

**Systemy Logistyczne Wojsk**  
Zeszyt 64(2026)  
ISSN 1508-5430, s. 95-108  
DOI: 10.37055/slw/224975

Institut Logistyki  
Wydział Bezpieczeństwa, Logistyki i Zarządzania  
Wojskowa Akademia Techniczna  
w Warszawie

**Military Logistics Systems**  
Volume 64(2026)  
ISSN 1508-5430, pp. 95-108  
DOI: 10.37055/slw/224975

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## THE ROLE OF LOGISTICS IN THE STATE SECURITY SYSTEM IN CRISIS SITUATIONS SHAPED BY DISINFORMATION THREATS

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### **Abstract.**

The article analyses the role of logistics in the state security system during crisis situations, focusing on information and decision-making processes and their vulnerability to disinformation. It addresses how logistics functions under uncertainty, time pressure, and incomplete data, as well as how non-material factors shape the informational and social environment of crisis response. The study fills a research gap by examining indirect mechanisms through which disinformation can weaken logistics without directly disrupting infrastructure or supply chains. The aim of the article is to examine how information constraints and disinformation affect the effectiveness and resilience of crisis logistics within the broader framework of state security. The research hypothesis assumes that disinformation reduces the effectiveness of crisis logistics mainly indirectly, by influencing perceptions, decision-making processes, and social behaviour rather than by physically disrupting infrastructure. The study is based on a qualitative review and synthesis of scientific literature and selected institutional sources concerning crisis logistics, decision-making under uncertainty, disinformation, and organisational resilience. The analysis shows that crisis logistics operates under significant informational and organisational constraints. Its effectiveness may be reduced not only by technical or material limitations, but also by disturbances in the informational environment and socially driven reactions. Disinformation primarily affects logistics by influencing perceptions and behaviour, yet the growing use of ICT and AI-based tools does not eliminate these vulnerabilities. The findings confirm the research hypothesis and indicate that resilience in crisis logistics should be understood as the ability to maintain operational functionality under informational pressure and social disruption.

**Keywords:**

crisis logistics; state security system; disinformation; decision making under uncertainty; organisational resilience

## Introduction

Contemporary states operate under increasingly dynamic and unpredictable threats. Crisis situations disrupt the functioning of public institutions and social life, requiring decisions to be taken under time pressure, resource constraints, and uncertainty. In such conditions, the effectiveness of the state security system depends largely on logistics (Ficoń and Sokołowski 2022). Logistics involves not only the movement of goods and people, but also the flows of information and the decision-making processes that determine the allocation and distribution of limited resources (Zwoliński 2018). These processes operate under incomplete data and changing circumstances, which limit verification and increase uncertainty (Phillips-Wren and Adya 2020).

Contemporary crisis environments are also influenced by non-material threats that shape the informational and social conditions in which logistics operates. One of these threats is disinformation, whose impact is not expressed through direct disruption of infrastructure or supply chains (Bennett and Livingston 2018). Its effects are instead visible in the way perceptions, expectations, and patterns of behaviour are formed and modified (Surjatmodjo et al. 2024). Logistics systems can therefore continue to function formally while gradually losing their practical capacity to perform assigned tasks (Duchek 2020). This is particularly evident in situations where social reactions—such as panic or unpredictable collective behaviour—interfere with transportation, distribution processes, and the prioritisation of logistical activities (Barrett et al. 2012).

The increasing reliance of logistics management on information and communication technologies, including artificial intelligence-based tools, further complicates this picture (Lee and Mangalaraj 2022, pp. 23-24). Although technological systems support decision-making, they depend on data quality, system integrity, and human supervision. Errors or distortions at the informational level may propagate through decision-making processes, leading to formally correct but substantively inadequate outcomes.

Despite the growing literature on crisis management and logistics, limited attention has been paid to the indirect effects of disinformation and information-related threats on logistics through decision-making processes and social behaviour. In particular, their impact on the resilience of logistics within the state security system remains insufficiently explored.

The purpose of this article is to analyse the role of logistics in the state security system during crisis situations, with a particular focus on information and decision-making processes and their vulnerability to disinformation.

The research hypothesis is as follows: H1: Disinformation can substantially reduce the effectiveness of crisis logistics not through direct disruption of infrastructure, but indirectly by influencing perceptions, decision-making processes, and social behaviour, which, in turn, destabilise logistics operations within the state security system. The analysis also addresses the concept of resilience in crisis logistics, understood not only in technical terms but as the ability to maintain functionality under conditions of uncertainty, informational pressure, and social disruption.

The article addresses the following research questions: how do information and decision-making constraints shape logistics operations in crisis situations, in what ways can disinformation influence logistics without direct interference in supply chains, and how should resilience in crisis logistics be understood in the context of contemporary information-related threats. The analysis is based on a qualitative review of the scientific literature and selected institutional sources regarding crisis logistics, decision-making under uncertainty, disinformation, and organisational resilience. The scope of the article is limited to logistics as an element of the state security system operating under crisis conditions.

## **Research methodology**

This study is based on a structured qualitative literature review and synthesis of scientific publications and selected institutional sources addressing crisis logistics, decision-making under uncertainty, disinformation, and organisational resilience. The choice of this approach results from the conceptual nature of the research problem, which concerns indirect mechanisms linking informational factors with the functioning of logistics systems in crisis situations.

The literature review was conducted using major academic databases, including Scopus, Web of Science, and Google Scholar, ensuring access to peer-reviewed, indexed publications. The search process was based on key terms corresponding to the analysed issues, including crisis logistics, disinformation, supply chain disruption, decision-making under uncertainty, and organisational resilience.

The selection of sources was guided by their direct relevance to the analysed issues, particularly the relationship between information-related threats and logistics processes in crisis situations. Priority was given to publications that addressed the interactions among disinformation, perception, behaviour, and decision-making processes, as well as their impact on logistics operations. In addition, selected institutional sources, including NATO documents, were included for their relevance to understanding the policy and strategic context of hybrid threats and disinformation.

The research procedure involved identifying and examining recurring patterns in the literature on the influence of disinformation on perception, behaviour, and decision-making processes, and its indirect impact on logistics operations. The analysis was conducted using a qualitative synthesis, enabling the integration of findings from different research areas into a coherent analytical framework.

The study has certain limitations. It is based on a qualitative, selective review of the available literature and does not include empirical case studies. As a result, the findings are conceptual in nature and reflect the current state of knowledge rather than quantitatively verified relationships. In addition, the selection of sources may be affected by limitations in database coverage and publication availability.

### **Logistics within the state security system under informational and organisational constraints**

In crisis situations, the functioning of logistics within the state security system depends on information and decision-making processes that can be disrupted not only by material constraints but also by deliberate disinformation activities. Research increasingly indicates that misleading or strategically manipulated information may function as a disruptive factor within supply chains, even without physical interference (Petratos and Faccia 2023; Syamaruthadevi et al. 2025). In this sense, logistics performs a systemic function within the state security architecture, linking strategic decision-making with operational execution. Any distortion at the informational level may therefore translate not only into operational inefficiencies but into systemic vulnerability of the security system as a whole. Logistics management is an integral, yet autonomous, element of crisis management and, under the relevant legal acts, falls within the remit of public administration authorities at both the governmental (central) and local levels. As in crisis management, logistics management operates within a four-stage decision-making cycle that includes prevention, planning, response, and recovery (Ficoń and Sokołowski 2022, p. 106).

In crisis situations, logistics management covers several areas of the logistics chain. These include the physical movement of people and material goods, information and decision-making processes, and the maintenance of reserves, together with the costs associated with their storage (Zwoliński 2018, p. 95). The role of these elements becomes evident, above all, when normal supply chains are disrupted or cease to function. In such circumstances, the continuity of supplies must be ensured for emergency services and affected people, as well as for groups for whom lack of access to specific products may directly threaten health or life (Czuryk 2025, p. 6).

The structure of distribution logistics under crisis conditions resembles that of procurement logistics. Its organisation depends on a set of criteria, including the type of crisis, the end user, the financing entity, the dynamics of activities, the

level of operational involvement, forms of supervision, the degree of integration with procurement, the type of goods and the area in which activities are carried out (Tadić et al. 2025, p. 77). Because the effectiveness of crisis management is heavily dependent on logistics, its components may constitute a potential target for hostile actions. Such actions do not have to involve physical disruption of supply chains. They may also aim to cause their malfunction, leading to formally correct but substantively incorrect decisions. These activities can be classified as part of broader hybrid operations and may employ a wide range of techniques and tools (Countering hybrid threats 2024). Studies confirm that disinformation and misinformation can influence demand patterns, stock availability and distribution decisions, thereby indirectly destabilising supply chains (Sarraf et al. 2024).

One such group of actions includes attacks on information and communication systems supporting logistics management. However, even in technologically advanced systems, the weakest element remains the human factor, that is, the user of the system. A successful attack may result in unauthorised access and subsequent actions within the system (Cheung et al. 2021). The most dangerous of these are activities that go unnoticed for an extended period and gradually affect decision-making processes (Shafiei et al. 2025, pp. 9-11). Under crisis conditions, decision-makers operate under bounded rationality, cognitive overload, and information asymmetry, which increase their susceptibility to manipulated, selectively framed, or incomplete information. The interplay between data quality and cognitive bias in crisis information management further amplifies this vulnerability (Paulus et al. 2024).

Technological development has increased reliance on artificial intelligence in logistics management, introducing risks specific to AI systems (Brintrup et al. 2024, p. 4674). These risks stem from incorrect, incomplete or manipulated data used in training and operation, with errors potentially propagating through decision-making processes (Peixoto et al. 2025, pp. 2-4). Effective and safe use of AI requires adequate digital literacy among both public institutions and service users (Bierecki et al. 2025, p. 385). At the same time, AI may facilitate information manipulation, including the generation of misleading content that is difficult to distinguish from reliable information.

Threats to logistics systems rarely occur in isolation and often combine with factors such as information manipulation, misinformation and disinformation. In particular, disinformation, understood as an intentional activity, poses a significant threat by influencing behaviour at both individual and collective levels (Deppe and Schaal 2024, p. 4). It may target decision-makers or broader social groups, indirectly affecting logistics processes and, in extreme cases, triggering panic buying, mass movements or erosion of trust in public institutions, thereby destabilising distribution networks without direct interference (Sarraf et al. 2024). As part of broader hybrid operations, disinformation campaigns may also be prepared long before a crisis and, in some cases, even contribute to its deliberate triggering.

Consequently, the resilience of crisis logistics cannot be reduced to technical redundancy or infrastructural robustness. It must also encompass informational resilience, institutional adaptability and the capacity to detect, absorb and neutralise disinformation before it translates into operational disruption.

### **Decision-making under uncertainty and time pressure in crisis logistics**

In crisis situations, including full-scale crises, decisions are often made based on incomplete data. This also applies to logistical decisions. At any given moment, the information on which decisions are based only reflects a partial and temporary state of affairs (Paulus et al. 2023, pp. 2-3). Meanwhile, the situation itself continues to evolve, so that data guiding decision-making can change even as decisions are already being put into effect. Such conditions correspond to what the literature describes as decision-making under deep uncertainty, in which the range of possible developments cannot be fully anticipated, and probability distributions remain unknown (Ben-Haim 2019, pp. 94-95). Crisis logistics involves strategic decisions on resource allocation, operational decisions on coordination and prioritisation, and tactical decisions on the immediate redirection of transport or supplies. Each of these levels is affected differently by uncertainty and time pressure.

In crisis conditions, decisions are made under time pressure and with incomplete information, which limits systematic verification and constrains the assessment of data reliability. The decision-making process is rarely linear and typically unfolds alongside ongoing events, increasing uncertainty and reducing the scope for deliberation (Phillips-Wren and Adya 2020). Feedback mechanisms are often weak or delayed, and decision makers rely on partial signals and fragmentary updates. As a result, decisions are frequently revised during their execution, making crisis logistics dependent on adaptive decision-making and real-time sensemaking rather than predefined procedures.

Distribution-related decisions are particularly affected by these constraints. They are typically taken in situations of shortage or limited transport capacity. Constraints may concern technical means, infrastructure availability, and the accessibility of transport routes. At the same time, limitations apply to human resources. Personnel resources may prove insufficient, may be unevenly distributed, or may be required simultaneously in several locations. Additionally, access to technologies supporting logistics management may be restricted or unstable, depending on the type and scale of the crisis (Tarei et al. 2024).

Although the intensity of these constraints varies in crisis situations, logistics always operates within certain limits. Time pressure and situational urgency can accelerate decision-making, but do not remove structural limitations. Even with

advanced technological solutions, dependence on infrastructure, connectivity, data availability, and human supervision remains unavoidable (Herrmann and Pfeiffer 2023, p. 1524). Once any of these elements is weakened, the range of feasible logistic action is correspondingly reduced. Therefore, human limitations must also be taken into account. Individuals responsible for logistics management operate under stress, fatigue, and high cognitive load. Their capacity to process information, compare alternatives, and anticipate consequences is limited. In crisis conditions, these human constraints intersect with technological and organisational factors, shaping the practical limits of decision making (Endsley 1995).

From this perspective, logistics in crisis situations operates close to the limits of its capabilities. Under such conditions, decisions are taken under pressure, on the basis of unstable information, and within narrowly defined margins of manoeuvre. Understanding these conditions is essential to analysing how logistic decision-making functions in practice and where its inherent vulnerabilities may arise.

### **Disrupting crisis logistics through disinformation and social behaviour**

Disinformation affects societies at all levels, from individuals and households to entire populations (Surjatmodjo et al. 2024, pp. 10–13). In the contemporary digital environment, where the distinction between reliable and false information is often blurred, disinformation can spread rapidly, as illustrated during the COVID-19 pandemic, shaping attitudes and amplifying uncertainty (Skwarski and Moch 2022). For crisis logistics, its impact is indirect, targeting the environment in which logistics operates rather than infrastructure itself (Torpan et al. 2021). In this way, disinformation deepens information asymmetry, complicates coordination, and increases the risk of misaligned expectations regarding resource availability and distribution priorities.

In crisis situations, logistics functions within a social and behavioural context. Disinformation exploits this context. Instead of disrupting supply chains or infrastructure directly, hostile actions may shape perceptions, expectations, and reactions within society. As a result, logistics systems may remain formally intact but lose their practical ability to perform assigned tasks. Therefore, irrational and unpredictable social behaviour triggered by manipulated information may undermine logistics without any physical interference (Iizuka et al. 2022). Disinformation may also erode public trust in governmental communication, thereby reducing compliance with official distribution mechanisms and instructions.

The disruption of transportation networks illustrates this mechanism particularly clearly. Social chaos may lead to congestion, reduced capacity and uncontrolled traffic flows, directly affecting the distribution of goods, the movement of

emergency services and the deployment of resources. In such cases, logistical failure results not from technical breakdown but from altered patterns of use within the system (Barrett et al. 2012). Disorder may also force the reallocation of personnel and equipment from logistical support to public order tasks, reducing response capacity. Although individual incidents of misinformation may appear marginal, their cumulative effect can strain the system, gradually weakening the capacity and resilience of logistics networks.

Panic is among the most disruptive effects of disinformation. Artificially induced panic is difficult to contain and can spread rapidly across different social groups (Sarraf et al. 2024). Research conducted during the COVID-19 pandemic demonstrates that large-scale disinformation campaigns, particularly those disseminated through digital and social media platforms, significantly influenced public perceptions of risk and institutional credibility (Skwarski and Moch 2022, pp. 138–143). It does not require interference with the logistics infrastructure to produce tangible consequences. By increasing uncertainty and volatility in behaviour, panic destabilises the operational environment in which logistics decisions are implemented. Disinformation may also reinforce existing beliefs among groups inclined towards conspiracy thinking and mobilise them to take deliberate actions that obstruct crisis response (Sarraf et al. 2024). Such actions may include intentionally blocking roads or destroying facilities that support crisis management, including warehouses that store essential or medical supplies. In these cases, logistics becomes a secondary target, affected by actions taken by social actors rather than by direct attacks on logistics systems.

Another mechanism through which disinformation affects logistics is the emergence of self-fulfilling prophecies. Information about anticipated shortages may trigger precautionary purchasing and stockpiling, which, although rational at the individual level, can cumulatively lead to real shortages and distribution failures. As a result, perceptions of scarcity – even if unfounded – may become operationally decisive, transforming informational signals into tangible logistical disruptions.

From the perspective of crisis logistics management, the critical issue is that actions of this kind can significantly hinder, or even prevent, the proper functioning of logistics systems. As part of broader hybrid operations, disinformation campaigns may be prepared long before the onset of a crisis (Bennett and Livingston 2018). In some cases, the deliberate triggering of a crisis may itself form an element of hostile activity, with logistics affected indirectly through the manipulation of social behaviour and the destabilisation of the operational environment.

Resilience of crisis logistics under informational pressure and social disruption

Crisis logistics should be resilient to disruptions to the highest possible degree, as the effectiveness of the entire crisis management system depends largely on its ability to function under adverse conditions. However, resilience in this context cannot be understood solely in technical or informational terms (Jarašūnienė and

Gelžinis 2025, pp. 3-4). It should rather be defined as the capacity to maintain functionality in an environment characterised by disturbances, uncertainty, and social pressure (Duchek 2020, pp. 222-223). In this sense, resilience encompasses not only robustness, understood as resistance to disruption, but also adaptability and the capacity to recover and learn after disturbance.

Within logistics organisations, the human factor remains central, as technical systems support but do not replace human judgement (Sgarbossa et al., 2020, p. 299). Given the multidimensional pressures affecting contemporary security environments, crisis logistics – responsible for managing critical goods – has systemic importance beyond operational efficiency. Accordingly, its resilience should be analysed at multiple levels: individual, organisational, inter-organisational, and systemic. Weakness at any of these levels may significantly reduce the overall resilience of crisis logistics within the state security system.

From this perspective, resilience in crisis logistics must be considered in several dimensions. In the management of stocks and their distribution, final decisions should remain under human control (de Camargo Fiorini et al. 2022, pp. 913-915). Technological systems, regardless of their level of advancement, are not fully reliable and remain susceptible to failure or malfunction. Redundancy, diversification of suppliers and distribution channels, and the decentralisation of selected logistical functions may therefore strengthen resilience by reducing single points of failure. At the same time, efficient logistics can ensure relative continuity of supplies, which constitutes a stabilising factor for society. The continuity of deliveries reduces uncertainty and can limit the spread of panic, thereby indirectly constraining the social effects of disinformation (Zheng et al. 2025, pp. 1-3).

The effectiveness of crisis logistics is closely related to societal preparedness. Household-level reserves enabling temporary self-sufficiency reduce pressure on logistical systems and allow resources to be redirected to critical tasks. Conversely, a lack of preparedness increases demand for immediate support and overburdens available resources. Information manipulation may further discourage adequate preparation, shift tasks from individuals to public systems, and intensify pressure on logistics, even during short-term disruptions.

Given that disinformation often operates in a subtle, cumulative, and seemingly credible manner, resilience also requires that individuals responsible for logistics remain resistant to informational manipulation. This applies not only to operational decision makers but also to those involved in the design and development of systems supporting logistics management. Technological tools are human-made and therefore vulnerable at the stages of conception, development, and implementation. If the actors involved in these processes are influenced by distorted information, systemic vulnerabilities may be introduced before a crisis even occurs (Enck and Williams 2022). For this reason, resilience should also include mechanisms for early detection

of informational anomalies, verification of critical data sources, and institutionalised procedures for countering disinformation within decision-making structures.

The use of technological systems in crisis logistics should remain subject to critical human oversight. Control over supply chains and awareness of system limitations constitute key elements of resilience. Measures such as stress testing, scenario planning, and simulation exercises may enhance adaptive capacity by identifying vulnerabilities in advance. However, logistical resilience is inherently limited and depends on the scale, duration and intensity of disruptions; beyond certain thresholds, even well-prepared systems may gradually lose their capacity to stabilise the broader state security system.

## Conclusions

The findings confirm the research hypothesis (H1), demonstrating that disinformation affects crisis logistics primarily through indirect mechanisms related to perception, decision-making processes and social behaviour. The analysed mechanisms are not limited to a specific national context and may be observed across different state security systems.

Logistics constitutes a core component of the state security system in crisis situations. Its significance does not stem solely from the movement and distribution of goods, but from its close dependence on information and decision-making processes. In crisis conditions, these processes are shaped by time pressure, unstable and incomplete data, and rapidly changing circumstances. Decisions are often taken while actions are already underway, with limited opportunities for verification and weak feedback, which narrows the space for corrective intervention. The contribution of this article lies in identifying and conceptualising the mechanism through which informational and decision-making constraints shape the practical functioning of crisis logistics. This mechanism shows how disinformation shapes perception, influences decision-making, and ultimately disrupts logistics operations.

Logistics disruption does not have to take a physical form. In crisis settings, logistical failures may arise from the informational and social environments in which logistics operates. Disinformation is relevant in this respect not because it directly damages infrastructure or supply chains, but because it reshapes perceptions and behaviour. When this occurs, logistics can retain its technical structure while losing operational effectiveness. Priorities become unstable, routes prove unusable in practice, resources are reassigned, and coordination gradually weakens. The findings therefore demonstrate that disinformation can indirectly influence logistics, primarily through its impact on social behaviour and decision-making processes rather than through direct interference with infrastructure.

This vulnerability is further intensified by the growing dependence of logistics management on ICT systems, including AI-based tools. Although such systems support decision-making, they do not eliminate their basic constraints. If the information on which decisions are based is incomplete, distorted, or intentionally altered, errors can spread across successive stages of decision-making. In such cases, decisions may remain formally correct while failing to reflect the actual situation on the ground.

Resilience in crisis logistics should therefore not be understood in purely technical terms. In this article, it is approached as the capacity to sustain functionality under conditions of uncertainty, informational pressure and social disruption. Organisational arrangements and technological solutions remain important, yet they do not replace human judgement. Social preparedness is equally relevant, since collective reactions – especially panic and other destabilising behaviours – can reduce transport capacity, disrupt distribution patterns, and force authorities to shift resources away from essential logistical functions.

Taken together, the analysis indicates that logistics in crisis situations often operate close to their practical limits. When informational, social and organisational pressures accumulate, logistics may lose part of its capacity to stabilise the wider state security system. This does not mean that resilience disappears, but it shows where weaknesses tend to form. They become visible when decisions are taken under pressure, when the information environment is unreliable, and when social reactions interfere with planned courses of action. From a practical perspective, strengthening crisis logistics requires not only investment in infrastructure and technology, but also the development of institutional mechanisms to counter disinformation, improve inter-organisational coordination, and enhance public preparedness. Further research may focus on empirical case studies of crises in which informational manipulation significantly affected logistical performance, as well as on the development of measurable indicators of informational resilience within state security systems.

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