IBIMA Publishing
Communications of International Proceedings
https://ibimapublishing.com/p-articles/46MGT/2025/4632325/
Vol. 2025 (30), Article ID 4632325

Crisis Incident Trainer In The Era Of Globalization Threats*

dr inż. Dariusz KLOSKOWSKI

University of Technology in Koszalin, Koszalin, Poland

Correspondence should be addressed to: Dariusz KLOSKOWSKI, dariusz.kloskowski@tu.koszalin.pl

* Presented at the 46th IBIMA International Conference, 26-27 November 2025, Ronda, Spain

Abstract

A contemporary problem facing almost every country is the fear of what will happen in the future from neighboring countries, both those nearby and those far from our borders. This applies particularly to decisions made by governments, which create concerns in almost every area of life, emphasizing that the security of families, states, and individuals requires a reassessment and analysis of various factors that influence existence and further development. Events and the directions the world is heading are currently unclear, even surprising, leading to confusion, helplessness, and a lack of procedures for quick resolution.
In the face of such prospects, one of the primary directions should be the search for new security concepts and innovative education and training methods that could minimize the risk of harm to health or even loss of life. With this in mind, this study attempts to identify one of the directions of work related to ensuring human safety through systematic training using a specialized simulation tool, aimed at preparing for a negative stimulus. A gap in the literature has been identified in this area, and the research conducted, especially in times of uncertainty, has been deemed important.
The main goal of this study is to provide a functional and operational analysis of a sample crisis event trainer solution, a potential educational and training tool that serves as a fundamental training element for those responding to emerging threats in times of uncertainty. The study also includes a secondary literature review and interoperability research of the presented crisis applications, which could be used in similar technical and functional solutions.
The article also presents the concept of a crisis response system solution that would fulfill training and operational roles. This provided the basis for drawing conclusions regarding the need to build unified and coherent crisis management systems based on reliable software, which constitute the foundation for the functioning of an informed society. The presentation of a proprietary IT solution is undoubtedly a significant asset of this study, which highlights the training and training aspects of the team responsible for crisis decision-making..

Keywords: crisis, crisis management, training trainer.

Introduction

Analyzing the globalization of threats in the contemporary world, it is essentially impossible to assume that current planning in any activity is a predictor of future action. This stems directly from the dynamics of a changing world driven by political elites, which threatens security, making planning with a period of stabilization highly questionable [1]. This is evidenced by research in the social sciences, where for a decade, actions aimed at the use of political violence have been encountered. A truly military approach to social thought began at the turn of the 20th century. However, the situation has not improved in the present, taking into account, for example, the war in Ukraine or the conflicts in Palestine [2]. Concepts such as the "struggle for survival," "war enthusiasm"

Cite this Article as: Dariusz KLOSKOWSKI, Vol. 2025 (30) "Crisis Incident Trainer In The Era Of Globalization Threats " Communications of International Proceedings, Vol. 2025 (30), Article ID 4632325, https://doi.org/10.5171/2025.4632325

(Kriegsbegeisterung), superstratification, the "fighting instinct" (instinct of pugnacity), or the conquering state (Erobererstaat) have become quite common [3].

The above reinforces the belief that today's world is not focused on promoting peaceful actions, but rather portrays violence as the main element in the fight against what cannot be reconciled. This is evident, for example, in the actions of the Catholic and Orthodox Churches, which do not advertise peaceful tendencies, and even exhibit a conservative tendency. This state of affairs may be caused by the rapidly developing era of ubiquitous digitalization and the many problems associated with it [4], which has nested in every sphere of human life [5]. The issue of a virtual perspective on every problem [6, 7] also proves crucial. Hence, the current perspective on the concept of security has gained a new, multidimensional context [8]. Standard threats, i.e., those resulting from the impact of wind, water, or emerging fires and construction disasters, have become less important in the face of ever-increasing conflicts that tend to lead to war rather than peaceful solutions. A key aspect of threat analysis itself turns out to be understanding the basics, the source of the trigger, which, unfortunately, in most cases stem from the aggressive policies of decision-makers [9].

Therefore, current threats are, in most cases, the result of the negative foreign policy of the government, which does not accept criticism and peaceful solutions, even as an alternative. The dynamics of subsequent events take on the form of a logistic function, with the effect of increasing threats, resulting in irreversible changes in the system of each state. The changes taking place in every area of community life force a revision of the existing classifications of threat types (Fig. 1.).

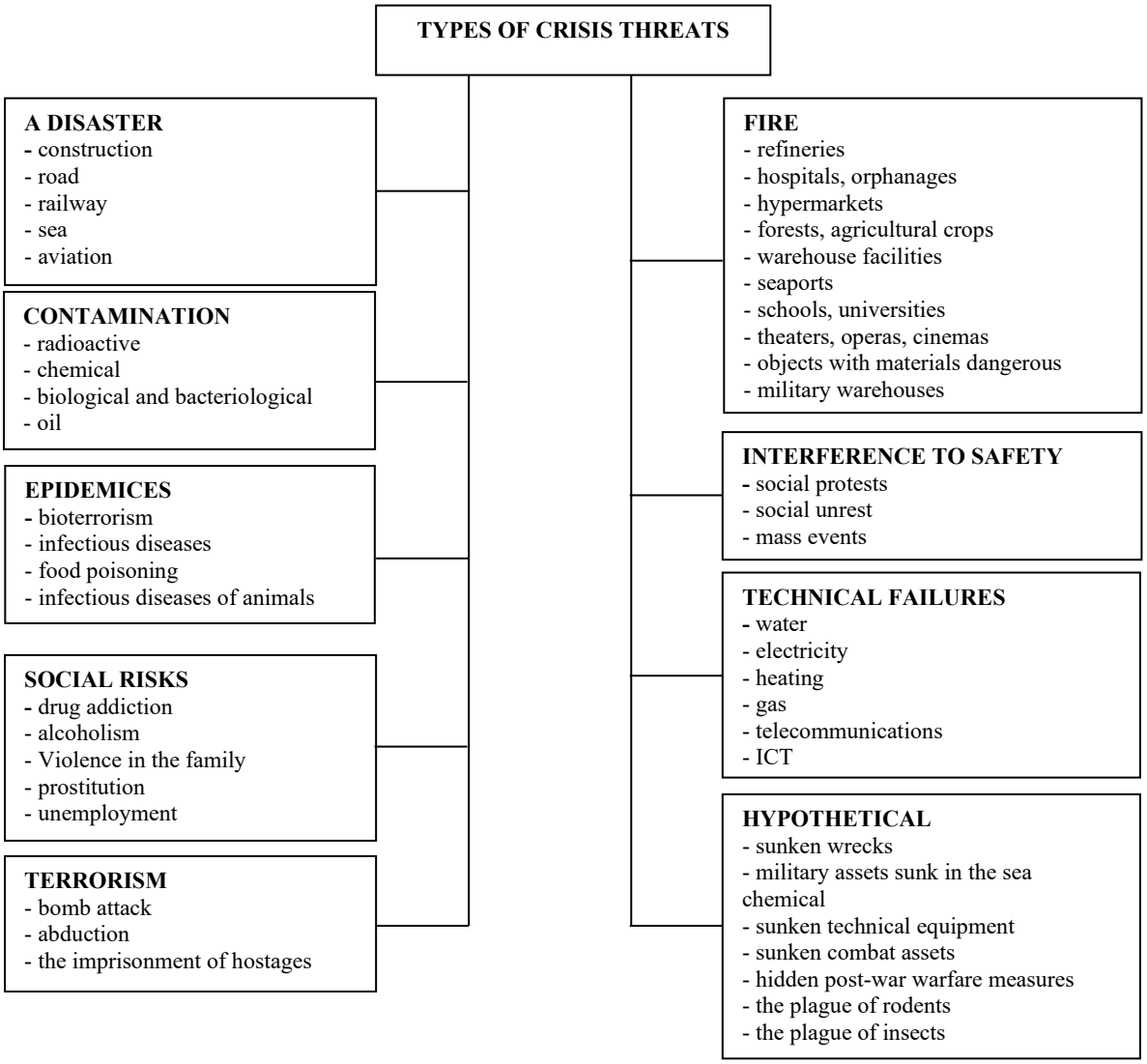


Fig. 2. Basic threat classification.

Source: Own study.

The types of threats presented above, previously considered the most common in human space, are somewhat different in the current situation, for example due to the war in Ukraine. This is necessitated by a definitional analysis of contemporary threats, which highlights the interests and goals of aggressor states, which lead to changes in the systemic situation in a given territory. Hence, the term "crisis situation" itself, which, similarly to definitions of crisis, is perceived differently, constituting a set of external and internal factors that destructively influence a given system, leading to an imbalance in many areas of human functioning [10]. Reducing a crisis situation to a certain type of disturbance in the systemic situation resulting from the culmination of specific threats leads to military threats being identified as the main causes causing a loss of normalcy and influencing disruptions in basic systemic features, for example: stability, balance, controllability, efficiency, etc. Such reasoning actually forces the thesis that all drastic changes in a state are the result of two opposing sides, characterized by an increase in the intensity of negative impacts with a high probability of armed clashes [11].

The above points to a change in the hierarchy of threats in the context of those most frequently occurring in space, clearly distinguishing military threats, which appear very frequently nowadays. The crisis situation itself, which is a state of increasing destabilization, uncertainty, and social tension, characterized by the disruption of social bonds, is related to the aspect of the burden of war and the disasters associated with it [12, 13, 14]. Therefore, taking into account the current aggressiveness of foreign ministries, the greatest threat, undoubtedly of political origin, is an interstate armed conflict. This influences the change in the general division of threats, in which war is not cataloged together with other threats, but constitutes a separate area of crisis considerations related to the loss of human life even before the declaration of a war threat (Fig. 2.).

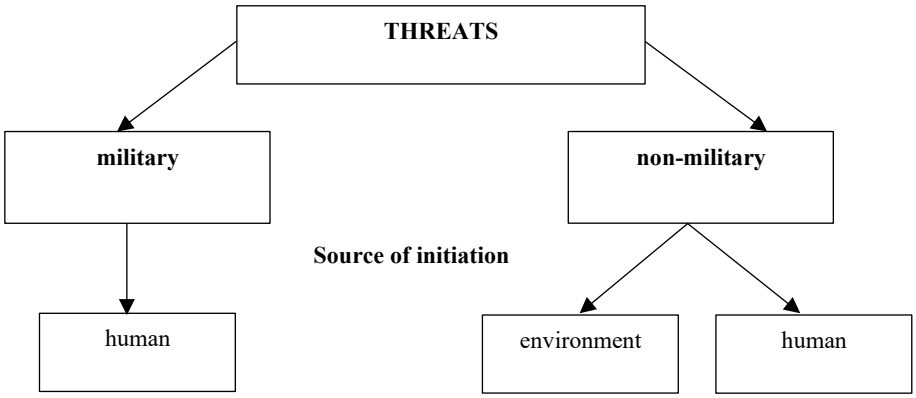


Fig. 2. General classification of threats.

Source: Own study.

The above considerations indicate that military threats are among the most dangerous threats facing the modern world, although those that spread rapidly, such as COVID-19, are no less dangerous. Their nature is unclear and difficult to identify from the outset, and most importantly, the population is unable to cope with them and adequately counteract them [15,16]. This situation determines the development of crisis trainers, which are built to simulate difficult and extreme situations, which consequently allows for control of the environment using the human factor, with the possibility of supporting artificial intelligence [17]. Among the main reasons for building crisis trainers is also the learning and improvement of procedures, as well as practical training. These trainers enable the repeated repetition of specific procedures, allow for testing existing crisis management plans, and also strengthen the organization's resilience [18] and increase self-confidence in stressful situations [19]. Therefore, addressing the topic of building team resilience [20] for better coordination of crisis actions and simulation of reality is an important direction in times of uncertainty [21].

Research materials and methods

When considering the development of crisis event trainers, it should be recognized that their emergence is undoubtedly influenced not only by the globalization of threats, but also by awareness of the many types of threats present in the surrounding environment. They constitute a significant element of knowledge, which is constantly expanding under the influence of the changing environment. Examples of this thesis include the crisis related to the initiation of the SARS-CoV-2 virus mentioned in the study, or even the armed conflict in Ukraine [22]. Therefore, it is crucial to constantly deepen knowledge in this area and raise awareness among the community

that threats appear unexpectedly and that we are unable to react to them in advance, but only to counteract them, knowing the reasons for their emergence [23].

Through research and consideration of the adopted issues, the main goal of the study was defined: a functional and operational analysis of a sample crisis incident trainer solution, a potential educational and training tool that serves as a fundamental training element for those responding to emerging threats in times of uncertainty. As a result of the work on developing the crisis incident trainer concept, a threat analysis was conducted, preceded by a review of literature and online data, including data from industry portals of the International Maritime Organization and the Baltic Marine Environment Protection Commission, operating under the Convention on the Protection of the Marine Environment of the Baltic Sea Area of 9 April 1992.

The research process for this study was divided into two parts. The first part involved secondary analysis of literature sources and archival statistical and incidental data. This method allowed for the analysis of threat types, including acquired data on the impact of military threats on the lives of Polish society. Subsequently, a case study approach was used to classify the main threats and assess the impact of selected threats on individuals, with particular emphasis on the threat from Poland's eastern flank. The second part concerned the development of a concept for an innovative crisis incident trainer, based on the most commonly used forms of training for commands and staffs, including command-staff groups, for which staff training and war games are the most important forms. The study also considered the overarching goals of the training, namely, coordinating all personnel to generate data (calculations) and action options necessary for the commander's decision-making. It was also important to show the trainer's potential for use during war games, the aim of which is to solve problems by a wider group of decision-makers, i.e. military personnel, representatives of local government bodies or uniformed services cooperating in the field of broadly understood crisis response [24], for whom one of the most important elements is the preparation of planning and operational documentation, including the order-giving documentation of the decision-making process.

Crisis Event Trainer

Functional analysis

New, previously unknown threats emerging at unexpected times and places are radically changing the roles and tasks of various response forces in terms of mutual cooperation, not only in terms of crisis response [25] but also in terms of broadly understood education. This is due to the adoption by a given country of a security strategy, which includes strategic goals and basic principles of security policy. These documents highlight contemporary security components, not only in military terms, but also in political, economic, technological, social, and humanitarian aspects. In the normative documents of many countries, the fundamental direction of security policy is regional cooperation and positive relations with all neighbors. This is particularly visible in the activities of the European Union, which promotes maintaining alliances with other countries in the field of security policy [26]. This translates into educating society and preparing it to the maximum extent to face the threats posed by changes taking place in the contemporary world at various levels.

When speaking about defense education for society, we most often mean all educational, upbringing, and teaching processes focused on shaping social awareness in terms of a recognized system of values, skills, and knowledge related to appropriate behavior in situations of threats, primarily military, as well as those resulting from accidents and disasters. In short, however, it is about shaping social attitudes and behaviors in conflict (military threats) and crisis situations, relevant to national security. The very orientation of such a process forces its participants to use various forms, defining the conditions and course of the learning process. Their diversity and selection according to the training subjects have a significant impact on the effectiveness of training. It can be said that forms should be selected to suit the specific recipient, as well as the actual needs, conditions, possibilities of their implementation, and the intellectual level of the training participants [27]. An example would be the implementation of a decision-making process, in which five distinct stages of work are repeated throughout the duration of the exercise [27].

To meet the expectations of creating a universal training facility and using appropriate software to support the decision-making process, an innovative solution was proposed for the current, tense situation in various theaters of operations, called the "Crisis Event Trainer," which would integrate all training participants based on a single location [28], while also performing simulation, training, and operational functions within a limited scope of operation. The trainer is an operational platform operating at a military facility in Poland, operating in a local system, intended for training crisis response groups at every level of operational capability.

Considering the above example of the training device, it should be stated that in similar solutions that could function, one of the most important elements should be the location, which should concentrate the following operational elements within one infrastructure:

1. *An on-duty operational and tactical service*, staffed by analysts specializing in meteorology, radioactive threats, chemical threats and air pollution, analysis of events in crisis situations in the area of natural disasters and non-military threats, the area of military threats, the area of the alarm and warning system, as well as analysts in the area of medicine and broadly understood logistics.
2. *An operational and decision-making group*, intended primarily for the development of the final decision, including the work of crisis management teams, which, in addition to educational and training activities, will be dedicated to operational activities, using basic applications in the area of public safety, crisis management, analysis of radioactive and chemical contamination and analyses related to the use of a differential terrain model.
3. *A group of interdisciplinary crisis management techniques*, designed to support the operational and decision-making group by handling complex database systems, which are dominated by: a complex catalogue of threats, a database of forces and resources, evacuation plans, civil defense warehouses, classified medical information, a register of dangerous places, a register of offenses, analysis of flood areas and chemical analysis, as well as complex procedures for the logistic management of individual areas included and not included in the broadly understood civil defense.

In addition to the basic functional tasks, the above-mentioned links should be characterized by an appropriate ICT infrastructure, including the appropriate selection of dedicated applications, which can be distinguished:

- *Crisis event scenario generator*, which should be an application operating in a GIS (Geographic Information System) environment, an information system used to enter, collect, process and visualize geographic data, one of whose functions is to support the decision-making process with an extensive database allowing the generation of crisis scenarios. The event generator should be equipped with:
  - a module for selecting the type of incident from a properly prepared catalog,
  - a module for determining incident parameters, depending on its type, size, and duration, with the ability to simulate the number of injured people based on the received operational report,
  - a module for available forces and resources and the location of their deployment, utilizing the nearest preventive services and institutions or forms supporting crisis management,
  - a module for medical services, including the possibility of using external resources such as helicopters, etc.,
  - a module for cataloged threats for which spatial data could be used, including cartographic and photogrammetric resources, including differential terrain models, influencing the overall progress in developing final crisis response scenarios.
- *Database of Forces and Means*, which is a subsystem of applications and databases allowing for maintaining and updating available and current forces and means as well as critical infrastructure elements, which should be integrated with the spatial data environment and have:
  - ability to interface with operational systems at the municipal, district, and provincial levels,
  - ability to generate reports and summaries from information available in the database,
  - visualization of objects in an accessible map environment using a variety of data, such as raster, vector, photogrammetric, and others,
  - ability to edit objects and add new objects,
  - data structure compliance with government standards.

- *Response plans*, which constitute a specific subsystem integrated with the Crisis Event Scenario Generator, allowing the preparation and provision to the operator of crisis response plans along with appropriate response procedures in a standardized form, taking into account, for example, the use of civil defense warehouse applications in a specific crisis situation.
- *Evacuation plans*, which are a database component integrated with GIS systems, taking into account the possibility of creating evacuation plans for individual threats, taking into account: visualization of administrative units, facilities and places at risk and areas from which evacuation of people is planned, evacuation routes of people, areas of distribution of evacuated people with their number, capacity of areas for receiving people, medical and sanitary protection [29].
- *Medical Information*, a subsystem built on web technology and integrated with, for example, ArcGIS Server, capable of reading data provided in the form of a unified, tabular summary or spatial map composition, on the monitor screen, with the additional option of printing. The subsystem should enable

faster inference by displaying spatial data, using a map background, specifying the location of medical facilities along with information on their status, for a specific time unit (hour, day), as well as preparing complete, print-ready reports with this information.

- *Hazard analysis*, taking into account the differential terrain model, which has the ability to simulate the spread of water in the event of an increase in its level, as well as in the event of a dam or flood embankment breach, as well as simulations of predicting hazards in contaminated air, including the spread of fires taking into account the wind gradient [30].
- *Chemical threat analysis*, which is a system directly integrated with the GIS architecture. Based on implemented spatial layers defining the general terrain cover (hydrography, development, buildings, streets, green areas, etc.), the provided solution should designate evacuation and notification zones.

Usage Analysis

Analyzing the above, it can be concluded that a standard event simulation trainer should be based on a relatively efficient database system capable of identifying and interpreting spatial data. Hence, it can be seen that ArcGIS software [31] is frequently cited, a leading brand in scenario development and execution of proprietary crisis simulations [32]. Also noteworthy is the server implementation, not only of local and external email, a telecommunications module for local and external communications, integrated with traditional analog communications, but also the implementation of a digital communications system, with the preferred TETRA system. This is important because the encryption process, including the use of frequency adaptation techniques, provides extensive encryption capabilities for information necessary for operational activities [33].

An example system configuration is shown in the figure below (Fig. 3.).

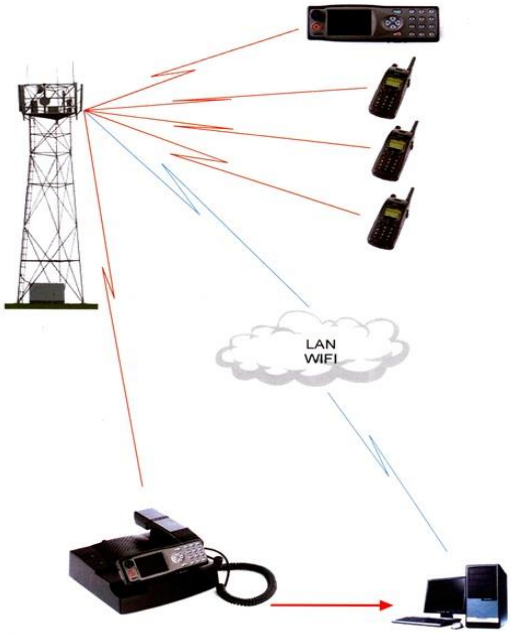


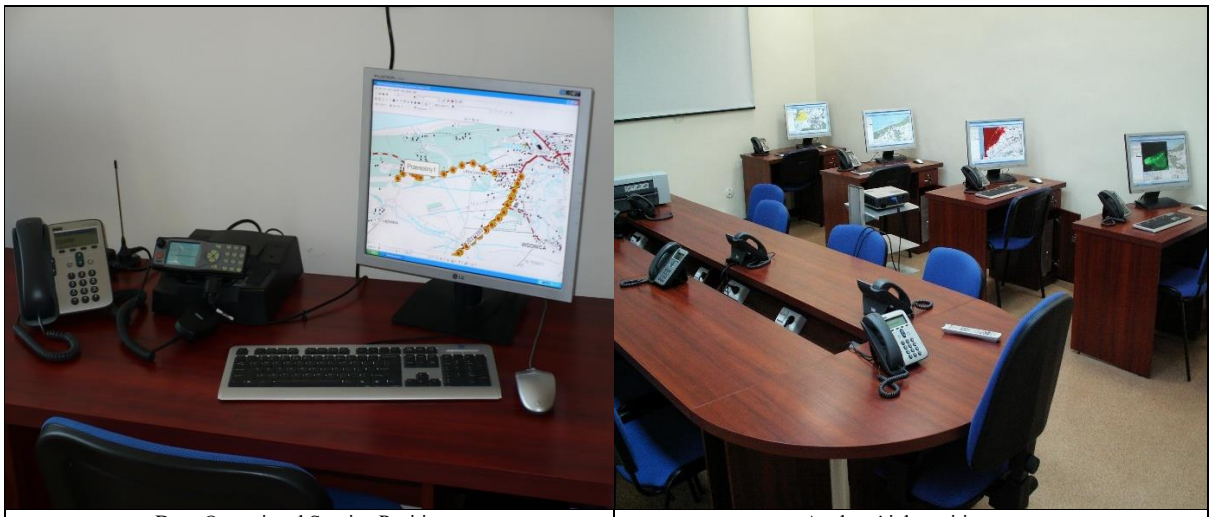
Fig. 3. Sample TETRA system configuration for the Crisis Incident Trainer.

Source: own study.

In the entire training setup, people essentially play the most important role. And they should be comfortable working, including the implementation of optimal equipment, specialized devices, and dedicated applications. A mistake in arranging such solutions is the use of standard solutions that were not subject to expert consultation and are not suitable for the challenges of uncertainty. An example is the lack of implementation of systems for detecting and responding to unmanned aerial vehicles, such as drones, until recently, where they currently pose a primary threat not only to the military but primarily to the civilian population.

One of the basic assumptions of a training device should be the rapid development of decisions [34], with possibly 2-3 variants defined, which would be the subject of substantive discussion. Therefore, presenting variants on a digital map is currently standard, which should serve as a kind of simulation that reflects all changes in various theaters of operation. The deployment of forces and resources, or the removal of natural disasters, must be

preceded by an in-depth analysis, for example, taking into account weather conditions and the current tactical situation [35]. Therefore, it is crucial to create autonomous positions for analysts who can freely present their position on a given situation. An example solution is presented below (Photo 1.).



Duty Operational Service Position	Analysts' job positions

Photo 1. Decision-making offices.

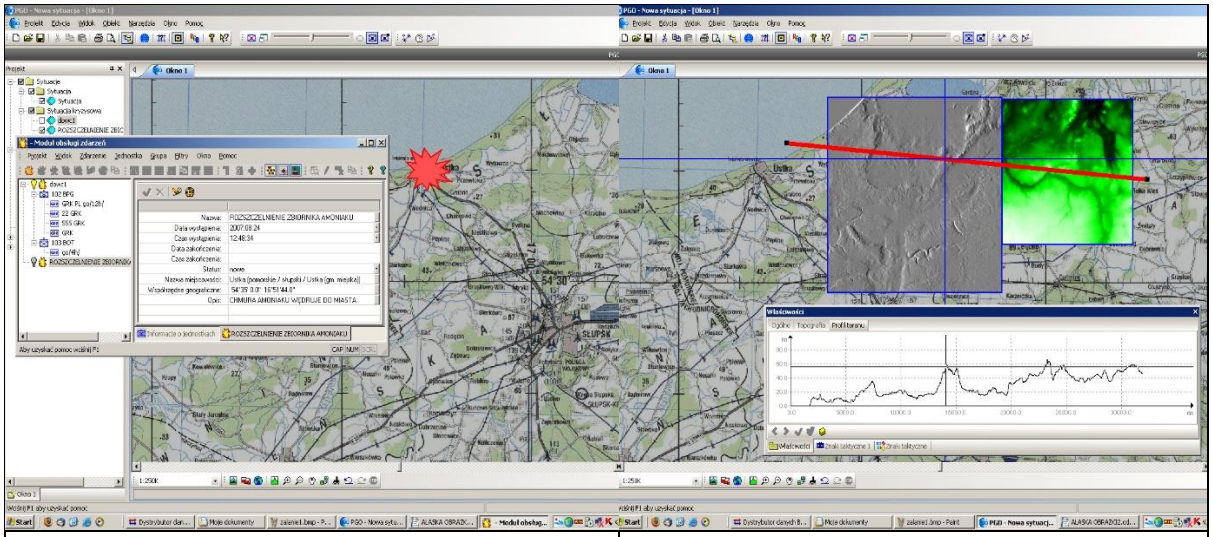
Source: Author's archive.

When analyzing the use of appropriate software dedicated to crisis event training, it is important to remember that, in addition to the ability to make changes, such software should reflect the actual situation. The software should be capable of supporting planning and decision-making procedures and should also demonstrate the independence of modules: the event editor, the crisis situation editor (graphical), force relocation, and the crisis operations log, which would enable the system to be used in virtually any simulated or real situation. A prerequisite for this is, of course, the creation of an appropriate database in the database, imaging, and documentation subsystems. Another important consideration is that the system should be able to perform operations in several basic functional planes, including:

- Full graphical representation of the situation based on vector maps, as well as digital maps in European Union standards, enabling the generation of images such as the location of crisis response teams and operational groups, crisis incident locations, and areas at risk.
- Clear presentation of crisis events and the crisis teams handling them, with particular emphasis on the visibility of the meteorological module and messages from recipients when they are connected to a server network managed by a single administrator.
- Entering data on operational groups and equipment intended for use in crisis management plans, creating specific lists, such as new units, and updating the database.
- Implementing a range of cartometric functions, such as calculating distances, areas and perimeters, azimuths, visual visibility, terrain cross-sections, and flood zones, in cooperation with:

  - raster maps in the CADRG (Compressed Arc Digitized Raster Graphics) standard,
  - raster maps in the MrSID (Multi-resolution Seamless Image Database) format,
  - vector maps in the VPF (Vector Product Format) standard,
  - satellite maps in the CIB (Controlled Image Base) format,
  - orthophotomaps in the GeoTIFF (Geocoded Tagged-Image File Format) format,
  - aerial, satellite, and other raster images in the following formats: TIFF, BMP, PCX, PNG, and JPEG,
  - terrain elevation maps in the DTED (Digital Terrain Elevation Data) standard, levels DTED-0, DTED-1, and DTED-2.

  Example dialog windows are shown in the figure below (Fig. 4.);



Inicjacja zdarzenia kryzysowego	Analiza przestrzenna zjawiska

Fig. 4. Dialog windows of an example operating system.

Source: own study

Summary and conclusions

To summarize the discussion so far regarding the functionality of a crisis incident trainer, we can conclude that the need to build a unified, cohesive crisis management system based on reliable software is fundamental to the functioning of an informed society. This is necessitated by the current, rather tense situation, not only in the Baltic Sea basin, but also on Poland's eastern flank and the Middle East. Emerging, uncontrolled and highly challenging situations require continuous training based on real-world data.

The presented example of a systemic solution also confirms the unquestionable participation of the military, as well as all uniformed services, in all crisis operations. Without additional threat monitoring cells capable of immediate action, any system is "dead." The military should be the primary institution controlling operation planning processes. This is primarily dictated by the organizational and functional elements of the military, namely the on-call system in which it operates and the enormous human and technical potential that no local government units at the voivodeship, district, or commune level possess. Furthermore, considering the technical conditions for threat control, it should be emphasized that to conduct an efficient operation, there is a clear need to incorporate data exchange interfaces with various services into the overall system, which should operate automatically [36].

Considering the main objective of this study, it can be concluded that the presented concept addresses current needs for implementing an educational and training tool in the public sphere, thus constituting a training element in the future fight against emerging threats. This will undoubtedly influence decision-making in the area of broadly understood crisis management, as every moment devoted to staff training adds value to knowledge in the broadly understood field of crisis response. This is also confirmed by the literature, where, after the pandemic, work began to prepare personnel to respond to emerging crises [37]. Training aspects, especially after the outbreak of the war in Ukraine, play a significant role in shaping public awareness of contemporary global threats [38]. The development of tools necessary for training and training activities also has a significant impact on awareness development [39, 40]. This is also confirmed by this study, which presents an original approach to developing further conceptual activities in the area of broadly understood crisis management.

The presented training device design is a systemic proposal that can be used as a model, as each country has a different crisis management system [41, 42]. However, given the ever-increasing pressure, it is worth considering the construction of such a training device in the educational and training aspect, aimed at stimulating awareness of the need to protect one's own life and the lives of fellow citizens, as well as responsibility for one's country.

Literature

- Anghel, V. and Jones, E. (2022), „Has Europe really survived the crisis? The EU pandemic and the Russia-Ukraine war", Journal of European Public Policy, 30(4), 766–786. https://doi.org/10.1080/13501763.2022.2140820,
- Fiott, D. (2023). „In every crisis, an opportunity? European Union defense integration and the war with Ukraine", Journal of European Integration, *45*(3), 447–462. https://doi.org/10.1080/07036337.2023.2183395,
- Malešević S., (2010), „The Sociology of War and Violence", Cambridge Uni versity Press, Nowy Jork,
- Izdebski, P., Kotyśko M., (2016), „Problematic use of new media", [in:] Habratred B., „Gambling disorders and other so-called behavioral addictions", Warsaw,
- Young ,K., You, X. D., Ying, L., (2011), „Prevalence Estimates and Etiologic Models of Internet Addiction", [in:] Young, K., Nabuco de Abreu, K., [ed.] „Internet Addiction", Nowy Jork,
- Shaw, M., Black, D. W., (2008), „Internet addiction: Definition, assessment, epi demiology and clinical management", CNS Drugs, No 22(5),
- Tsitsika, A., Critselis, E., Kormas, G., Filippo poulou, A., Tounissi dou, D., Freskou, A., (2009), „Internetuse and misuse: A multivariate regression analysis of the predictive factors of internet use among Greek adolescents", Euro pean Journal of Pediatrics, No 168(6),
- Ilczuk, Ł., Parczewski, R., Borucka, A., & Kubasiński, S. (2025, June), „Sustainable management of military potential in the context of crisis challenges such as the COVID-19 pandemic and the war in Ukraine". [in]: International Conference on Intelligent Systems in Engineering and Maintenance, Springer Nature Switzerland,
- Freedman, L. (2014), „Ukraine and the Art of Crisis Management". Survival, 56(3), 7–42. https://doi.org/10.1080/00396338.2014.920143,
- Subotowicz, W., (1995), „Transformation of the cliff coast in Poland", Journal of Coastal Research,
- Hoffmann, G. & Lampe, R., (2007), „Sediment budget cal culation to estimate Holocene coastal changes on the southwest Baltic Sea (Germany)", Marine Geology 243,
- Valdmann, A., Käärd, A., Kelpsaite, L., Kurennoy, D. & Soomere, T., (2008), „Marine coastal hazards for the east ern coasts of the Baltic Sea", Baltica 21,
- Zawadzka, E., (1999), „Development trends of the Polish shores of the Southern Baltic Sea", Gdańsk Scientific Society, Gdańsk,
- Zawadzka, E., (2012), „Morphodynamics of the southern Baltic dune coasts", University of Gdańsk Publishing House, Gdańsk,
- Kulig, J.C., Edge, D.S., Townshend, I., Lightfoot, N., Reimer, W., (2013), „Community resiliency: Emerging theoretical insights. Journal of Community Psychology, 41(6), 758-775. https://doi.org/10.1002/jcop.21569,
- Kupenko, O., Kostenko, A., Kalchenko, L., Pehota, O., Kubatko, O., (2023), „Resilience and vulnerability of a person in a community in the context of military events", Problems and Perspectives in Management, 21(1), 154-168, https://doi.org/10.21511/ppm.21(1).2023.14,
- Bjola, C., (2022), „Artificial Intelligence and Diplomatic Crisis Management": Solving the „Fog of War" Problem", Valentin Naumescu Raluca Moldovan, 25,
- Nguyen, H.L., Akerkar, R., (2020), „Modelling, measuring, and visualising community resilience: A systematic review", Sustainability, 12(19), Article 19, https://doi.org/10.3390/su12197896,
- Byrska, O., (2024), „Civilian Crisis Management in Poland: The First Weeks of Assistance in Russia's War with Ukraine", [in:] „The Russian Invasion of Ukraine", Routledge,
- Norris, F.H., Stevens, S.P., Pfefferbaum, B., Wyche, K.F., Pfefferbaum, R.L., (2008), „Community resilience as a metaphor, theory, set of capacities, and strategy for disaster readiness", American Journal of Community Psychology, 41(1-2), 127-150, https://doi.org/10.1007/s10464-007-9156-6,
- Revtiuk, Y. and Ivanova, T., (2024), „Implementation of the Community Resilience Approach in the Crisis Management System of Ukraine in 2022-2024.", European Journal of Scientific Research, 27(Special A), 712-731.
- Mayberry, R., Boles, J. S., Donthu, N., and Lucke, J. T., (2024), „Crisis response in an age of chivalrous uncertainty" Journal of Business Research, 170, 114288,
- Kloskowski, D., Kloskowska, B., (2009), „Crisis management in a model approach", Bellona Quarterly, vol. 3, no. 1,
- „Instructions on the Preparation and Conduct of Exercises with Commands, Staffs, and Troops in the Polish Armed Forces (DD/7.1.1)", (2004/2018), Ministry of National Defense, General Staff of the Polish Armed Forces, Warsaw,

- National Doctrine for Combined Operations OP/01, (2002), Ministry of National Defense, General Staff of the Polish Armed Forces, Training 800/2002, Warsaw,
- „Organization of Training for Commands and Staffs in the Polish Armed Forces (DD/7.1)", (2004), Ministry of National Defense, General Staff of the Polish Armed Forces, Training 802/2004, Warsaw,
- Kitler, W., (2007), „The Essence of Crisis Management", [in:] „Crisis Response System" [ed.] Gryz, J., Kitler, W., Marszałek, A., Toruń,
- Sobolewski, G., Majchrzak, D., Solarz, J., (2012), „Executive Entities in Crisis Management", AON Publishing House, Warsaw,
- Michaliluk, B., (2013), „Rescue and Civil Protection Subsystem", AON, Scientific Papers, No. 4(93)/2013,
- Wolanin, J., (2005), „Outline of the Theory of Citizen Security", DANMAR Publishing House, Warsaw,
- Kloskowski, D., (2009), „ArcGIS – as an alternative to military GIS systems", Maritime Review, no. 5/2009,
- Kloskowski, D., (2009), „Terminal positioning in ArcGIS", Maritime Review, no. 8/2009,
- Kloskowski, D., (2008), „Tetra in the Polish Navy", Maritime Review, no. 3/2008,
- Kloskowski D., (2007), „Proposal for military cooperation in crisis management at the district level", Maritime Review, no. 5/2007,
- Kloskowski, D., (2008), „Testing the Operational Graphics Package", Maritime Review, no. 7/2008,
- Kloskowski, D., (2011), „Training Activities Yesterday and Today", Maritime Review, no. 3/2011,
- Zhang, Y., Ma, B., Cao, L., and Liu, Y., (2024), „A Data-Based Pandemic Simulator with Reinforcement Learning", Electronics, 13(13), 2531,
- Kacprowicz, Ł., & Świerczewski, Ł., (2023), „A Crisis Police Simulator as a Tool for Shaping Command Competencies", Police Review, 147, 250-262,
- Eid, J., Hansen, A. L., Andreassen, N., Espevik, R., Brattebø, G., and Johnsen, B. H., (2023), „Developing local crisis leadership – a research and training program", Frontiers of psychology, 14, 1041387.
- Šimić, M. and Zygmunt, Z., (2023), „Simulation systems supporting the organization and implementation of crisis management exercises", In 2nd Croatian Conference on Earthquake Engineering u2012CroCEE,
- Tomanová, K., Smetana, M., & Kavan, Š., (2021), „Use of modern simulation technologies in preparing for crisis management", [in:] INTED2021 proceedings, „On Boards of international ships",
- Erstad, E., Larsen, M. H., Lund, M. S., & Ostnes, R., (2022), „Report of the Maritime Cyber Simulator Scenario Workshop".