

The impact of information bombs on social security: a global analysis and Japanese perspective

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Abstract

Objectives: The article aims to provide an in-depth analysis of the impact of information bombs—organized disinformation campaigns—on global social security, with a particular emphasis on Japan, its vulnerability to media manipulation, and the resulting social and political consequences.

Methods: The research is based on a review of scientific literature, empirical data, and international reports, complemented by a case study of the Tokyo subway sarin attack, to illustrate the mechanisms and effects of disinformation in the context of social and political threats.

Results: The study reveals that information bombs lead to information chaos, social disintegration, escalation of panic, weakening of trust in institutions, and increased susceptibility to propaganda. These effects are particularly evident during crisis situations in highly developed countries, where disinformation can exacerbate political divisions and amplify the vulnerability of citizens to manipulation and destabilizing narratives.

Conclusions: Combating disinformation requires systemic measures, including the implementation of information verification tools, enhancing public awareness, media literacy education, and institutional cooperation to safeguard social order and democratic values. A major issue is the public's lack of awareness and failure to verify published information. Information itself is not inherently dangerous; the true threat lies in public reactions, manipulation of opinions, and the potential to induce panic. The circulation of harmful and false content has complex ethical and practical implications for fundamental principles such as freedom of expression and media pluralism, while also contributing to social unrest and a heightened sense of insecurity.

Introduction

The rapid development of digital technologies and the growing role of media have turned information into one of the key resources influencing political, social, and economic processes. While reliable information supports stability, false or manipulated content can undermine public trust, trigger panic, and destabilize social systems. Organized disinformation campaigns—known as *information bombs*—pose an increasing threat to social security at both global and national levels (Alkowski, 2015, p. 90).

The aim of this article is to analyze the mechanisms and consequences of information bombs, with a particular focus on Japan—a country characterized by high trust in traditional media but increasingly vulnerable to information manipulation. The Tokyo subway sarin attack illustrates how disinformation can shape collective behavior during crisis events (Okumura et al., 2005, pp. 471–476).

This research addresses the following questions:

1. How do information bombs affect social security?
2. How does disinformation influence public behavior during emergencies?

Based on these questions, the following hypotheses have been formulated:

H1: Information bombs threaten social security by disseminating false information that disrupts public services.

H2: Disinformation manipulates public opinion and can lead to inappropriate public behavior during crises.

1. The problem of disinformation

The development of civilization and the intensive digitalization of various areas of social life have made information a key strategic resource. Its deliberate use can significantly affect the functioning of the state and its institutions.

Information warfare refers to a state's external activity, often involving coercive means, aimed at achieving specific political goals. It targets the destruction or modification of the opponent's information systems or the information transmitted through them while protecting its own systems from similar threats (Alkowski, 2015, p. 90).

The research questions guiding this paper are: - How do information bombs affect social security? - How does disinformation influence societal behavior during emergencies?

The main objective is to assess the impact of information bombs on social security. The hypotheses tested are: - Information bombs pose a threat to social security by disseminating false information that disrupts services. - Disinformation manipulates public opinion and can lead to inappropriate public behavior during crises.

The Problem of Disinformation: Disinformation, spam, and troll factory activities involve the creation and dissemination of false or misleading information. Advances in communication

technologies have significantly influenced these behaviors (Bialoskorski, 2011, p. 21). Disinformation refers to false information spread with or without the intent to mislead (Corsi & Seger, 2024, pp.10-29).

False information is particularly impactful during crises, as demonstrated during the COVID-19 pandemic when misinformation influenced political, social, and health decisions globally (Rosinska, 2022). Figure 1 contrasts true and false information.

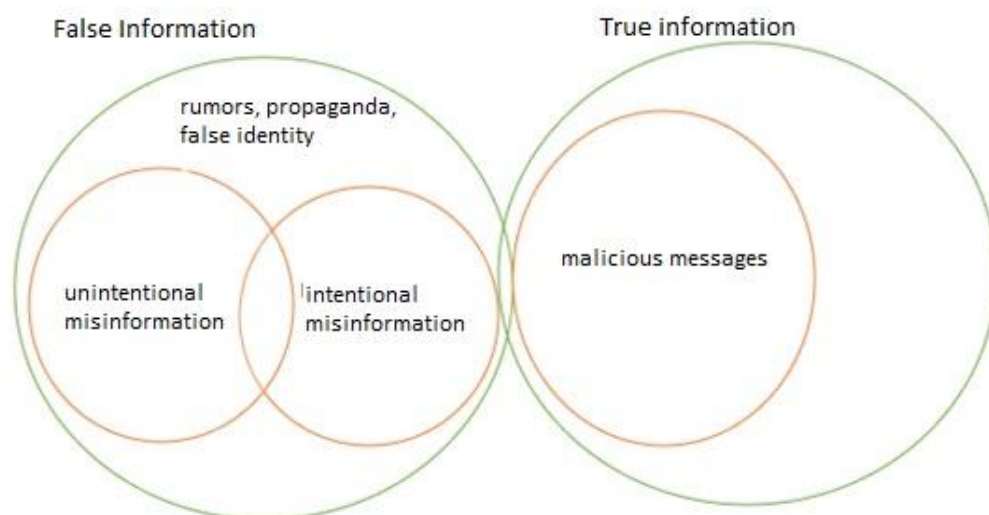


Fig.1 . Disinformation vs. True Information

Source: own compilation based on: (Rosińska, 2022)

In terms of security in society, the social reactions that occur between the development of information technology and economic, political changes at the national and international levels are important. In information warfare it, the public becomes the target, but with the development of awareness and skills it can be in both defensive and offensive positions. It should be emphasized that it is more difficult to manipulate conscious citizens, and it is also more difficult to obtain important information from them.

False and untrue information can be seen practically every day examples of how ignorance and unawareness are used to shape negative reactions. Untrue information is spread in the form of memes with a picture and a short description in a short period of time reaching thousands of recipients who pass it on. Few users take the trouble to verify the information. Forwarding the information to the right group contributes to its rapid spread. In addition, these activities are influenced by fake accounts that create relevant content and further share it online (Jagusiak, Olczak, 2016, p. 159).

The introduction of a large amount of new, unnecessary, often of little value and difficult to verify information can cause some chaos and confusion. They are transmitted as targeted comments by making them fit perfectly into the pattern of fighting. This contributes to the creation of information chaos, which obviously affects the perception of certain subjects, subjected to strong propaganda and manipulation processes (Alkowski, 2015, p.92). These

actions are the result of consciously implemented assumptions aimed at introducing information chaos and manipulating social actions.

Information warfare takes place on many levels: private, individual, business, state. And society and its individuals participate in it involuntarily. Globally, it does not go unchallenged on the European continent either. The European Union is the subject of intense activity in this area, and individual states and users are becoming participants. However, it is important to determine what impact it has directly in the European dimension, mainly in the analysis of selected social problems (Jagusiak, Olczak, 2016, p.150). The danger of activities in this area stems from the importance of information and the ease of obtaining it, as well as manipulating it or transforming it for one's own purposes.

Information warfare is not a modern invention, but under the influence of technological development and globalization it has taken on quite a different character, so that its role has increased significantly. J. Arquilla and D. Ronfeldt point out that these activities can be divided into cyberwar and netwar. Cyberwar refers to activities conducted in the military sphere, while netwar are activities conducted at the social level (Arquilla, Ronfeldt, accessed 29.04.2025). They use networks and influence perceptions of social phenomena and behavior.

It should be emphasized that information warfare is closely related to the technological changes brought about by the last several years. The image of today's information warfare is influenced by social networks such as Facebook, Twitter and Instagram and many others.

Society in relation to information warfare plays two roles. The first denotes the target at which certain actions targeting the state and organizations are directed, including by states as well as organizations. Acquiring information, shaping public sentiment, exerting influence, all this happens online on a daily basis.

Information bombs are, a term referring to threats to social security concerning the deliberate dissemination of false or manipulative information to contribute to unrest, social division or destabilization. Thus, an information bomb refers to information that affects larger segments of society and can contribute to destabilization in a region or country. Such information can contribute to social divisions, destabilization, economic problems, reduced personal security, and negatively affect demographic procedures. In addition, such information is a threat to physical security and increases the risk of terrorism. Untrue and false information affects social security in many areas. This is a worldwide problem, and it is particularly dangerous for countries that significantly affect global economies (Miller, 2019, pp. 38-40).

The term information bombs was used by the author of the book "Information Bomb" P. Virilio, in which he outlined the dangers leading to information warfare. In the book, he outlined the dangers associated with the development of technology and the effects of a cyber bomb (Virilio, 2006, p.8). In his article, T. Walczyk pointed out that *the machinery of the cyber world, in turn, carries the risk of an information bomb. The explosion of an information bomb can plunge the entire world into chaos* (Walczyk, 2015, p.204).

Information warfare, according to W. Schwartau, operates on three levels, including personal, corporate and global. The above division can be supplemented by two other levels: civilian and military. The civilian plane of such activities indicates that the social context.

Derived from the military, information warfare has a wide range of applications including, but not limited to: business, finance, technology and science. It also encompasses the security of individuals and their sphere of activity at various levels of their development or interaction with society.

Information warfare can be reduced to three planes of objectives and related activities, as shown in Table 1.

Table 1. Information warfare

Target	Activities
Physical principles	Damage or destruction of enemy information and communication systems using conventional military techniques.
Soft resources	Infiltration, degradation, and destruction of information systems. Use of external actors and corrupt internal structures to breach security and weaken the capabilities of adversary information systems, including with malware
Mental resources	Quietly penetrating the adversary's information and communication systems to manage perception, shape opinions, fuel disinformation and engage in epistemological warfare

Source: (Miller, 2019, pp. 38-40).

The development of information warfare areas in a high-technology society targets adversaries with similar technological capabilities, and can also be an instrument for terrorist and covert actions (Lawton, 2023, pp. 36-40). Activities that target a country's population include computer viruses, computer worms, Trojan horses, logic bombs, as well as Back Doors, Chipping and nanorobots and molecular machines as well as electronic jamming, electronic pulses and energy weapons and including electromagnetic weapons. The use of information manipulation against an adversary or a given society and the use of modified or false messages through the media, distorts the true picture of reality, shapes attitudes and affects morale. Ultimately, such action contributes to modifying the perception of political leaders and also their demands (Lelonek, 2017, p. 73).

Information warfare processes are covert and unofficial from the point of view of public channels of access to information. These activities, are extra-warlike so also more difficult to capture. It can be conducted on both an individual and global level.

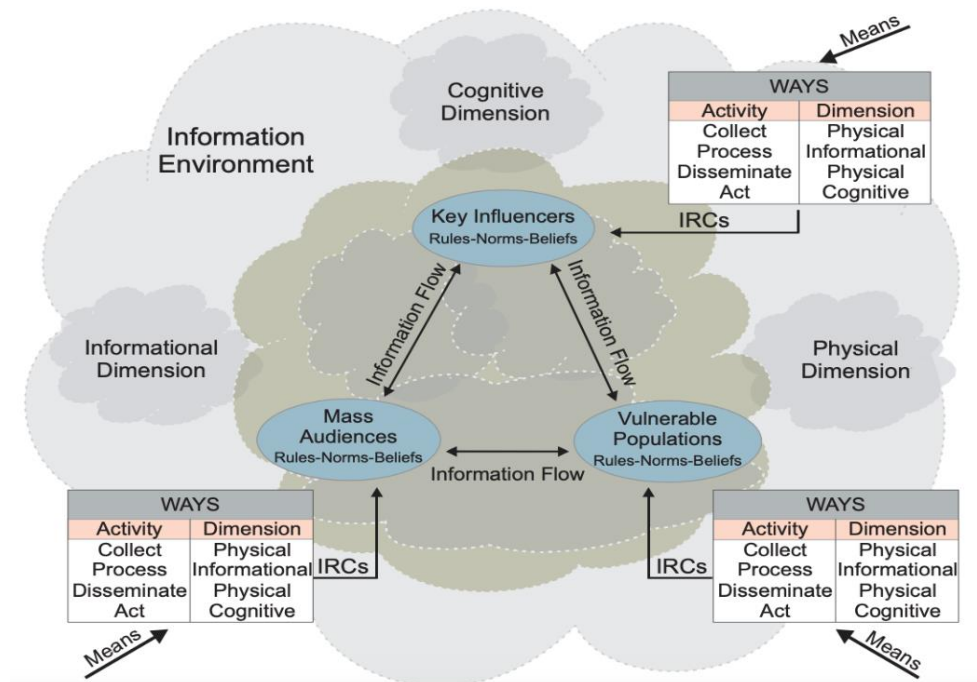


Fig. 2. Applying the capabilities of information-related measures to achieve impact
Source: (Lelonek, 2017, p. 81)

The figure presents an information environment in which we have a physical dimension, an information dimension, and a cognitive dimension. Each dimension covers a specific area and so the physical dimension includes military, national, economic, geographic and social aspects. The information dimension decides where and how information is collected, how it will be processed, stored, as well as distributed and protected. The cognitive dimension is the area where the mind of individuals transmitting, receiving and responding to information is directed. So, it includes the activities of individuals or groups such as processing, perception, evaluation and decision-making. These actions are also influenced by other determinants that determine the expected results by making it the most important component of the information environment (Lelonek, 2017, p. 81)

Information -Related Capabilities is, a framework for the relationships in which impact is made through information and its application, that is, this will include tools, techniques, as well as activities affecting the three dimensions of the information environment. Actions in each area affect decision-making processes, and of particular importance in it is the time in which a certain effect is produced, giving the intended results (Lelonek, 2017, p. 81).

Information warfare is a problem all over the globe including Japan. Japan is an interesting example to analyze the influence of disinformation and its impact on society. The country's society is characterized by a high level of citizen trust in traditional media and a relatively low level of political polarization, this is, however, a growing problem of

disinformation can be observed in Japan. This is particularly noticeable in the area of social media and the global narrative. Undoubtedly, the Japanese are characterized by high trust in traditional media and low levels of online political engagement. A 2022 report by Nikkei and Nanyang Technological University indicates that 75% of Japanese people encounter fake news, but only 19% can verify it. Japan also has few portals able to verify the veracity of the information presented. The report indicates that as much as 40% of information shared on social media is misinformation (Japan lags behind in identifying, accessed 29.04.2025).

In Shizuoka Prefecture, Japan, the 2022 typhoon contributed to a large evacuation of the population, as well as extensive damage including landslides due to excess water (Talas in Japan, accessed 29.04.2025). Photos from the area quickly appeared on the Internet, but what showed up were manipulated photos. It was pointed out at the time that in times of disaster, misinformation spreads quickly, as people want up-to-the-minute information on hazards. The reason for Japan's delay in combating disinformation is the scarcity of fact-checking sites compared to other countries around the world.

Japan is susceptible to disinformation due to the public's high trust in traditional media. In addition, it is vulnerable to foreign disinformation, especially in the context of international events, examples of which include the Covid-19 pandemic and the war in Ukraine. False information is commented on and replicated by users, which further intensifies the problems that arise. Disinformation from abroad tends to be translated and spread by the Japanese (Sakamoto, 2024, pp. 129-142).

Disinformation, too, has been involved in many state and political affairs even concerning the falsification of state documents or statistics. Disinformation also appeared in the case of the killing of Prime Minister Abe in 2022. Abe as well as the ruling party in Japan had close ties to the Unification Church, and the murderer had a grudge against the church. The media did not report on this at first, but information about the ties between the LDP and the Unification Church gradually emerged. Disinformation and conspiracy theories about the whole incident began to emerge. things, it was pointed out that the incident was a government plot to assassinate the prime minister.

The impact of disinformation and fake news are the subject of research in many areas of social life. They are of particular importance in spheres that have a strong influence on decisions made by the public. Ergon Cugler de Moraes Silva and Jose Carlos Vaz have drawn attention to the impact of disinformation and fake news on public policy. The results of their research showed that disinformation affects public decisions, adherence to policies, prestige of institutions, perception of reality, consumption, public health and other aspects. Their research also indicated that disinformation should be treated as a public problem (Moraes Silva, Vaz , accessed 29.04. 2025).

The effect of disinformation was also pointed out by the authors of the book "Network Propaganda" Bankler, Faris and Roberts. They pointed out the influence of the right-wing media in the US, which spread disinformation, thus creating a closed information ecosystem. They reinforced belief and influenced public opinion by publishing false information. They also stressed that each side has its own twisted reality (Toobin, accessed 29.04. 2025).

A disinformation campaign can also target an individual, as exemplified by, among others, Annalena Baerbock, a leadership election candidate for Germany's chancellor. In 2021, fake and Photoshopped photos of a nude Russian model were published that depicted Baerbock and suggested that she had previously worked as a sex worker. This contributed to many sexist attacks. This information and subsequent public reaction contributed to her declining popularity and losing the election. Research conducted showed that Annalena was affected by a large amount of disinformation from sources supported by the Russian Federation. It should also be emphasized that disinformation activities against women lead to the regression of rights and democracy as a whole, and become a threat to national security (Rajvanshi, accessed 29.04. 2025).

Research on disinformation is also being conducted by the EU, one of which looked at disinformation attacks targeting voters, the media and LGBTQ+ groups. The EU report found that disinformation attacks in 2023 targeted European democracy as well as other areas. These actions included malicious manipulation of the image and votes of various individuals including celebrities such as M. Robboce and N. Cage. The research revealed the spread of fake news during elections in Poland and Spain. The research analyzed more than 750 disinformation attacks, which included the strategic dissemination of false stories and harassment of legitimate sources to reduce trust in public institutions. The report pointed out that this war involves a bombardment of information and ideas (EU report found disinformation attacks, accessed April 29, 2025).

The literature is replete with scholarly publications that point to the many detrimental effects of disinformation on social institutions, including in particular how disinformation can undermine institutional legitimacy. Individuals create and disseminate disinformation online to disrupt institutions, such as to belittle a political rival or to cast a shadow over medical knowledge (Davis, Beck, 2023, pp.1471-1477).

Also noteworthy is the disinformation, as well as the manipulative activities that were carried out in relation to the 2019 protests in Hong Kong. The disinformation related to the protests at the time was a large-scale operation, with the main goal of shaping public opinion in a certain way. The protests were initially about the extradition law, but over time they evolved into a broad pro-democracy movement. China's propaganda campaign relied on state media and related social media accounts to create a false image of the protesters by labeling them as terrorists. To this end, fake videos and photos depicting acts of violence and vandalism were created and published, usually out of context. Conspiracy theories were also created, indicating that the United States and other countries and organizations were responsible for the actions taken (Deschrijver, 2024, pp. 31-31). The media presented manipulated images, including photos of alleged mercenaries among the protesters. Often the images of events presented were not from Hong Kong but from other countries or events. Fake accounts and bots were also used in propaganda efforts, which automatically spread posts disparaging the protests and protesters. Disinformation was also carried out locally and introduced social division in order to divide residents and intimidate protesters (Deschrijver, 2024, pp. 1-12). The Chinese government and Hong Kong authorities also used counter disinformation techniques, i.e., censorship and

blocking independent coverage of the protests, which contributed to even more disinformation and chaos and made it difficult to verify the facts.

2. Case study

In 1995, an attack was carried out in the Tokyo subway using the war gas sarin. The gas (a diluted form of sarin) was used to fill Tokyo's 15th subway station and five train cars (Okumura, Taki et al., 2015, pp.27-35). The attack was carried out by the Aum Shinrikyo sect (Sakurada, Ohta, 2020, pp.12-18) and was the most shocking case of chemical attack in history. Disinformation and its influence on public opinion played a special role in the whole situation. The attack resulted in the death of 13 people and more than 1,000 seriously injured. The effects of the gas were felt by thousands of people (BBC News - *Aum Shinrikyo*, accessed 29.04.2025).

Initial media reports on the attack included information about the very large scale of the incident, including large discrepancies in the number of victims and the reasons for the attack. The information presented in the media was contradictory, based on witness reactions and police reports that were incomplete. This contributed, to many misstatements and supplementing information gaps with black scenarios. The media reported that the gas was sprayed in several places in the subway and that more than a dozen people were killed and thousands injured (Matthew Gault - *The True, Secret*, accessed 29.04.2025). The initial information pointed to the effect of strange fumes or unexplained fainting of subway passengers. Disinformation had a very strong influence on the formation of public opinion and various types of speculation, it was due to the suggestion of both the involvement of foreign terrorists in the activities and errors in the system. Underestimation of the threat level by the police contributed to delays in evacuation and service response.

After the perpetrators of the attack, the Aum Shinrikyo sect, were revealed (Woodall, 1997, pp. 290-296), the media launched an investigation to identify members and leaders of the organization. In connection with the actions taken, sect leader Shoko Asahara (Charlotte Alfred - *20 Years Ago*, accessed 29.04.2025) was portrayed as a demonic figure. Many media outlets indicated that he possessed superhuman powers. The use of confusion and a lot of sensationalism has contributed to increased panic and stigmatization of sect members, as well as new religious movements. Disinformation and widely divergent media messages were exploited by the sect, which wanted to whitewash its actions by publishing its own messages. The attack was also followed by rumors and speculation reporting further attacks, which created fear not only in Tokyo, but throughout the country (NHK WORLD-JAPAN, accessed 29.04.2025).

The attack came as a surprise to the Japanese public. It disrupted the general sense of security, in one of the most secure countries in the world. It contributed, to many concerns about public transportation, and some citizens wore protective masks or avoided the subway. There has been a large increase in distrust in the public, and there has been an increased focus on sects and new religious movements in terms of distrust and ostracism. The Japanese government adopted new regulations that addressed the monitoring of religious groups.

The disinformation helped to perpetuate public fear and also reinforced support for stricter security measures. The Japanese public criticized both the sect's and the media's actions

in terms of sensationalism and superficial coverage of events. In the long term, the attack affected national security policy measures (Okumura, Hisaoka et al., 2005, pp. 471-476), as well as the debate about religious freedom as well as the threat of extremism. The media contributed to increased chaos and social panic, and disinformation influenced social and political responses in Japan.

Conclusions

The threat from the point of view of information warfare and the impact of information bombs on security exists constantly. This results from the inability to build a total defense system, the rapid development of technology, the weakness of the human factor, the growth of organized crime, the increased dependence of states, organizations, societies and the media, as well as the widespread access to the Internet. A lack of public awareness and failure to check published information are also major problems. Information itself is not dangerous; what is dangerous are public reactions, including the manipulation of public opinion and the possibility of causing panic.

Referring to the purpose of the work, it should be pointed out that information bombs have a significant impact on social security and the behavior of individuals.

The analysis of the literature allows us to conclude that information bombs threaten social security, as the introduction of false information disrupts services. This is exemplified by the behavior of the public and services in Tokyo after information about a gas bomb explosion in several places (Okumura et al., 2005, pp. 471–476).

Disinformation can cause panic and manipulate public behavior. Thus, the second hypothesis has also been confirmed. The speed of information dissemination today brings many risks. The public, despite wide access to information, often does not verify its reliability or source.

The problem of disinformation and information bombs also exists in European Union countries. An example of such activities is Operation Doppelganger, a Russian disinformation campaign conducted in many countries, including France, Poland, Germany and Ukraine. This campaign is based on the creation of fake websites and the publication of fake articles, e.g., in *Le Monde* (Uhlig, Litwin, accessed 16.05.2025).

The development of technology, including artificial intelligence, requires the introduction of appropriate measures and safeguards to limit disinformation. Artificial intelligence can autonomously generate and disseminate highly persuasive and tailored disinformation on a massive scale, which increases confusion, deepens divisions between groups, and undermines trust in institutions, thereby creating social chaos and destabilization (Mylrea, 2025, pp. 315–347).

The circulation of harmful and false content can create complex ethical and practical implications for key principles such as freedom of speech and media pluralism. It can also contribute to chaos and panic in a community and increase a sense of insecurity.

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