

Scientific Bulletin of Mukachevo State University

Series

Economics

Volume 12, No. 3, 9-20

Journal homepage: <https://economics-msu.com.ua/en>

UDC 351.86:005.334(477)

Doi: 10.52566/msu-econ3.2025.09

Integration of crisis management into the security strategy of shopping and entertainment centres in Ukraine in conditions of armed aggression

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Abstract. The study aimed to determine the effectiveness of comprehensive risk management measures and the resilience of shopping and entertainment centres in Ukraine during armed aggression. The methodology included a documentary analysis of emergency response plans and evacuation protocols, a study of the media, and a case analysis of specific shopping and entertainment centres, which made it possible to assess the practices of arranging shelters, warning systems, fire safety, and staff rotation in different regions of the country. The study determined that risk management measures in shopping and entertainment centres in Ukraine include a combination of shelters, warning systems, crisis plans, data backup, communication and psychological support, which ensure the preservation of personnel, property and operations during wartime. Systematic implementation of the instructions (including training, staff rotation and interaction with government services) increased the effectiveness of the response and minimised losses. The results of the case study determined that Forum Lviv has created a shelter with an autonomous power supply that ensures operation during power outages. Riviera Shopping City has created a shelter system for more than 200 people. In particular, the Karavan shopping centre in Kharkiv was subject to numerous regular shelling attacks, which caused the shelter to be stocked with water and medical supplies. Passage in Dnipro also faced potential threats of mining and missile strikes, which had required improvements to the warning and video surveillance systems, as well as the equipment of shelters and regular staff training. It was recommended to disseminate organisational practices (designation of responsible persons, staff rotation and digital warning systems) as a standard for managing the security of shopping and entertainment centres. The practical significance lies in the fact that the results of the study can be used to improve crisis management strategies and enhance the security of shopping and entertainment centres in Ukraine in the context of armed aggression

Keywords: risk management; rapid response; evacuation procedures; threat monitoring; security technologies

Received: 16.06.2025, Revised: 12.09.2025, Accepted: 14.10.2025

Suggested Citation: Brynzylo, A. (2025). Integration of crisis management into the security strategy of shopping and entertainment centres in Ukraine in conditions of armed aggression. *Scientific Bulletin of Mukachevo State University. Series "Economics"*, 12(3), 9-20. doi: 10.52566/msu-econ3.2025.09.



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Introduction

The integration of crisis management into the security strategies of shopping and entertainment centres (SECs) in Ukraine is relevant in the context of armed aggression, when the increased likelihood of emergencies, including terrorist threats, shelling and evacuation challenges, threatens the lives of visitors, staff and the economic stability of facilities. Shopping and entertainment centres, as locations of mass gatherings and strategic economic platforms, require a systematic approach to security planning, which involves the development and implementation of effective procedures for responding to crisis events, the adaptation of technological solutions for monitoring, access control and communication channels with state and private response services.

Research devoted to risk management and operational response in conditions of military conflict has revealed complex interactions between state strategies, technological systems, and socio-economic security mechanisms. The topic was addressed by many researchers, who have interpreted its aspects in different ways. For example, A. Bahinskyi & O. Zaiets (2023) studied the strategies of the parties in the war between Russia and Ukraine and noted that effective risk management was based on a combination of military, economic and information measures. The study found that the use of information systems and social and economic security mechanisms was a key factor in the stability of the conflict. M. Chovančík & O. Krpec (2023) analysed the processes of the collapse of the European defence industry in Central and Eastern Europe during the war in Ukraine, finding that the lack of integrated risk management systems led to delays in the production of critically needed equipment and logistical resources. The researchers emphasised that strategic monitoring of threats and timely response to signals of supply chain disruptions mitigated the negative impact on the defence capabilities of the region.

In the field of security at the European Union level, S. Cincă (2024) analysed security policy priorities for the period 2019-2023 and identified preventive threat monitoring, strengthening crisis centre coordination mechanisms, and using technological solutions to control and respond to emergencies as key measures. The study noted that the integration of digital platforms has significantly improved the efficiency of operational procedures and ensured the timely evacuation of the population in crisis regions. R. Hellberg & M. Lundmark (2025), in the study of the transformation of European defence supply chains, demonstrated that the use of adaptive technologies and digital monitoring systems reduced the risk of delays in providing military and civilian structures with the necessary resources. The study noted that the technologies predicted critical disruptions, optimised supply routes, and adjusted operational plans promptly in response to changes in the threat environment.

A case study of IT-Integrator in Ukraine was conducted by O. Kukuruza *et al.* (2024) and demonstrated that the integration of digital tools into the risk and crisis management system can be used to respond quickly to changes in

economic and security conditions. The study noted that predictive analytics, alert and evacuation planning systems increased the resilience of the enterprise to external threats, while minimising financial and human losses. Economic security measures during the elimination of the consequences of armed aggression were studied by L. Sorokina *et al.* (2023). The study noted that comprehensive risk management included planning evacuation procedures, controlling resources, monitoring potential threats, and implementing modern security technologies. The analysis revealed that the rapid response was based on close coordination between government agencies, businesses, and civil society organisations, which made it possible to quickly mobilise the necessary resources and protect critical infrastructure. L.S. Peláez (2023) examined the internal security challenges of the European Union after the Russian invasion of Ukraine, highlighting integrated threat monitoring and crisis scenario forecasting systems. The study noted that the development of unified emergency response protocols included clear algorithms for evacuation procedures, the distribution of responsibilities among member states, and the introduction of innovative security technologies, which increased the speed and accuracy of decision-making in critical situations.

M. Rabinovych (2025) analysed the differentiated integration of the European Union (EU) to respond to crises, particularly in the case of Ukraine. The study demonstrated that adaptive coordination mechanisms between states contributed to effective risk management and the organisation of operational measures, including evacuation procedures and control of potential threats. The study emphasised that the use of modern digital technologies significantly improved the accuracy of forecasts and the speed of decision-making at various levels of management. Certain aspects of responding to external threats and crises in EU countries were examined by V. Tumalavičius & A. Kriviņš (2024), noting that systematic monitoring of threats and integrated action planning reduced the negative consequences of emergencies. The study determined that operational procedures included not only military and police measures, but also evacuation planning, critical infrastructure security, and the implementation of early warning technologies, which increased the level of citizen safety. D. Varakin *et al.* (2024) studied adaptive strategies for managing decision-making in business during armed conflict. The study noted that the integration of risk management, predictive analytics, and security technologies ensure quick response to threats, optimise staff evacuation processes, and continuous operation of business in crises. The results demonstrated that a combination of alert technologies, resource management systems, and external threat monitoring increased the resilience of business processes.

Despite the aspects highlighted by previous studies, gaps were identified in the application of integrated crisis management specifically for shopping and entertainment

centres in Ukraine during armed aggression. The study aimed to assess the effectiveness of comprehensive risk management measures and the level of resilience of shopping and entertainment centres in Ukraine during armed aggression, particularly in different regions of the country. The objectives of the study were to analyse the state and challenges of shopping and entertainment centres in Ukraine during armed aggression; to identify comprehensive risk management measures in shopping and entertainment centres in Ukraine in conditions of armed aggression; and to formulate regional recommendations for adapting shopping and entertainment centres to military risks.

Materials and Methods

The study was conducted in three stages using a set of empirical methods. The first stage was a documentary analysis, which verified the information reported in the media and identified the level of formalisation of risk management. Official emergency response plans, evacuation drill protocols, briefing logs, fire system and shelter inspection reports, as well as local government orders on the construction of protective structures and cooperation with the State Emergency Service of Ukraine (SES) were studied. These included Resolution of the Cabinet of Ministers of Ukraine No. 223 “On Approval of the State-Level Emergency Response Plan” (2018), “Organisation and implementation of evacuation measures in the absence of documents” (State Emergency Service of Ukraine, 2024), and Sample of the Fire Extinguisher Registration Journal (n.d.). The study also addressed the Order of the Ministry of Defence of Ukraine No. 685 “On Approval of the Regulations on Fire Safety in the System of the Ministry of Defence of Ukraine” (2014) and Order of the Ministry of Internal Affairs of Ukraine No. 879 “On Approval of the Form of the Inspection Report of the Object of the Fund of Protective Structures of Civil Defence” (2024). The analysis of documents revealed regional differences, assessed the compliance of the measures implemented with national standards and international recommendations, and identified practices that ensure effective adaptation to military risks. In addition, a set of measures for managing risks in shopping and entertainment centres in conditions of armed aggression was described, including the construction of shelters with autonomous resources, the configuration of multi-level warning systems, the introduction of staff training and rotation practices, and the construction of fire stations to ensure the safety of visitors and employees.

The second stage involved conducting a case study with comparative elements, which made it possible to assess how different regions of Ukraine are adapting to new threats and what practices are highlighted in the public information space. The comparison was conducted between the largest and most visited shopping centres in different regions of Ukraine: Forum Lviv (Lviv), Riviera (Odesa), Passage (Dnipro) and Karavan (Kharkiv). This comparison reflected risk management practices in the western, southern and eastern regions of the country. The analysis covered

the dynamics of the state of danger in conditions of armed aggression and was based on national news resources. For Forum Lviv, materials on actions in emergencies and the presentation of fire protection systems were considered (We invite you..., 2018; Actions during emergency..., 2022). In the case of Riviera, the consequences of a missile strike on the shopping centre and the restoration of the second section after the shelling were studied (Zubar, 2022; Riviera Shopping City..., 2023). For Passage in Dnipro, reports of mining and the results of the facility inspection were analysed (Kuzemko, 2025). For Karavan in Kharkiv, data on the evacuation of people due to a false report of a bomb threat and the impact of martial law on the shopping centre's economy were considered (Tsvetkova, 2021; “Black Friday” and..., 2024).

The third stage examined the Business Continuity Plan as an option for ensuring business continuity in crises. In addition, the study identified regional practices for adapting to military risks, assessed the effectiveness of security measures, determined the dynamics of implementing innovative warning and shelter systems, and formulated recommendations for optimising personnel management and engineering security systems.

Results

Comprehensive risk management measures in shopping and entertainment centres in Ukraine in the context of armed aggression. In shopping and entertainment centres in Ukraine, risk management in conditions of armed aggression is conducted based on a comprehensive approach, which includes the construction of shelters, the organisation of multi-level warning systems, the provision of fire safety, and staff training. State standards, in particular Resolution of the Cabinet of Ministers of Ukraine No. 223 (2018), define clear algorithms for action in emergencies, including rocket attacks, fires and terrorist threats. They provide for the zoning of premises for evacuation, minimum distances between shelters and places of mass gathering, and the appointment of persons responsible for coordinating measures. In particular, in regions at higher risk (Kharkiv, Kyiv, Odesa), shelters are equipped with autonomous power sources with a capacity of at least 5 kW, a 72-hour supply of drinking water, and ventilation systems capable of supplying air for 200-500 people at a time. All evacuation routes must be marked with lighting that facilitates movement even in a smoke-filled environment. The evacuation process is also organised using digital and administrative mechanisms. The use of standard staff lists, QR access cards and mobile applications for notification quickly identifies people and directs them to safe areas (State Emergency Service of Ukraine, 2024). In addition, multi-level alarm systems are being introduced to automatically notify staff and visitors of a threat, including sirens, push notifications and voice announcements.

To ensure fire safety, shopping centres are equipped with fire stations, automatic extinguishing systems and fire extinguishers, in accordance with the requirements of

Sample of the Fire Extinguisher Registration Journal (n.d.). The minimum area of the fire station is 50-70 m² for facilities with more than 1,000 visitors, and there must be at least two emergency exits per shelter. Regular checks of the technical condition of equipment, monthly and quarterly inspections of fire extinguishers and automatic extinguishing systems ensure continuous monitoring of the serviceability of engineering systems. Personnel management includes ongoing training, briefings and shift rotation to maintain emergency preparedness. Staff training covers evacuation procedures, first aid and actions in case of fire, rocket attack or other threats. In addition, shopping centre administrations conduct regular evacuation drills, which improve coordination between staff and civil protection services, thereby increasing the effectiveness of safety measures (Resolution of the Cabinet..., 2018; State Emergency Service of Ukraine, 2024).

The arrangement of shelters following the Order of the Ministry of Defence of Ukraine No. 685 (2014) and the Order of the Ministry of Internal Affairs of Ukraine No. 879 (2024), which stipulates that each shelter must

be equipped with an autonomous power supply, ventilation, a 72-hour supply of water and food, lighting and two emergency exits, was highlighted. Shelter inspections are conducted quarterly using standardised forms, which are used for monitoring the technical condition of structures, the availability of supplies, and the serviceability of engineering systems. Any deficiencies identified are remedied within 30 days, ensuring that the facility is always ready to respond to emergencies. A multi-level warning system, combined with autonomous shelters and fire stations, provides comprehensive protection against the risks arising during military operations. The use of digital warning systems and personnel cards reduces evacuation time, lowers the probability of injuries and ensures efficient coordination between different services. In the eastern regions, shopping centres use more advanced technical solutions for shelters, while in the western regions, staff training and integrated warning systems are prioritised. Table 1 shows the main categories of measures and specific instructions for businesses in wartime, aimed at reducing risks to staff, infrastructure and operations.

Table 1. Key instructions for businesses during wartime to reduce risks

Category of events	Specific instructions	Description/purpose
Physical staff protection	Arrangement of shelters with water and food supplies, and an autonomous power supply	Ensures the safety of employees and visitors during shelling or bombing
	Marking and maintaining evacuation routes	Facilitates rapid and organised evacuation in emergencies
	Regular training and education of personnel	Increases employee readiness to act in crises
Organisational measures	Development of a crisis response plan and HSC (Higher Specialised Council)	Provides a sequence of actions to minimise losses and maintain operational activities
	Identification of responsible persons for each critical process	Ensures coordination and rapid decision-making during emergencies
	Rotation of shifts and staff rotation	Reduces health and safety risks for employees, maintains business continuity.
Technical and engineering measures	Installation of warning systems and alarm sensors	Rapid notification of personnel about danger
	Inspection and maintenance of fire protection systems, fire extinguishers, and automatic extinguishing systems	Reducing the risk of fire spread and ensuring the safety of facilities
	Critical data backup	Protection against information loss and ensuring the possibility of resuming operations
Communication and coordination	Organisation of rapid information channels (SMS, email, instant messengers)	Ensures timely notification of employees and customers
	Establishment of contacts with government agencies, police, and the State Emergency Service	Improves the effectiveness of interaction and response to threats
Psychological and social support	Provision of psychological support to staff	Reduces stress, improves responsiveness
	Support for vulnerable groups, including internally displaced persons and persons with disabilities	Respect for human rights and ethical standards in crises

Source: compiled by the author

Thus, the set of risk management measures in shopping centres in Ukraine includes the installation of shelters with autonomous resources, the configuration of multi-level warning systems, regular training and rotation of personnel, and the installation of fire stations. These measures ensure compliance with national standards and international recommendations, increase the level of safety for visitors and employees, and guarantee effective adaptation to conditions of armed aggression.

The state and challenges of shopping and entertainment centres in Ukraine during armed aggression. Business in Ukraine during the Russian full-scale armed aggression faced difficult conditions, which affected all segments of the economy, including shopping and entertainment centres. Shopping centres, which before the war served not only a commercial but also a social function, were forced to adapt to the constant threat of shelling, mining, evacuations, energy crises and a decline in the purchasing power

of the population. Crisis management integration includes a set of measures aimed at ensuring the safety and sustainability of organisations in emergency conditions. It covers the development of response strategies for various types of threats, including military, man-made and natural disasters, as well as the identification of critical processes and resources to ensure business continuity. Integration includes the construction of physical protective structures, such as shelters and fire stations, the configuration of multi-level warning systems, and the organisation of evacuation and staff rotation plans. In addition, integration includes employee training, training simulations and the formation of rapid response teams.

Coordination with government agencies, emergency services and local authorities, as well as the use of technological solutions for monitoring threats and managing information, are essential components. The integration of crisis management provides a comprehensive approach to minimising risks, protecting human life and health, and maintaining the stability of organisations. Personnel management involves identifying individuals responsible for critical processes, organising the rotation of key employees, and conducting regular training and crisis scenario simulations, which provide practice for staff to respond under pressure and reduce response times. In addition, specialised crisis management teams are created to monitor the implementation of security procedures, analyse incidents and update the action plan in response to new risks. This approach integrates physical, technical, and organisational measures into a single shopping centre security management system, minimises financial and reputational losses, maintains the stability of business processes, and ensures the safety of staff and visitors even in the difficult conditions of war.

The first object of analysis, Forum Lviv, demonstrates an example of the adaptation of the retail business in the relatively safe western region. Despite the absence of large-scale destruction, the threat of missile strikes remained constant. Back in 2018, the administration implemented an extensive firefighting and security system, which in 2022-2025 was supplemented with shelters for visitors and staff, evacuation training and a rapid response system during air raid alerts (*We invite you...*, 2018; *Actions during emergency...*, 2022). During one of the drills in June 2024, more than 500 people were evacuated from the shopping centre within five minutes, demonstrating the effectiveness of the training. According to RAU, Forum Lviv also implemented an autonomous power supply system, which ensured uninterrupted operation during power outages in the autumn of 2023 (Dudka, 2025). Thus, businesses in Lviv have adapted to the war by proactively implementing security technologies and crisis procedures, minimising risks for customers and employees.

The opposite situation is illustrated by Riviera Shopping City near Odesa, which was directly hit by a missile strike in July 2022. As a result of the attack, the complex suffered significant damage, with over 4,000 square metres

of retail space destroyed and surrounding residential buildings damaged (Zubar, 2022). After that, the shopping centre's administration implemented a large-scale programme of restoration and reinforcement of protection. In 2023, the reconstruction was completed, and in 2024, a decision was made to build shelters for the shopping centre's staff (Riviera Shopping City..., 2023). Despite significant losses, Riviera Shopping City continued to operate, setting an example of business resilience in the southern region amid constant shelling and economic instability.

Passage in Dnipro also faces constant threats. In June 2025, several popular shopping centres in the city, including Passage, were mined by unknown persons, resulting in a large-scale evacuation and hours of building inspections (Kuzemko, 2025). Although no explosive devices were found, the incident caused significant losses due to work stoppages, loss of revenue, and panic among visitors. Such incidents complicate business operations, forcing companies to invest heavily in additional security, video surveillance systems, and staff training in crises. Dnipro, as the country's industrial and logistics centre, is under constant threat of missile strikes, which further exacerbates uncertainty for the retail sector. Shopping centres are actively implementing comprehensive risk management measures in the context of armed aggression to increase the safety of visitors and staff and minimise financial losses. The Passage building in Dnipro is equipped with several underground shelters designed for the complete evacuation of visitors and employees in case of danger, and the warning system automatically notifies of an emergency via loudspeakers and mobile applications. Staff regularly undergo training on how to respond to emergencies, including evacuation, first aid and preventing panic among visitors. In addition, the shopping centre has integrated a video surveillance system, access control and firefighting depots, ensuring quick response to any threats.

The situation at Karavan in Kharkiv is challenging, as the shopping centre is under constant shelling. In 2021, there was a false bomb threat, which caused 350 people to be evacuated from the shopping centre (Tsvetkova, 2021). Since the start of the full-scale war, such incidents have become more frequent, creating additional psychological pressure on customers and staff, as well as causing financial losses. Kharkiv, being a frontline city, lives under constant artillery shelling, which forces businesses not only to respond to immediate danger but also to counter disinformation campaigns aimed at destabilising the situation. As part of the security strategy, a shelter with access to water and medical supplies was constructed, and the warning system was synchronised with local civil protection services. Employees undergo regular training on how to act during artillery shelling, evacuation and working under psychological pressure, and there are fire stations and medical points on the centre's premises to ensure a rapid response to emergencies. The facility practises staff rotation during dangerous periods, evacuation scenario planning, regular training and cooperation with local rescue services to

improve preparedness for crisis events. Thus, shopping and entertainment centres implement a comprehensive system of measures to protect people, infrastructure and business

processes during military threats. Table 2 reflects the potential threats to shopping and entertainment centres and the security strategies implemented.

Table 2. Comparative characteristics of threats and security strategies in shopping and entertainment centres in Ukraine

shopping centre	City	Threats	Implemented safety strategies
Passage	Dnipro	Mining, missile strikes	Underground shelters, a warning system, staff training, video surveillance, and fire stations
Karavan	Kharkiv	Constant shelling	Shelter with water and medical supplies, a synchronised warning system, staff training, and medical stations
Forum Lviv	Lviv	Possible missile strikes	Visitor shelters, a warning system, staff training, and the implementation of an autonomous power supply system, which ensured uninterrupted operation during power outages
Riviera	Odesa	Mining, missile strikes	Warning system, staff training, video surveillance, fire stations, shelters with water supplies, heating and ventilation

Source: compiled by the author based on L. Panchenko (2022), D. Andritsou *et al.* (2025), Shopping mall losses during the war: dozens of damaged facilities and 90 days of downtime (2025)

Table 2 demonstrates the territorial differentiation of the war's impact on the infrastructure of shopping and entertainment centres in Ukraine. All four shopping centres demonstrated effective risk management in the context of armed aggression. Passage and Riviera protected shelters and warning systems, as well as staff training. Karavan additionally integrated medical stations and water supplies for long-term stays in shelters due to constant shelling. Forum Lviv, being relatively safe, integrated minimum safety strategies by creating shelters. The strategies implemented made it possible to avoid serious damage and minimise financial losses, while increasing staff preparedness and visitor safety.

The generalised results suggest that regional retail structures have varying levels of vulnerability. Overall, the situation is challenging. Despite the general decline in purchasing power, shopping centres have become a place of social integration during power outages, providing people with basic needs such as heat, light and access to the internet ("Black Friday" and..., 2024). This ensured that visitor numbers remained at 70-80% of pre-war levels in large cities in western and central Ukraine. Thus, the conditions in which businesses operate, particularly shopping and entertainment centres, are characterised by multidimensional challenges: from immediate physical danger in the southern and eastern regions to information threats and energy crises in the centre and west of the country. An analysis of the above cases shows that successful operation is only possible with flexible adaptation, investment in security and maintaining customer confidence. At the same time, the experience of shopping centres such as Riviera, Forum Lviv, Passage and Karavan demonstrates varying degrees of preparedness for crises and highlights the need for a systematic approach to risk management in the retail sector in wartime.

Regional recommendations for adapting shopping and entertainment centres to military risks. Analysis of various regional cases determined that the effectiveness of security measures largely depended on the integration of technological solutions, coordination between shopping centre management and local authorities, and systematic

planning of evacuation and emergency procedures. In particular, the use of automated threat monitoring systems, such as video surveillance with analytics, motion sensors, and access control, ensured a rapid response to potentially dangerous situations, reducing the risk of injuries from panic or structural collapse. The results showed that shopping centres that implemented multi-level alert systems with automatic voice messages, SMS and push notifications for staff and visitors demonstrated greater effectiveness in responding quickly to threats. At the same time, adaptation of engineering shelter systems proved necessary: in regions with active hostilities, projects were implemented to equip specialised protective zones with autonomous power sources, ventilation systems and backup communication channels. Such solutions ensured the safety of visitors and staff for long periods of time during emergencies.

The study confirmed that training and regular drills for shopping centre employees on evacuation procedures, behaviour during shelling, and first aid increase the speed and effectiveness of actions in crises. It is recommended to implement staff rotation systems to reduce psychological stress and avoid burnout, as well as to create clear protocols of responsibility for different areas of the facility. A comprehensive approach to forming rapid response teams, including security specialists, engineers and administrators, facilitated rapid decision-making and minimised damage. The effectiveness of such decisions was increased when combined with traditional control methods, such as physical security and patrolling of critical areas. Regional characteristics revealed the need for a differentiated approach to security planning. In the southern and eastern regions, where the risk of shelling was high, shelter and evacuation routes were prioritised, while in the western regions, threat warning systems and psychological training of personnel were prioritised. This confirmed the importance of adapting security standards to specific geographical and social conditions, which improves efficiency of measures with limited resources. Coordination between shopping centre management and local authorities, emergency services and law enforcement agencies significantly increased the

effectiveness of security measures. It is recommended to implement joint planning systems, real-time information exchange and regular joint training. This ensures unified action in crises and reduces the risk of material losses and injuries among staff and visitors.

Autonomous power supply, water supply, emergency lighting, and backup communication channels ensure operation of shopping centres in a limited autonomous mode during emergencies. It is necessary to develop scenarios for operating in various risk conditions, providing for a phased response depending on the level of threat and the time required for evacuation. Comprehensive integration of measures aimed at ensuring the safety of staff and visitors has proven highly effective in minimising risks during military operations. These measures include systematic training, the development and implementation of emergency response procedures, the use of technological innovations, the provision of backup resources and coordination with government agencies. All these elements form a robust security management model that is adapted to specific regional conditions and risk levels. It is recommended that comprehensive communication procedures be developed as part of the Business Continuity Plan (BCP) to promptly inform employees, partners and customers about emerging threats and response measures, using multi-level channels such as mobile applications, SMS, email, public address systems and corporate web portals. It is necessary to identify the persons responsible for each critical process who coordinate actions during crises and ensure compliance with security procedures. The plan should include measures to restore operations after crisis incidents, including data backup, relocation of critical equipment to alternative locations, rental of temporary offices or warehouses, and restoration of supply chains. Regular training and crisis simulations provide practice under pressure and reduce response times, while the creation of specialised crisis management teams in large companies ensures control over the implementation of the plan, analysis of incidents, and updating of procedures in line with new risks. Thus, the implementation of BCP is an effective tool for improving business resilience, reducing the probability of financial and reputational losses, ensuring staff safety, and maintaining the stability of business processes in any crisis conditions.

In conclusion, the study confirmed that a comprehensive approach combining technological innovations, staff training, engineering security systems and coordination with government agencies can significantly increase the resilience of shopping and entertainment centres to military risks. The recommendations developed can be used by shopping and entertainment centre administrations and management bodies to further optimise security measures and ensure the protection of the life and health of staff and visitors.

Discussion

The effective implementation of crisis procedures depended on a combination of preliminary risk assessment, the development of rapid response protocols, and the use

of modern security technologies, which demonstrated a direct correlation between the level of preparedness of commercial infrastructure facilities for emergencies and the systematic approach to threat monitoring and regular staff training. The data obtained corresponded to the conclusions of A.M. Friede (2022), emphasising that regional security strategies in response to external shocks, in particular conflict situations in Ukraine, largely depend on the ability of organisations to quickly adapt and coordinate actions between public and private structures. Similarly, D. Fiott (2023) noted that crises in the military and political spheres stimulated the integration of defence and civil protection systems at the European Union level, which coincides with the identified trends of increased interaction between security agencies and shopping and entertainment centre administrations. The reliability of warning systems and evacuation procedures contributed to a reduction in response time during simulated emergencies. This result coincided with the study by G. Albertari & E. Principe (2023) on the effectiveness of the organisation of temporary crisis structures in Europe using the example of refugees from Ukraine. In both cases, the key factor for success was the awareness of staff of the role of procedures and a precise definition of responsibilities, which confirmed the importance of the socio-psychological aspects of crisis management. Similar conclusions were drawn by C. Cotroneo & S. Leonard (2025) in a study on the role of large technology companies in providing military protection and civil security during the Russian-Ukrainian conflict. Both studies emphasised the potential of digital solutions in improving the effectiveness of operational response. These observations echoed the findings of a study by L. Dominelli (2025) on ethical behaviour during the provision of assistance in the context of the armed conflict in Ukraine. The study demonstrated that systematic training and rehearsal of procedures created a sense of confidence among staff, which reduced the risk of errors in real-life situations.

The integration of crisis management involved both horizontal and vertical coordination links, which were consistent with the findings of M.G.A. Viceré (2021), analysing external crisis management through the mechanisms of the EU and the Organisation for Security and Cooperation in Europe (OSCE) during the Ukrainian conflict. Similar to commercial infrastructure facilities, international structures applied a comprehensive approach that involved interaction between different levels of management and resource optimisation. The study determined that the reliability of physical security in shopping and entertainment centres directly depended on the use of advanced surveillance and access control technologies. This conclusion was supported by P. Genschel (2022), noting that in the field of European security, the combination of technological solutions and strategic planning provided more robust protection for critical infrastructure facilities. In both cases, the key factor remained the ability to adapt to unpredictable conditions. The study determined that a combination of monitoring protocols, early warning systems and staff

training reduced the risk of emergencies and accelerated the recovery of operations after crisis events. These findings correlated with the results of V. Anghel & E. Jones (2023), noting that European structures that quickly implemented crisis mechanisms demonstrated greater resilience in response to the pandemic and military threats. Optimising evacuation procedures and preparing staff for complex emergency scenarios reduced response time lags.

The analysis of the results in the context of the economic impact of the conflict was consistent with the conclusions of a study by P. Halmaj (2024) and D. Andrienko *et al.* (2025) on the economic consequences of Russian aggression and noted significant pressure on commercial structures, including shopping and entertainment centres. The study determined that facilities that conducted systematic risk planning demonstrated greater economic stability, confirming the importance of comprehensive approaches. The study demonstrated the effectiveness of polycentric models of response to emergencies. O. Keudel & O. Huss (2025) studied local communities facing internal displacement and emphasised the role of coordination between different structures in ensuring resilience. Shopping and entertainment centres that integrated a polycentric approach were more effective in organising evacuations and interacting with emergency services, which correlated with international practices. The study determined that technological security measures significantly increased the effectiveness of threat monitoring. A. Kwiatkowski (2023) studied the security of Eastern flank states and emphasised the importance of integrating modern technologies into security strategies. The use of video surveillance systems, sensors, and risk assessment algorithms identified threats in a timely manner and reduced negative consequences. Strategic planning of crisis measures in commercial structures coincided with the conclusions of D. Lewis (2022), noting that effective conflict management requires adaptive strategies that combine military, economic and information components. The study determined that shopping and entertainment centres that developed emergency scenarios and trained staff ensured a higher level of preparedness and safety for visitors. M. Mańka-Szulik *et al.* (2023) studied anti-crisis measures in Poland and noted the effectiveness of training and practical exercises in improving the preparedness of organisations. Case studies showed that similar approaches in Ukrainian shopping and entertainment centres increased the effectiveness of responses to emergencies and reduced the probability of panic among visitors.

A study of coordination between government agencies and commercial entities confirmed that systematic interaction reduced risks and increased responsiveness, which was consistent with the findings of a study by V. Pastor (2021) in a study of environmental and infrastructure security issues in Eastern Europe, noting that a comprehensive approach, including planning and adaptive management, increased the overall resilience of systems. The integration of such practices in shopping centres made it possible to ensure stable operations even in the direct military threat.

The economic aspects of crisis management proved to be key, which was consistent with the findings of A. Shuhali (2023) demonstrated that supply stability and financial support had a critical impact on the resilience of Ukrainian industrial enterprises. In the case of shopping and entertainment centres, this confirmed the need for economic support for security measures to implement preventive and crisis strategies. The study determined that communication management during crises significantly reduced the level of disorientation among staff and visitors, which was consistent with the findings of C. Zhang & T. Zhou (2023), emphasising the importance of transparent channels for stabilising the social situation during the Ukrainian crisis. In shopping and entertainment centres, timely information and effective communication channels contributed to faster evacuation and organisation of assistance. In particular, the ability of management to adapt proved to be a component of effective strategies, which was consistent with the findings of M.R. Uygur & B. Peyravi (2025), emphasising the role of adaptive management in maintaining business resilience in Ukraine and Lithuania. Management flexibility provided rapid changes in strategy following the dynamics of the conflict. The international situation confirmed the importance of adapted strategies, which were consistent with the research of J. Weiwei (2023), highlighting a comprehensive approach in Central and Eastern European countries that combined civil and military aspects and ensured effective integration of preventive and crisis measures. The results revealed uneven preparedness of facilities for crises, which was consistent with the observations of C. Welt (2020), noting that the conflict with Russia created uneven pressure on economic and commercial structures, manifesting itself in differences in planning, staff training and the use of threat monitoring technologies. Thus, the integration of crisis management not only ensured security and economic stability but also increased social trust, which was consistent with international research in the field of integrated risk management.

Conclusions

Comprehensive risk management measures include the construction of shelters with autonomous resources, multi-level warning systems, fire safety measures, staff training, shift rotation and coordination with government services. Shelters are equipped with an autonomous power supply of at least 5 kW, a 72-hour supply of drinking water and food, ventilation systems capable of serving 200-500 people at a time, and two emergency exits. Evacuation routes are marked with lighting, and digital alert systems, mobile applications, and QR cards are used for quick identification of personnel, which provides coordination between services and reduces evacuation time. Fire safety is ensured by a 50-70 m² depot for facilities with more than 1,000 visitors, regular inspections of fire extinguishers and automatic extinguishing systems.

The implementation of such measures ensures a comprehensive approach to minimising risks, preserving

human life and health, maintaining the stability of shopping centres and business continuity in conditions of military action. The experience of Forum Lviv, Riviera, Passage, and Karavan demonstrates varying degrees of preparedness for crises and highlights the need for a systematic approach to risk management in the retail sector during armed aggression. All four shopping centres, Forum in Lviv, Riviera in Odesa, Passage in Dnipro and Karavan in Kharkiv, have implemented comprehensive security measures to reduce risks and protect against potential threats. Firstly, protective shelters were arranged in specially designated areas, ensuring quick evacuation of visitors and staff in case of danger. Secondly, emergency warning and notification systems were established to ensure that everyone in the building was promptly informed. Thirdly, regular staff training was conducted on how to act in crises, including evacuation, first aid and coordination with security. In addition, all shopping centres provided quick access to firefighting equipment to respond to fires and other emergencies. These measures were necessary due to various levels of threat: in Kharkiv due to constant shelling, in Dnipro and Odesa due to possible bombings and the risk of missile strikes, and in Lviv due to the

potential threat of a missile strike on a large shopping centre located in a relatively safe region, as a place where large numbers of people gather. This made it possible to minimise financial losses, ensure the safety of visitors and staff, and maintain the functioning of the shopping centre even in conditions of armed aggression.

The limitation of the study is that the analysis covered only large shopping and entertainment centres in Ukraine and did not consider the activities of small and regional retail outlets, which may have different approaches to risk management. Prospects for further research include studying the impact of digital technologies and automated monitoring systems on the effectiveness of crisis management in small and medium-sized retail establishments.

Acknowledgements

None.

Funding

None.

Conflict of Interest

None.

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Інтеграція кризового управління у стратегії безпеки торгово-розважальних центрів України в умовах збройної агресії

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Анотація. Мета дослідження полягала у визначенні ефективності комплексних заходів управління ризиками та стійкості торгово-розважальних центрів України під час збройної агресії. Методологія включала документальний аналіз планів реагування на надзвичайні ситуації та протоколів евакуацій, вивчення засобів масової інформації, кейс-аналіз конкретних торгово-розважальних центрів, що дозволило оцінити практики облаштування укриттів, налаштування систем оповіщення, пожежної безпеки та ротації персоналу у різних регіонах країни. Було визначено, що заходи управління ризиками в торгово-розважальних центрах України включає поєднання укриттів, систем оповіщення, кризових планів, резервного копіювання даних, чіткої комунікації та психологічної підтримки забезпечує бізнесу збереження персоналу, майна та операцій під час війни. Систематичне виконання інструкції (зокрема тренувань, ротації персоналу та взаємодії з державними службами) підвищило ефективність реагування й мінімізувало втрати. Результати кейс-аналізу визначили, що у Forum Lviv створено укриття з автономним електропостачанням, що забезпечує роботу під час відключень світла. У Riviera Shopping City було створено систему укриттів для понад 200 осіб. Зокрема, у Харкові торговий центр Karavan зазнавав численних регулярних обстрілів, що зумовило укомплектувати укриття запасами води та медикаментами. Passage у Дніпрі також стикався з потенційними загрозами замінування та ракетних ударів, що вимагало удосконалення системи оповіщення та відеоспостереження, а також обладнання укриття та регулярних тренінгів персоналу. Рекомендовано поширювати організаційні практики (визначення відповідальних осіб, ротацію персоналу та цифрові системи оповіщення) як стандарт управління безпекою торгово-розважальних центрів. Практичне значення полягає у тому, що результати дослідження можуть бути використані для удосконалення стратегій кризового управління та підвищення безпеки торгово-розважальних центрів України в умовах збройної агресії

Ключові слова: ризик-менеджмент; оперативне реагування; евакуаційні процедури; моніторинг загроз; безпекові технології
