on the other hand, there is currently a large number of migrants from Ukraine who represent a potential labour force. That said, a language barrier can emerge for displaced persons who have not yet attained a sufficient level of proficiency in the language of the host country. This can particularly impact their ability to communicate effectively in the workplace. This may have ramifications for the quality of the production of goods or services. As a result, EU countries that have granted asylum to Ukraine citizens are also exposed to labour market risks. However, these risks, characteristics and consequences vary in nature and magnitude.

Consequently, the establishment of an ERM system is to be initiated at enterprises located in Ukraine, the EU, or other countries worldwide. In summary, the risk management system in Ukraine will henceforth prioritise the maintenance of production of goods and services in conditions conducive to the conservation of life and health of staff, whilst also ensuring the uninterrupted operation of the enterprise. In the European Union, enterprises will be compelled to prioritise the production of technologically advanced and ecologically sustainable goods, which will inevitably entail a concomitant risk.

In this case, the importance of establishing a risk management system can be discussed.

In previous studies, this system was defined as a strategic enterprise management system that considers the likelihood of risk and implements measures to mitigate the adverse effects of its occurrence and any deviation from the planned indicators (Dyelini, 2024).

P. G. Aquino Jr. and his team of authors conducted a study on the role of the risk management system in an enterprise. They noted that ERM is an organisational tool that allows for the identification of potential areas of risk and their subsequent management. The findings of the study indicate that ERM facilitates the achievement of long-term organisational goals, as it is able to identify risk before it occurs. Furthermore, the authors posit that the implementation of ERM is imperative for enterprises of all sizes (Aquino Jr. et al., 2022). This standpoint is substantiated by the pervasive nature of risk within any enterprise, irrespective of its operational scale. It is evident that the practical implementation of ERM will be subject to variation depending on the size of the enterprise. Consequently, the ERM of a small individual entrepreneur who is on a simplified taxation system will be the responsibility of the individual entrepreneur's director and his subordinates. In the event of an enterprise specialising in the provision of logistics services, comprising a staff of two to three individuals, of whom two are designated as drivers, the implementation of all stages of ERM is the responsibility of the director and the aforementioned drivers, who possess the potential to assess the viability of certain risks. In the context of a medium-sized enterprise with a workforce of 50 or more, the ERM functions are likely to be dispersed across a larger number of managers and executives. However, it should be noted that not all employees of the company are involved in the direct analysis and identification of risk, nor the development of policies for its management.

M. Rahman, S. Kennedy and Z. Chen examine the relationship between ERM and firm performance. They also identify the difference between ERM and traditional risk management, which is that ERM is an integrated, systemic and strategic risk management policy of a firm. Their research was based on Chinese commercial industrial companies. The results of the research were unexpected. One of the findings was that large companies are better at managing risk. Furthermore, these scientists obtained a negative result on the relationship between the performance of commercial Chinese enterprises and ERM, and they themselves note that this contradicts previous studies by other scientists. The observed outcomes are ascribed to the unique characteristics of the operations conducted by commercial Chinese enterprises. These enterprises have limited experience in implementing ERM, which consequently leads to elevated costs. This, in turn, exerts a direct influence

on the effectiveness of implementation, resulting in a reduction thereof (Rahman et al., 2022).

S. Balaji, L. Shreshta, K. Sujatha in their study also analysed the difference between traditional risk management and ERM. The latter is more holistic and integrated into the corporate management system. They also note that the traditional risk management system is reactive while ERM involves a proactive approach. This means that traditional risk management is based on known risks and assessing their potential impact. This method is more dependent on historical data and known risks. However, ERM relies on processing a larger data set, using AI, machine learning to identify patterns and so on (Balaji et al., 2024).

P. Mitterbaur, J. Pesendorfer E., and Schmidinger E. observe that the effective management of risk and the implementation of effective ERM are only possible through the utilisation of IT. Information technology (IT) has the capacity to engender both significant benefits and novel threats. Consequently, they furnish contemporary instruments for the identification, processing, analysis and visualisation of data. However, these systems are not without risk. Information leakage and increased dependence on energy supply are two such risks. In the event of power outages, there is also a risk of both lack of access to information and its loss in general (Mitterbaur et al., 2016). The research of scientists can be considered a logical continuation of the change in our world, and is in accordance with reality. It is imperative to acknowledge the potential benefits that IT technologies offer in the realm of risk management. However, it is equally crucial to recognise that these technologies can concurrently serve as a source of potential risk.

M. Tarashevskyy proposed several areas for the enhancement of risk management within enterprises in this industry. These include the implementation of digitalisation and informatisation, as well as intelligent transport technologies within the network of safety management of transport processes. Furthermore, he suggested the modernisation of transport infrastructure, with the objective of aligning it with contemporary requirements. Finally, he called for the creation of conditions and rules for achieving traffic safety in the transport market (Tarashevskyy, 2020). However, it is important to note that this paradigm also poses significant threats to the viability of enterprises.

R. Zvorych and a team of authors identified the following basic risk management measures: application of response plans, monitoring of critical business dependencies, assessment of key risks, verification of infrastructure readiness for load in conditions of remote work of employees, analysis of key employees and their backup planning, creation of a communication mechanism with employees, partners, suppliers, authorities and the public.

In the context of technological applications for risk mitigation during pandemics, the following areas have been identified as significant: geoinformation and navigation technologies, photonics technologies, cloud computing, cyberlogical systems, authentication and identification systems, supercomputer and grid technologies (Zvarych et al., 2022).

H. Tkachuk, V. Vyhovs'kyy, and V. Renchkovs'ka observe that the practice of Ukrainian enterprises demonstrates an appreciation for the significance of effective risk management and its integration into the functional subsystems of the organisation's management. This suggests that risk management is possible at all hierarchical levels, and that risk taking on the part of managers can be evaluated with regard to the probability of risk occurrence (Tkachuk et al., 2022). This approach is widely regarded as a highly efficacious one, insofar as it entails the consideration of risk at all levels of management and in the context of the management of any area of the enterprise. Consequently, the onus for risk management does not rest with individual employees, but rather with the enterprise management culture.

The generalisation of current trends, changes, and conditions for the development of states facilitates the formation of Figure 1, which illustrates the primary sources and consequences of this in relation to risk management.

It is evident that the development of information technologies and techniques has resulted in the proliferation of cyber threats and associated risks in cyberspace.

The advent of modern changes in the aftermath of the pandemic, coupled with the digitalisation of

numerous processes, has given rise to the emergence of an outsourcing modality of work. This paradigm shift in the world of work has concomitantly engendered a host of threats, including the emergence of information risks and the potential for substandard performance.

The evolution of the notion of a circular economy necessitates the implementation of novel methodologies for risk management, with a focus on economic productivity.

It is important to note that innovations can have a variety of consequences, including a reduction in risk and an increase in its probability.

For Ukraine, in conditions of war, such a source of risk arises as the outflow of the population and the mobilisation of men, which cannot but worsen the situation on the labour market. It is imperative to acknowledge that not all roles are suited to female employment, and the time required for training can be a disadvantage.

In light of the aforementioned considerations, it can be concluded that, while contemporary development and progress have a discernible impact on the capacity to predict, assess and mitigate risks, it is imperative to acknowledge that novel risks emerge as a consequence of technological advancement, the advent of novel developmental paradigms within the global community, and shifts in circumstances (for instance, a full-scale invasion of Ukraine). It can thus be concluded that the occurrence of risks is commensurate with prevailing global trends. Consequently, the system of responding to them must be sufficiently flexible to adapt to the challenges that arise. It can be posited that, over time, the potential for identifying risks and assessing their potential consequences increases.

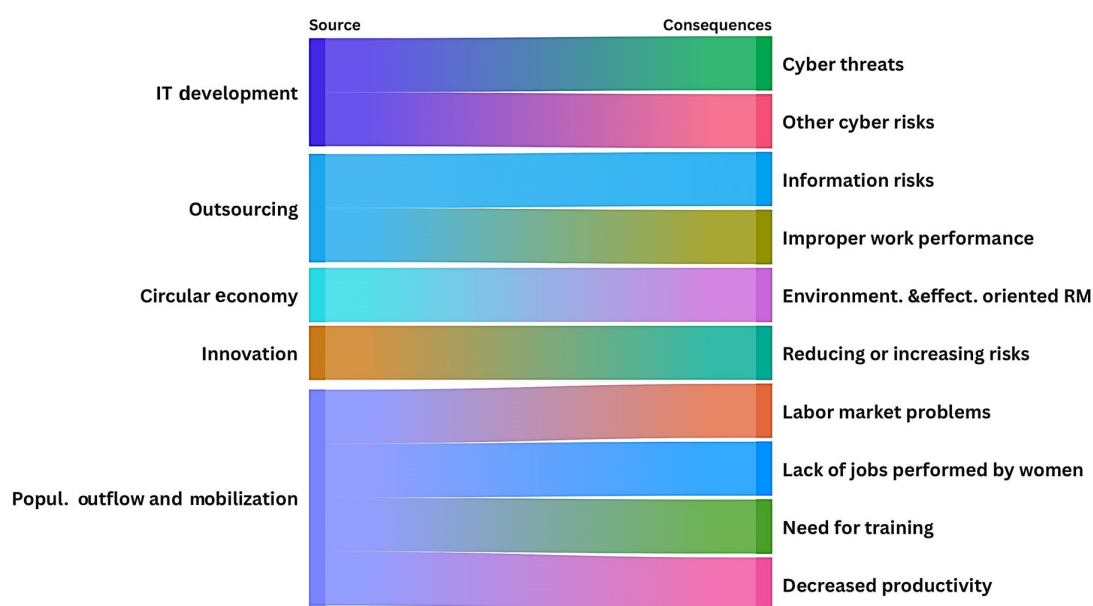


Figure 1. Modern sources of risks and their consequences for enterprises

Source: compiled by the authors

Conversely, the scale of possible manifestations of new risks also increases or changes. The primary concern is the necessity to manage risk in a manner that is both expeditious and efficacious. This is a challenging undertaking, particularly when one considers the multifarious challenges confronting society and Ukraine in particular.

4.2. Research on Search Trends of Business Representatives

In the course of developing this study, an analysis was conducted of Google Trends inquiries related to the "Business and Industrial Sector of Economics". The analysis of requests received from business and production units is of paramount importance in order to comprehend the concerns of their respective representatives. Furthermore, this process facilitates the anticipation of potential risks and enables a targeted response. Consequently, the establishment of an effective, proactive system of risk management within enterprises is facilitated.

For comparison, two periods of crisis for Ukraine and EU countries were chosen: 2020-2021 (COVID-19 pandemic) and 2022-2024 (full-scale war in Ukraine). For the analysis the search word "risk" was used in the study of search queries from Poland, Germany and France, and "ryzyk" ("risk" in Ukrainian) in Ukraine. A regional analysis was also conducted in Ukraine.

The results of the EU countries analyse are presented in Fig. 2-3 according to the analysed period.

In order to facilitate a comparison of trends in entrepreneurs' interest in the Business and Industrial Sector of Economics, an analysis was conducted of data

on the main trends in the search for risk and related words in three EU countries with which Ukraine is associated with ancient and stable, diplomatic and economic ties. The selection of Poland, Germany and France was made for the purpose of this study.

It is important to note that Google Trends does not provide absolute values, but rather relative values, where the maximum number of requests is set as 100% and all other figures are derived from this.

As illustrated in Figures 2-3, the subsequent analysis will examine trends in the sourcing of risk-related information by entrepreneurs in these countries during the specified periods (2020-2021 and 2022-2024). The selection of information was made at the behest of "risk" (in English), as the results on other search requests, which will be further analysed in the indicators of Ukraine, displayed only minimal figures or their absence. It is also noteworthy that the search for trends in these countries was conducted in English, thereby facilitating the comparison of their results.

As demonstrated in Figure 1, there is a high and intense trend in the search for information regarding risk in these countries over the two periods analysed. It is evident that, despite the presence of both decline and growth, the figures remain consistently elevated, with minimal instances of decline, except in the third quarter of 2021 and the initial and third quarters of 2023. The findings of this study demonstrate the pronounced interest of European entrepreneurs in the risk study, its associated subjects, and the effective implementation and realisation of an ERM system.

A comparison of the trend dynamics across different countries reveals that there are discrepancies, albeit within the overarching general trend.

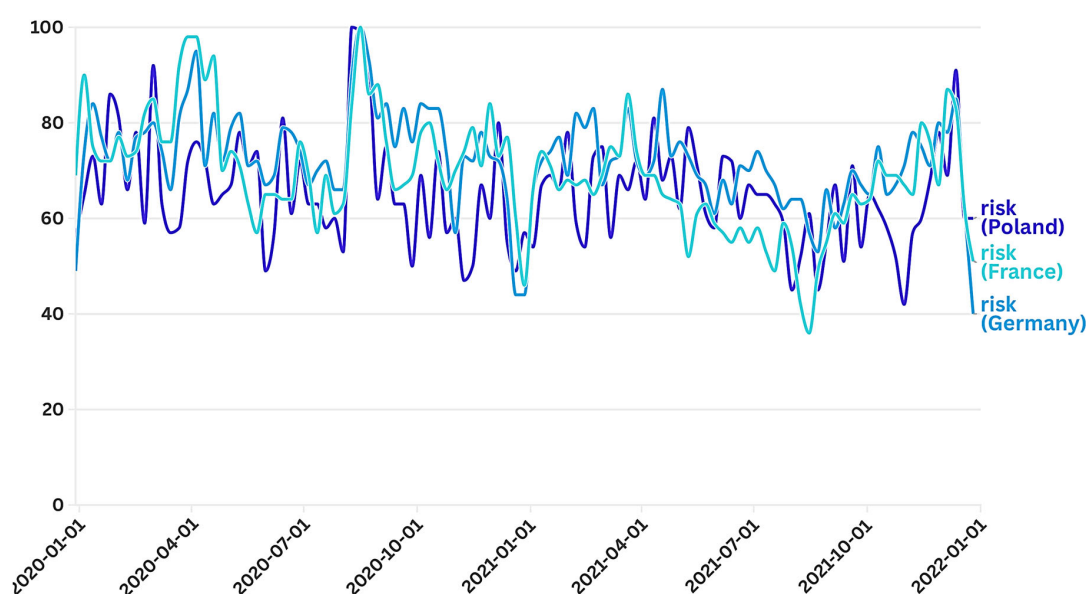


Figure 2. Dynamics of search for "risk" requests in 2020-2021, Poland, Germany, France

Source: compiled by the authors based on Google Trends data

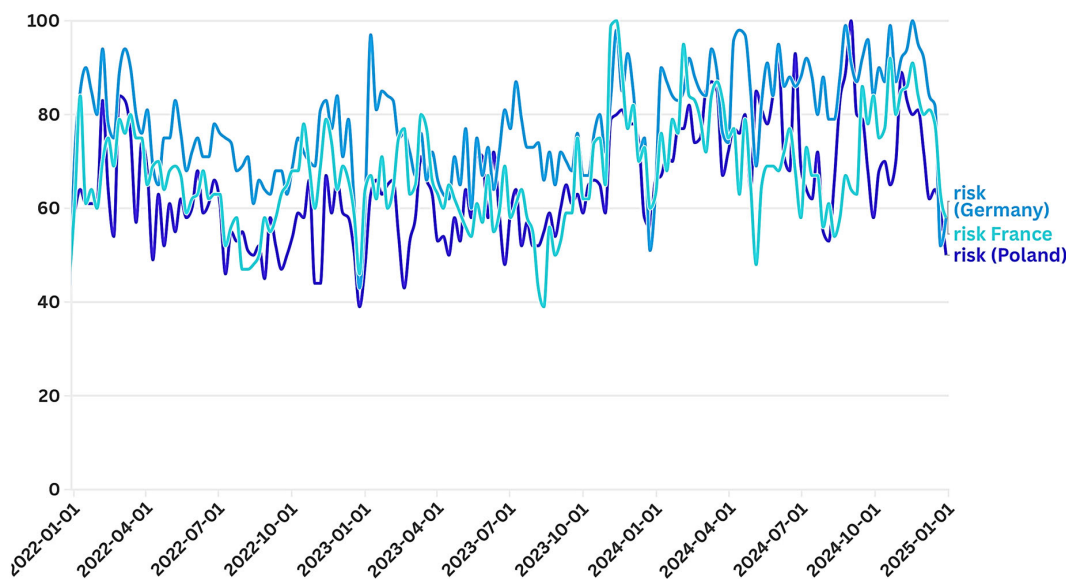


Figure 3. Dynamics of search for "risk" requests in 2022-2024, Poland, Germany, France

Source: compiled by the authors based on Google Trends data

The following section presents the content analysis of related words in these countries during the same periods (see Fig. 4-6, where a – 2020-2021, b – 2022-2024). It is important to note that Google Trends' search capabilities provide data on up to 25 related words.

As demonstrated in Figure 1, the related searches in both analysed periods were found to be highly similar. The terms that were most frequently searched for were risk management and risk assessment. The searches also included an examination of information on the risk matrix – an assessment method used in risk management – and on various types of risk.

The results from Germany also demonstrate a slight discrepancy in the terms associated with this search. These include search terms related to risk management,

risk assessment, financial risk, and risk matrix, as well as strategies for risk mitigation.

In France, the results were similar. The primary search terms, in addition to risk, encompassed risk management, risk assessment, risk analysis, risk manager, and capital risk, among others.

It is evident that the associated vocabulary is extensive, encompassing numerous pivotal elements essential for effective risk management.

In order to further develop this study, the results for Ukraine will be analysed. Firstly, an analysis was conducted of the results of the search for the word "risk" by representatives of the business and industrial sector of Ukraine by oblasts in both analysed periods.

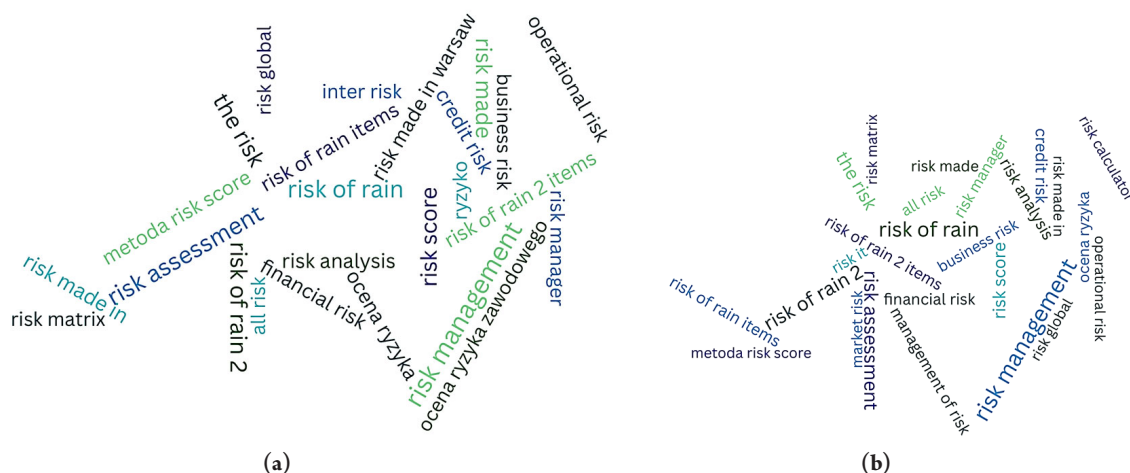


Figure 4. Search for words related to the word "risk" by business and industrial sector representatives in Poland in 2020-2024

Source: compiled by the authors based on Google Trends data



Figure 5. Search for words related to the word "risk" by business and industrial sector representatives in Germany in 2020-2024

Source: compiled by the authors based on Google Trends data



Figure 6. Search for words related to the word "risk" by business and industrial sector representatives in France in 2020-2024

Source: compiled by the authors based on Google Trends data

The results obtained from the analysis indicate a notable interest in researching risk-related information during the specified periods. It is important to note that the highest levels of research activity related to risk were observed in Vinnytsia Oblast, Kyiv city, and Ivano-Frankivsk Oblast, with slightly lower activity levels recorded in the latter. It is noteworthy that the frequency of requests was higher in this period in the West of Ukraine, while the Centre and the East are characterised by lower search intensity and interest from the business side.

The situation during martial law in Ukraine is slightly different: for example, the highest intensity of search for information on risk was among entrepreneurs in Kyiv. The indicators for other regions are considerably lower, although Vinnytsia and Ternopil oblasts have investigated issues related to this category more extensively. The variation in interest across Ukraine is not particularly evident, with the exception of the previously delineated Kyiv and the respective regions

("oblasts"). The data obtained indicate that business paid more attention to risk during the beginning and continuation of the war than during the pandemic. Furthermore, the low search values in the majority of regions that engaged in hostilities from the outset or were occupied (with the exception of the Sumy and Kyiv oblasts) are noteworthy.

Furthermore, a significant characteristic of interest and content analysis of searches by business representatives is the analysis of associated terms with the primary search term, "ryzyk". The results of searches for related words among representatives of business and the industrial sector of Ukraine in 2020-2021 (a) and in 2022-2024 (b) are presented in Figure 7.

As is evident, there are certain similarities and differences in search terms during these periods. For instance, during the pandemic, Ukrainian business and industrial representatives expressed interest in risk management, audit risk, credit risk, and other



Figure 7. Search for words related to the word "ryzyk" by business and industrial sector representatives in Ukraine in 2020-2024.

Source: compiled by the authors based on Google Trends data

related issues, as well as measures to mitigate the risk of infection with the virus. During the war, in addition to the common related words "risk management", "audit risk", "credit risk", and "corruption risk", others were added that merit attention: The terms "justified" and "unjustified risk", "geopolitical risk", "insurance risk" and "social risk", etc. are all used to refer to the concept of risk. This provides a basis for analysing how business representatives during this period assessed the potential impact of the war on their commercial interests more broadly.

The subsequent stage of the research will entail the presentation of the dynamics of search queries on the topic under study. The risk will also be augmented by the addition of other keywords, including "economic risks", "business risks" and "military risks" (which were incorporated in the second analysed period, since no data was obtained for them in the first). The data obtained is illustrated in Figures 8-9.

As demonstrated in Figure 1, during the 2020-2021 period, data pertaining to risk and economic risk was collected. The dynamics are heterogeneous, exhibiting both declines and increases. It is noteworthy that the peak in information searches did not occur during the initial period of the announcement of quarantine measures in Ukraine, but rather during the subsequent second lockdown in the autumn of 2020. The issue of economic risks has been a subject of interest for business representatives since July 2021. A close analysis of trends in queries related to these risks reveals a divergence from the search term "ryzyk".

Furthermore, analysis of Figure 11 enables the discernment of additional information pertaining to other risks. This figure also reflects uneven trends in searches. Consequently, information pertaining to military risks was of greater interest to entrepreneurs

even prior to the commencement of a full-scale invasion and at the conclusion of 2023. It is important to note that interest in various types of risk is situational, rather than stable.

Searches for information about risk itself are characterised by relative stability, albeit with periodic declines. The maximum values of information search were observed in October 2023 and spring 2024. This is a particularly intriguing aspect for analysis, given that during this period the war had been ongoing for a considerable time. It may be hypothesised that businessmen are beginning to prioritise the establishment of a risk management system and the acquisition of further information regarding risk.

A comparison of the results with those of related words of Ukrainian entrepreneurs during the pandemic reveals a significant decrease in content not in favour of domestic entrepreneurs. Despite the fluctuations observed in the initial period of analysis, a stabilisation of the situation was evident in the subsequent period when analysing European partners. However, Ukrainian businessmen were currently seeking further information regarding the types of risks, as opposed to the means of assessing them and mitigating the consequences of their occurrence.

The results obtained provide evidence of the extent to which business representatives are interested in studying issues related to risk, how much they understand the importance of risk management and the process of its prediction and mitigation. It is evident that European entrepreneurs adopt a more profound and consistent approach to this matter, as the trends are relatively stable, and the information requested encompasses not only the examination of risks and their categories, but also methodologies for their evaluation and management.

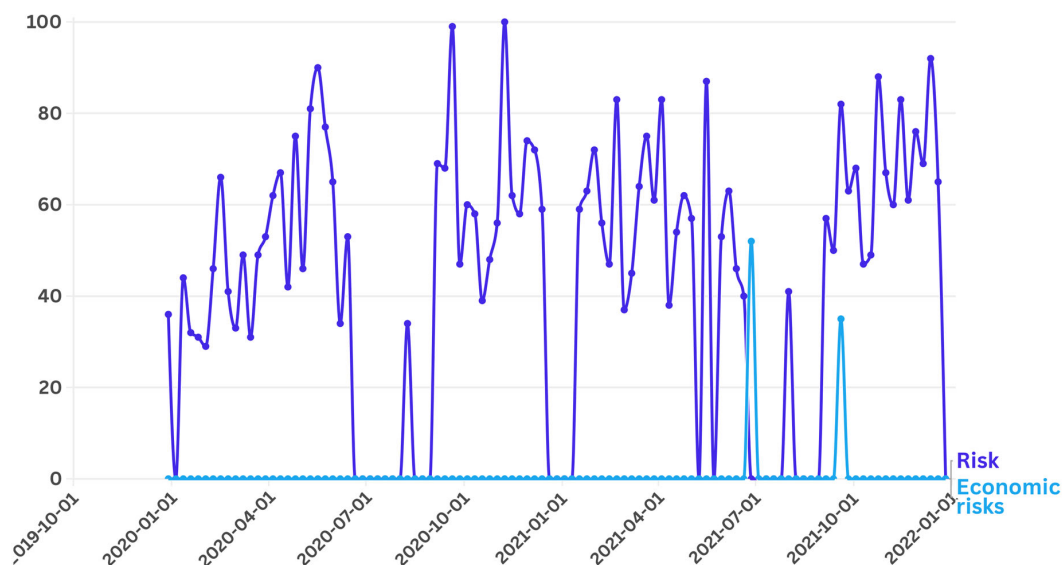


Figure 8. Search dynamics for risk queries in 2020-2021

Source: compiled by the authors based on Google Trends data

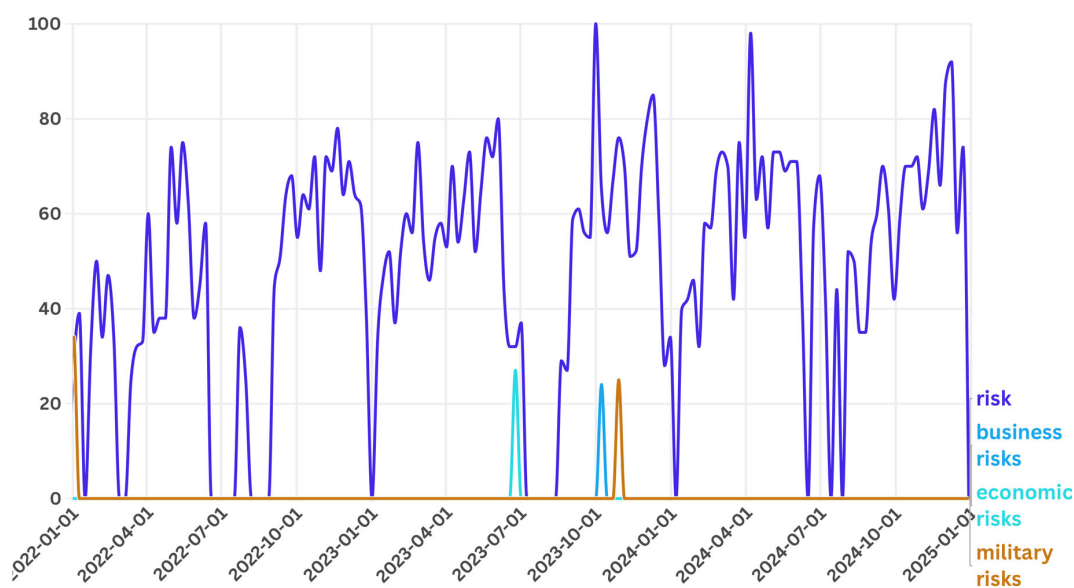


Figure 9. Search dynamics for risk queries in 2022-2024

Source: compiled by the authors based on Google Trends data

In order to enhance the efficacy of ERM, it is imperative to utilise a range of tools. One of the most effective tools in this regard is the expert opinion of specialists and the possibility of obtaining professional advice. In light of the prevailing circumstances, it is incumbent upon Ukrainian businessmen to avail themselves of the services proffered by the All-Ukrainian Association of Management Consultants CMC-Ukraine, an organisation which has been instrumental in providing assistance to Ukrainian businesses in times of crisis. For instance, the projects in which Ukrainian entrepreneurs can participate

from this association of consultants. Consequently, CMC-Ukraine has effectively executed projects aimed at providing consultation to entrepreneurs, notably "CMC4Ukraine. The projects "Restoration and Development of Manufacturing Enterprises" and "Business Development Services for Small and Medium-Sized Enterprises of Ukraine in Crisis Due to the Ongoing War" were initiated with the objective of providing business owners with professional advice on various aspects of business management and facilitating the exchange of experiences between entrepreneurs. These initiatives contributed to

a synergistic effect in terms of acquiring knowledge and skills in risk management (Official site CMC-Ukraine, 2025).

Furthermore, universities and communities are becoming increasingly important in terms of enhancing the quality of enterprise risk management, as they serve as a valuable source of business support through effective co-operation. Universities are institutions that develop and implement innovations in co-operation with communities and stakeholders, including entrepreneurs. The role of these three groups is increasing, and a strong triad is emerging: universities-community-business. Their co-operation has the potential to yield favourable outcomes in the development of the socio-economic aspects of the economy. In order to achieve this objective, it is imperative that businesses engage in collaborative endeavours with these two institutions to conduct a comprehensive analysis of their respective needs and opportunities. Universities and communities have the capacity to establish significant conduits for the dissemination of knowledge and the instruction of fundamental risk management competencies. It is incumbent upon businesses to explicitly articulate their requirements in this domain. The Erasmus+ project KA2 "Universities-Communities: strengthening co-operation" is currently being implemented, and has been supported by the European Commission. The project has been described as a platform that allows universities and communities to connect with businesses and improve their co-operation in terms of sharing knowledge, experience, needs, and joint collaboration to better manage potential risks (Official site UNICOM, 2025).

5. Conclusions

Therefore, following a comprehensive examination of the theoretical and practical aspects of the research topic, the following conclusions can be drawn:

1. It is an inherent component of any enterprise, irrespective of its size or industry. The determination of the relevant regulatory framework is contingent upon the geographical location of the enterprise in question. It is important to note that risks can have a greater impact on one region, thereby reducing the negative impact on enterprises in another region. However, in the context of European countries or developed countries of the world with which Europe has strong economic ties, all processes that occur on its territory, all policies that are implemented, and all paradigms that are adopted also have an impact on countries on other continents.

2. Technological, innovative progress, as well as other trends, have the capacity to exert influence in a number of directions, both positive and negative. To illustrate this point, the evolution of information

technologies has precipitated a dual phenomenon: firstly, an augmentation in the celerity of data processing and the efficacy of enterprises; secondly, a concomitant proliferation of novel threats and risks, consequent to the dissemination of these technologies. Concomitantly, the propagation of the pandemic has precipitated a transition to remote work and the development of outsourcing services, which is also beneficial from the perspective of cost management. Nevertheless, it must be noted that this transition concomitantly engenders information risks.

3. The aforementioned updates the subject of the study and indicates the necessity for risk management to be undertaken proactively, with risk being fully integrated into the enterprise system. In order to achieve this objective, it is imperative to engage in the meticulous study of experience, while also ensuring the acquisition of pertinent and superior-quality information pertaining to risk and its management processes.

4. In order to achieve the aforementioned objective, an analysis was conducted of entrepreneurs' queries about risk, a survey was carried out of queries by oblasts of Ukraine, and an investigation was made of the content of searches for risk-related words. The data obtained demonstrate that there are certain discrepancies in the activity of searching for information about risks by region for the two analysed periods. In the context of a full-scale war, the difference is less pronounced than during the pandemic, yet Kyiv city, Vinnytsia, and Ternopil oblasts stand out the most in 2022-2024. The analysis of dynamics is also heterogeneous, and its results are somewhat different from the data for EU countries – Poland, Germany, and France. In these countries, the search for information about risk by business representatives demonstrates greater stability, suggesting that entrepreneurs are cognisant of the issue and are undertaking constant monitoring of it. The analysis of risk-related words also reflects this result, indicating a greater number of additional searches about risk by entrepreneurs from these countries. As the findings of this study demonstrate, the result of Ukraine in 2022-2024 is also approaching that of the EU countries analysed.

5. Therefore, taking into account the challenges faced by entrepreneurs in today's environment, regardless of their country of residence, it is necessary to build an effective and flexible ERM system that can identify potential risks in advance, assess them and take appropriate measures in case of their occurrence. For this to happen, entrepreneurs need to understand the value of the process, its effectiveness and the potential outcome of the effort and resources invested in it. This is facilitated by the timely availability of high quality information about the risk and the possibilities of influencing it, as well as the possible

use of the resource of consultants – experts in the field of business, and effective co-operation in the triad of universities-communities-business.

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Conflict of interests.

The authors declare no conflict of interest.

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