

Mgr. Lenka Jakubcová, Ph.D.

Police Academy of the Czech Republic in Prague

Faculty of Security Management

Department of Crisis Management

e-mail: jakubcova@polac.cz

ORCID ID: 0000-0003-4166-0972

Mgr. Kristýna Holubová, Ph.D.

Police Academy of the Czech Republic in Prague

Faculty of Security Management

Department of Crisis Management

e-mail: holubova@polac.cz

ORCID: 0000-0001-9430-1880

doc. Ing. Karel Šilinger, Ph.D.

Ministry of Defence, Czech Republic

e-mail: silingerk@army.cz

ORCID: 0000-0001-5509-3118

From Brain to Platform: Why Disinformation Spreads and How Education Can Build Resilience

Od mozku k platformě: Proč se šíří dezinformace a jak může vzdělávání posílit odolnost

Abstract

The study analyses the factors contributing to the spread of disinformation content in the European environment and to the resignation of part of the audience from critically evaluating information. It systematically elaborates on three key dimensions: neurocognitive processes (emotions, motivation, heuristics and their influence on information processing), the transformation of the media and platform ecosystem (personalisation, algorithmic settings, social media dynamics), and the role of education in building information resilience (critical thinking, media and digital literacy, preventive approaches such as prebunking). The study also discusses the impact of disinformation on individuals, society, and decision-making processes and outlines the implications for strategic state communication and public policy-making. It emphasises the need to combine technological, regulatory, and educational tools, including early prevention.

Keywords: Conspiracy Theory; Disinformation; Education; Information manipulation; Neurocognitive processes; Propaganda; Resilience; Social Media.

Abstrakt

Studie analyzuje faktory přispívající k šíření dezinformačního obsahu v evropském prostředí a k rezignaci části publika na kritické hodnocení informací. Systematicky rozpracovává tři klíčové dimenze: neurokognitivní procesy (emoce,

motivace, heuristiky a jejich vliv na zpracování informací), proměnu mediálního a platformového ekosystému (personalizace, algoritmické nastavení, dynamika sociálních sítí) a roli vzdělávání při budování informační odolnosti (kritické myšlení, mediální a digitální gramotnost, preventivní přístupy typu prebunking). Studie též diskutuje dopady dezinformací na jednotlivce, společnost a rozhodovací procesy a nastiňuje implikace pro strategickou komunikaci státu a tvorbu veřejných politik. Zdůrazňuje nutnost kombinace technologických, regulačních a edukačních nástrojů včetně včasné prevence.

Klíčová slova: dezinformace; informační manipulace; konspirační teorie; neurokognitivní procesy; odolnost; propaganda; sociální média; vzdělávání.

Acknowledgements

This paper is an outcome of the project Resilience of the Police of the Czech Republic to Disinformation Interference and the Possibility of Strengthening their Resistance through Education VK01020187 (DEZINFOPOL), which was supported by the Ministry of the Interior of the Czech Republic in its programme Open Calls for Security Research 2023–2029 (OPSEC).

Introduction

Disinformation refers to intentionally false or manipulative information that aims at influencing the decisions or opinions of those who accept it. The purpose of spreading disinformation is either to cause damage or to gain some political, personal, or financial benefit (Havlík 2022). In a society where technological tools are used increasingly more often and nearly everyone operates within the digital world, it is crucial to understand the nature of disinformation – its pervasiveness and its profound impact on individuals and society alike. Disinformation influences nearly every sphere of activity, from consumer behaviour and healthcare to political campaigns.

The spread of disinformation is influenced by a number of processes that the authors have divided into three basic groups. The first group includes neurological processes, i.e., how our brain works and how it receives information. The human brain tends to prefer information that confirms our beliefs and creates a sense of security, which can lead to ignoring facts and accepting disinformation. The second group is related to the information environment and technologies that allow information to be disseminated by a large number of people in a short time. The third monitored group consists of educational aspects, i.e., how people are able to think critically and distinguish between true and false information and what factors act in this area. Overall, all these factors need to be considered to combat the spread of disinformation effectively. The division into these three basic groups is not an official classification, only the approach chosen by the authors for the purposes of the presented study. The aforementioned division into three dimensions: neurocognitive mechanisms, media ecosystem transformation, and educational resilience, can be viewed in relation to broader analytical frameworks such as the C5 model of the disinformation lifecycle (Kruijver et al. 2025).

From the strategic point of view, disinformation can influence, for example, the results of elections or the decisions of politicians. If disinformation is effectively

disseminated and received by specific groups of recipients, it can change their attitudes and opinions and lead to decisions that would otherwise not be made. This can have severe consequences for democratic processes and decision-making in society. In the case of decision-making by politicians, disinformation can lead to inappropriate decisions, which can have severe consequences for the whole society.

Regrettably, contemporary developments reveal the situations where even some of the elected representatives use disinformation as a means of advancing their political objectives or display unwillingness to acknowledge the extent to which their actions may be influenced by it. Some politicians tend to belittle the significance of efforts to combat disinformation, framing such initiatives as an attack on freedom of expression and pluralism of opinion. They argue that the responsibility to verify the accuracy of information lies solely with the citizens themselves, and therefore they perceive no necessity to intervene in this process. Some even deny the existence of a systematic disinformation campaign and try to present it as part of a political struggle, ignoring the fact that real actors and disseminators of disinformation with their individual interests may be situated entirely outside the country and its citizens and represent the influence of a foreign power. However, this ignorance of the problem may soon have negative consequences for the whole society as well as for democracy in general, and this is what the authors of this paper are trying to point out. The paper aims to explain the key factors why people are willing to accept disinformation, trust it, and what impact it may have on a democratic society in Europe. At the same time, it calls for European states to devote themselves more intensively and systematically to this phenomenon before it is too late.

This overview and analytical study does not constitute a comprehensive audit of all anti-disinformation policies implemented so far. It focuses on three key mechanisms that help explain why disinformation resonates within the European environment: neurocognitive processes and emotions, the transformation of the media and platform ecosystem, and the role of education in building resilience. The implications for state strategic communication and preventive approaches (e.g., prebunking) are examined, and the findings are situated within the current European policy framework.

1. The neurological approach to spreading disinformation

From the neurological point of view, disinformation is received based on the activation of certain areas in the brain that are associated with emotions and motivation, such as the amygdala, which processes emotional responses including fear or anger; the nucleus accumbens, involved in the processing of motivated stimuli and rewards; and the prefrontal cortex, which is responsible for higher cognitive functions such as critical thinking and decision-making (LeDoux 2000; Miller and Kohen 2001). When a person receives disinformation, it can be manifested by activating their limbic system, which affects their emotions and feelings. This activation may lead to that person being more motivated to spread this information further, sharing it with others, even if it is disinformation. In addition, the so-called 'social reward' in the brain can be activated, which has the form, for example, of acquiring new information and increasing social status. This can encourage people to spread disinformation in order to appear more intelligent or to show loyalty to a particular group.

The behaviour and decision-making of individuals is influenced, among other things, by several hormones that affect the functioning of the brain and nervous system, which also plays a role in receiving disinformation. These mainly include *cortisol*, which is released under stress and can make people less critical towards information that confirms their current views. Another hormone is *dopamine*, which is associated with experiencing reward and satisfaction. When people read information that confirms their views, they may experience elevated dopamine levels, which increases the likelihood that they will look for other information that supports the same view. There is also *oxytocin*, which is associated with trust and social bonds. This may lead us to believe more in the information that originates from people with whom we feel connected – for example, in closed groups on social networks (Libet et al. 1993, 1983).

Much of everyday decision-making involves rapid, heuristic processes that increase susceptibility to various cognitive biases. The proportion of these processes varies depending on the context and based on how it is measured. In doing so, the human brain uses so-called mental shortcuts, which can function outside logic. These shortcuts enable quick decision-making, especially in situations where one does not have enough time to obtain additional information. This allows people to function naturally in everyday situations. Animals decide in similar ways – for example, when a rabbit is hunted by a fox, it applies the mental shortcut of fight or flight, which means in this case that it automatically decides to flee and tries to escape as quickly as possible. It does not obtain more information to compare the two variants and choose the better one but acts instinctively in order to survive. Thus, it will not fight against a seemingly stronger opponent.

The use of mental shortcuts may be the cause of a low level of critical thinking in some people when receiving information (Pennycook and Rand 2021). In combination with the personalisation of content on the Internet and the amount of information people are exposed to on a daily basis, there is a so-called cognitive bias (Stojanović 2013; Kannengiesser and Gero 2019; Thaler and Ganser 2015).¹

Mental shortcuts are also addressed by Caled and Silva (2021), who analyse cognitive vulnerabilities and heuristics that increase susceptibility to manipulation in the digital environment and propose interdisciplinary strategies to mitigate them.

Today's digital marketing techniques and their specific algorithms are also built on the mentioned basis. Brands are communicated to prospective customers before they start making decisions. Then, in the decision-making process, they will need to switch to this quick thinking – i.e., use mental shortcuts.

According to Prof. Jiří Horáček (Aktuálně.cz 2023), head of the Center for Advanced Brain and Consciousness Studies at the National Institute of Mental Health, the human mind basically works by gradually inferring the nature of reality based on previous experience. If the perceived reality is not in line with these experiences, it tries

¹ Cognitive bias is a systematic error in thinking or perception that can lead to inaccurate or incorrect judgments, decisions, or interpretations. This term is used to describe in what ways our minds process information and what factors influence our decisions. There are many different types of cognitive biases, such as confirmation bias, availability bias, simplification heuristics, and many more.

to update and retest these experiences. However, if the mind is not able to create patterns for predicting the world, i.e., when the surrounding world is unpredictable for us, then uncertainty arises. Uncertainty subsequently increases vigilance (so-called hypervigilance) and a person has a need to 'solve' this uncertainty, to stabilise themselves. If this condition lasts for a long time, traumatising occurs and it is increasingly difficult for the individual to tolerate uncertainty. Someone who is in such an uncomfortable state is under stress and has high levels of corticoids in the body. These stress hormones then reduce the brain's neuroplasticity, thereby blocking learning. When someone is in such a state of uncertainty, they subconsciously desire stabilisation, i.e., finding an explanation and understanding what is happening around them. New information that provides the desired explanation will subsequently calm the nervous system, reduce the level of corticoids, and resume the learning process (Horáček and Drtinová 2021). Disinformation and conspiracy theories work best in the above-mentioned stage, as they become deeply rooted, and it is problematic to abandon or refute such fixed beliefs. Thus, the associated reduced neuroplasticity and increased levels of corticoids make it easier for one to accept disinformation that brings an explanation to them or confirms their original beliefs. Various conspiracy theories also work on this principle, which, thanks to (albeit 'paranoid') explanations and moralistic components on the part of the recipient (e.g., justified anger), bring stability and a sense of security to the individual concerned (Český rozhlas 2017, 2023). The above findings are consistent with insights into the neurobiological basis of disinformation acceptance, which show that stress, cognitive vulnerabilities, and cultural predispositions can be exploited by actors with particular interests to manipulate public opinion and destabilise democratic institutions (Pierce et al. 2022).

Acceptance of disinformation can also be associated with the feeling of affiliation with a particular group and creating a social bond with other members of this group. This phenomenon has its roots in the evolutionary mechanism of development of humans and other living creatures in general, which serves to ensure better survival within the group. When someone feels connected to a particular group, it can provide them with a sense of security, support, and safety. This is due to the hormone called oxytocin, which is also released during, for example, breastfeeding, sex, or expressions of love. Its function is associated with establishing social bonds and with the feelings of belonging. When someone experiences the release of oxytocin, they feel emotionally connected to other people and identify with a particular group. In the context of disinformation, the release of oxytocin can contribute to the development of polarisation and the 'us vs. them' dichotomy. The hormone can reinforce the sense of belonging to a particular group and create greater detachment and hostility towards people outside that group. This can then result in intergroup aggression and tension, including violent manifestations (not only) on social networks, as oxytocin is also a hormone that synchronises collective (and crowd) behaviour (Aktuálně.cz 2023).

It is essential to mention that the characterised nature of the effects of disinformation from the neurological point of view is only one of the possible explanations. Studies in this area are still ongoing and further research can bring more insights and nuances to this topic.

2. Spreading disinformation in terms of changing the media landscape

The development of social media, or social networks, has significantly influenced the volume of information which we are exposed to and the speed of its distribution, and thus also the overall media space, or media market. Traditional media such as newspapers, television, and radio are no longer the primary sources of information. Social networks such as Facebook, Twitter/X, Instagram, YouTube, and others have become the main channel through which people receive information. These networks allow users to share and communicate information with others easily. This leads to the production and sharing of a large volume of unverified information published with various motivations. While a decade ago, we were the recipients of information mainly from the media, in which the mechanisms of responsible verification of sources and ethical codes of conduct of the editor and reporters applied and the impact of which was locally limited to some extent, nowadays, virtually anyone can participate in the creation of media content by spreading their contributions in the virtual space – without responsibility, not bound by editorial deadlines, moreover, quickly, free of charge, and with minimal costs in terms of technology, yet with a considerable impact. In addition, in connection with the above, various media platforms, Internet-based alternative media, and so-called disinfowebbs of various individual and targeted focus are created, the impact of which is also significant. As a result, there is a continuous reduction in the quality of news and information that is disseminated and received, without responsibility for its validity. The media market is becoming increasingly decentralised and fragmented, which has an impact on traditional media and their way of obtaining advertising revenues (Boyd 2017; Fletcher 2021; Müller and Schulz 2021, 2019).

The competition between the media and the pursuit of income often lead to a situation in which the media strive to publish information quickly, even without sufficient verification of the facts, or to publish such reports that will attract appropriate interest. However, in this race for the exclusivity and attention of readers, viewers, and listeners:

- There is a distortion of the worldview – predominantly negative, sensational, and scandalous information is published as part of the long-term trend. The recipient of this information then generally feels that everything is only getting worse. The media also often use comparing extremes and averages. There is a talk of ‘abysmal differences’ (e.g., the rich get even richer, the poor fall into even greater poverty) – but the reality is usually not as polarised as presented and the truth is usually located somewhere in the middle of the ‘abyss’. The focus is on strong emotions (fear of violence, death, diseases, environmental contamination, deteriorating living conditions, depletion of natural resources, etc.), which leads the recipients of such information to overestimate these risks. People then tend to behave recklessly under the influence of fear.
- Misleading terms such as ‘most’, ‘all’, etc. are used, although in the cases concerned the ratio may be rather negligible (including also 51%). The tendency of the human brain to use mental shortcuts, categorise, and generalise then responds to this media rhetoric and becomes reflected in the assumption that everything or everyone in a specific category are the same or similar (e.g. Roma, Muslims, etc.) (Horáček 2022).

- Urgency of the situation is (ab)used – such a situation attracts other dramatic instincts, emotions, and reactions when rational thinking is overridden. The recipient of this information then proceeds from inaccurate and irrelevant data and forecasts that do not allow for the full spectrum of scenarios (Rosling, Rosling, and Rönnlund 2018).

In addition to the rapid spread of the Internet and social networks, the decline in interest in traditional media may also be due to ownership links to political parties or other interest groups. Another reason may be the distrust in traditional media as symbols of the establishment and the power elite, which are often criticised for their alleged manipulation of the public. All this may constitute a reason for newsrooms to move to the environment of social networks or other alternative sources of information. On social networks, such ‘news’ is characterised, for instance, by the following:

- Basically anyone can be a source of news (see above).
- Direct interaction with the audience is enabled – the collaborative role of social networks (discussion, sharing, likes).
- The applied algorithms lead to abuse of bias and self-affirmation (filter bubble,² confirmation bias).³
- The user eventually isolates themselves in a certain social bubble and thus receives messages of a particular type only, which may lead to their progressive radicalisation – social networks offering increasingly extreme posts (echo chamber,⁴ anchoring).⁵

Research (Vosoughi 2018; Luo and Ma 2018) has shown that in a transformed media market today, disinformation spreads up to six times faster than (boring, uninteresting) facts. One of the reasons is a phenomenon called ‘clickbait’, which means that people tend to click on sensational or controversial headlines and share them with others without verifying the factual accuracy of the information. In addition, social network algorithms, which are designed to personalise user content, prefer to display content that attracts the user and keeps their attention, often at the expense of the balance, pluralism, and factual accuracy of the information received. This contributes to the effect of the aforementioned ‘filter bubble’ and closure in the so-called social bubble – which means that users are mainly exposed to content that is in line with their beliefs and interests (thus, the aforementioned confirmation bias occurs).

² Previous online behaviour of the individual (search history, favourites, sharing, and shopping habits) affects what is displayed to them online and on their social media profiles and in what order.

³ Confirmation bias is the tendency to seek, interpret, and remember information that confirms someone’s previous views, attitudes, or beliefs while ignoring or downplaying information that does not correspond to their views. This distortion can lead to erroneous decision-making because it is inclined to take into account only such information that confirms one’s opinions, and not respect the information that could refute or modify these opinions.

⁴ ‘Echo chamber’ is related to the fact that a person enclosed in a social bubble, i.e., surrounded by a like-minded group of people, limits their view of the world, and perceives the views of only that group which they identify with. This further strengthens their own convictions.

⁵ The tendency to rely (or ‘anchor’) on one piece of information during the decision-making process.

The need to confirm one's opinion is also due to the fact that individuals are often not interested in facts, but only seek someone's views. The lack of interest in facts also supports the reality that for some individuals, facts can be complex or unclear, while opinions are often more straightforward and easier to understand. A vast amount of readily available information also plays a role, so people often rely on this quick and easy way to access it, such as short videos, memes, or social media statuses. In today's digital age, the speed of providing information has become one of the key aspects that prioritise and increase the demand for opinions over facts.

Mobile phones and other smart devices have basically become a gateway into the minds of their users and have fundamentally simplified the behaviour of propaganda. Already in 2019, Asurion conducted research on a representative sample of 2,000 Americans aged 16 to 65, stating that the average American checks their phone 96 times a day. The AMI Digital survey (AMI Digital 2024) has shown that in the Czech Republic, people spend 144 minutes a day on social networks on average (Generation Z up to 210 minutes daily), while about 82 % of these users use a mobile phone to access social networks. Propagandists and disinformers exploit this skilfully by generating and sending messages and information that address the emotions and emotional reactions of the recipients. These reports and information often simplify complex issues and associated discussions. In addition, mobile phones provide information in the format of short messages, such as text messages, social media posts, or notifications, ideally using memes and graphically simplifying displays, which brings along another undesirable effect, where people can easily overlook the context and factual information.

At the beginning of their existence, social networks ranked posts simply from the newest to the oldest. However, over time, they began to apply algorithms that allowed users to offer as much relevant content as possible to spend as much time as possible on social networks and like to return. Thanks to this, the user is also shown more and more advertising, which is the primary income of social networks. The algorithms select for each person what is most attractive for them, and thus the confirmation bias deepens (Plous 1993). As a result, people's sources of information are gradually narrowing down, and they see an increasingly limited part of the world around them. This is problematic especially in a period of uncertainty, when we need to find a new solution, an explanation. This ultimately leads to the situation that people group together based on shared views of the world and the so-called echo chambers are created, in which users hear only their 'own voice', and their original beliefs are thus increasingly sharpened. Under normal circumstances, political opinions in society are distributed according to the Gaussian curve – most people are situated around the centre and the extreme ones are minimal. This is reversed under the influence of social networks – most people are either fully on the right or fully on the left, but there is almost no one in the middle (Aktuálně.cz 2023).

It should be emphasised that neurocognitive explanations do not represent the sole or exhaustive account of how disinformation is received. Effects vary across individuals and contexts, and empirical estimates depend on the methods and measurement approaches applied. The aim of this part of the study is to identify plausible mechanisms (e.g., emotions, motivation, tolerance of uncertainty, heuristic processing) that interact with socio-technical environments, rather than to advance deterministic claims.

3. Dissemination of disinformation in terms of education of its recipients

Education plays a crucial role in shaping our worldview and influences our ability to assess the information that is presented to us critically. The knowledge and skills acquired enable us to understand the realities of the world better and to discern relevant information from unsubstantiated or misleading claims. However, there are various factors that can affect our opinions and ability to access information critically, including individual experience, social environment, and perception of uncertainty.

Some studies have shown that people with a higher level of education generally tend to be more critical and question the information presented to them (correlation between the level of education and critical thinking). At the same time, people with a lower level of education and limited language skills may find it difficult to interpret and understand news in the media correctly. This may lead to a greater risk of them believing in disinformation and propaganda presented to them in alternative media (and on social networks) or seeking someone's opinions that are written for them in a more friendly, clear, and understandable language (correlation between the level of education and media literacy). Research (Allcott and Gentzkow 2017; Pennycook, Cannon, and Rand 2018; Guess, Nyhan, and Reifler 2020; Schaeffer 2020) has shown that people with a higher level of education have a greater ability to recognise disinformation than people with a lower level of education. They also have a greater ability to search for information from various sources and evaluate its credibility. The same results were reached by us in the DEZINFOPOL project⁶ in the implementation of a representative research on the resilience of the Czech population to disinformation and other forms of manipulative information in 2023 and the research on the resilience of the Police of the Czech Republic in 2024. In both cases, the factor of the level of education was manifested, but not too strongly compared to other factors influencing the level of resistance of individuals to disinformation and other forms of manipulative information.

General education is therefore perceived as important, but it should be reflected that even highly educated people may be subject to conspiracy theories and disinformation, as pointed out, for example, by Prof. Horáček (Aktuálně.cz 2023; Czech Radio 2023b), who sees the individual ability to tolerate uncertainty as a critical factor in this context.

Given our current knowledge about the degree and speed of influencing psychosocial factors that support the adoption of disinformation content and conspiracy theories, education is one of the 'simpler' areas that we can focus on. Targeted dissemination of education about disinformation, its causes, practices, and impact on society, and education of the population in the field of critical thinking and media literacy can undoubtedly contribute to preventing the spread of disinformation among society and its mass absorption. Such education should not only be included in the school curriculum but should also affect the adult population, in particular with

⁶ Project Resilience of the Police of the Czech Republic to Disinformation Interference and the Possibility of Strengthening Their Resistance Through Education VK01020187 (DEZINFOPOL), supported by the Ministry of the Interior of the Czech Republic within its programme Open Calls for Security Research 2023–2029 (OPSEC).

emphasis on its specific target groups, through appropriately selected pathways and tools. This cannot be just ‘classical education’ – if we want a more resilient society, a system should be implemented to strengthen the introspection of each individual. It should teach (especially the growing generation) how to manage stress and feelings of insecurity as well as how to better work with their emotions. It must develop awareness of the processes of functioning of disinformation and the adaptation mechanisms by which we tend to respond to it and teach individuals how to be mindful of their psycho-hygiene and live a more conscious and grounded life overall. This internal stability, based on a solid foundation, proves to be an essential part of the prevention of succumbing to disinformation content and conspiracy theories. Moreover, although this ‘quality’ is to some extent innate and further influenced by development, especially in early childhood, it can be purposefully controlled, developed, and trained. Outputs aimed at the practical building of societal resilience to disinformation, including educational and regulatory approaches – also in the form of a proposed analytical framework for policy-making, are offered, for example, by Rød et al. (2025).

In terms of scope, this part of the article approaches education primarily as a conceptual and practice-oriented notion, rather than as a comprehensive intervention framework with specific or formal proposals for relevant curricula. Preventive and proactive approaches (e.g., prebunking), media and digital literacy, and strategic communication are emphasised as complementary components for strengthening the overall concept of resilience. The detailed design and evaluation of specific measures, including comprehensive curricula, can be further developed in future research or by practitioners in the field.

4. The implications of disinformation for individuals, society, and political processes

Disinformation can have a number of harmful consequences for individuals. On the one hand, it can affect opinions and attitudes, which can lead to bad decisions and actions in various areas of life, from ordinary consumer behaviour to, for example, investment activities. It can lead to damage to an individual’s reputation, disintegration of one’s relationships and ties with others who do not share their beliefs, loss of credibility, and damage to their career (Pennycook and Rand 2021; Lewandowsky, Ecker, and Cook 2017). The dilution of the information space, its blurring and polarisation of opinions and debates in society can lead to a growing sense of frustration from the inability to navigate in the unclear information environment and the impossibility of ‘finding the truth’, which leads to the feelings of destabilisation and uncertainty and provokes the above-described adaptation mechanisms that promote the reception and further sharing of disinformation content. Disinformation works with strong emotions, especially with the targeted induction of fear, which secondarily affects also the mental health of the recipients of disinformation content, and as it was possible to see during the coronavirus crisis, it can also threaten physical health (Ashley et al. 2022).

Disinformation narratives often ‘denigrate’ the current political representation of the state, the government and its actions, and deliberately evoke a sense of distrust in the official representatives of the state and their ability to cope with the problems faced by the state and its citizens. Last but not least, we also encounter behaviour ‘under the

influence' of disinformation, which shows signs of offences or crimes related mainly to hateful, discriminatory, and violent speech against certain groups of residents or individuals.

However, disinformation also has severe consequences for the entire society and political processes. The authors divided these impacts into several groups:

1. Influence on decision-making in elections: Disinformation can influence voters' decisions and lead to the election of 'inappropriate', e.g., non-democratic candidates or parties. This may have implications for the governance of the state and lead to disruption of democratic processes.
2. Undermining trust in official institutions and their representatives: Disinformation can undermine public trust in public institutions, government, or the judicial system. If people lose confidence in these institutions, it can lead to the destabilisation of society and reduce the legitimacy of the democratic system. This area typically includes undermining trust in international institutions and organisations, specifically the EU and NATO, when disinformation deliberately foments debates about membership in these structures and manoeuvre public opinion towards opposing attitudes towards integration processes and strategic partnerships in general.
3. Contributing to the polarisation of society: Disinformation may contribute to the division of society into distinct camps, which may lead to its polarisation and (often violent) conflicts. This can be dangerous, especially in situations where society resonates with fears, e.g., due to the economic crisis, the influx of refugees, a war conflict waged in a geographically nearby region, a pandemic that cannot be controlled, etc., which disinformers use for these purposes.
4. Health risks: Disinformation can also have health implications for society, for example, where the disinformation is related to medical procedures, vaccinations, or health risks. This can lead to the spread of diseases, an increase in health problems of the population out of fear of visiting medical facilities, and even deaths, as we could see at the time of the Covid-19 pandemic.
5. Economic consequences: Disinformation can also have economic impacts, for example, where it is related to consumer preferences, food safety, trade relations, or financial markets. This can lead to economic losses and, consequently, to the destabilisation of the economy.

An example of how much impact disinformation can have on society or political processes can be found in the anti-communist overthrow in the Czechoslovak Socialist Republic in 1989. The student demonstrations that took place in 1989 at Národní třída street in Prague, when the students were subsequently attacked by security forces, were not the actual trigger for the fall of the socialist regime. The real trigger was disinformation about the killing of student Martin Šmíd by the communist police. This disinformation provoked public outrage, which led to mass demonstrations and these eventually contributed to the fall of the government and the end of socialism in the Czechoslovak Socialist Republic. This case shows how much power disinformation has and that it is capable of influencing society and fomenting political change.

5. Discussion: How to combat disinformation?

Across Europe, several complementary approaches have emerged to mitigate the harms of foreign information manipulation and interference (FIMI). These include: co-regulatory and regulatory frameworks for platforms (e.g., the Code of Practice on Disinformation and the Digital Services Act, which impose due-diligence and transparency obligations on very large platforms); coordination and research infrastructures (e.g., EDMO and its national hubs linking researchers, fact-checkers, and media organisations); and a gradual shift from reactive debunking towards preventive strategies such as prebunking, understood as psychological inoculation against manipulative techniques. A key implication is that lasting effectiveness depends on a balanced mix of early detection and attribution, well-designed regulation with transparency obligations, and sustained investment in media and digital literacy and in public-facing strategic communication.

It should be clear from the previous chapter that disinformation must be viewed primarily as a societal problem, as it tends to affect a wide range of people. Unverified or misleading information can have severe implications for public opinion, political decision-making, the health and safety of individuals, and even the stability of democratic processes.

If we talk about the disinformation wave that many European states have been facing in recent years, we can see the ‘mass production’ and spread of disinformation, especially in the context of propaganda and targeted hybrid actions of some states. In the European information environment, China and Russia, in particular, promote their interests. China is currently being relatively neglected due to the war in Ukraine, but it may pose a major security problem in the future. In the context of the invasion of Ukraine, Russia has strengthened its troll capacities and the so-called fifth column, which spreads pro-Russian narratives and disinformation. In this way, Russia defends its aggression in Ukraine and tries to counter international isolation by acquiring new allies and business partners – especially in Africa, Asia, and South America. In this respect, it pretends to act as the protector of Russian interests and citizens all over the world and blames the ‘rotten’ and ‘expansive’ West as the originator of all problems. In the states bordering Russia, Putin’s propaganda focuses on their foreign (Russian-speaking) compatriots in order to induce separatist sentiments. Russian trolls are trying to weaken the hostile states by causing cleavages. They focus on marginalised groups in the niches of society and do everything they can to strengthen their sense of being uprooted, using any controversial topics – recently, for example, the Covid-19 vaccination.

Tackling disinformation must therefore require collective efforts and cooperation between different actors, including governments, media, academia, non-profit sector, and civil society. Only a coordinated approach can deliver effective measures against disinformation and strengthen the critical thinking and media literacy of the public. Therefore, it is crucial to perceive disinformation as a problem that affects the whole society and to work on its solution and prevention actively.

Above all, however, it is necessary to keep in mind the current technological progress in the field of Artificial Intelligence (AI), where its rapid development in recent years, has fundamentally reshaped the information landscape. AI systems are now capable of mimicking individual speech patterns and rhetorical styles based on publicly

available online data, effectively personalising disinformation to specific psychological profiles. Moreover, the ability to generate massive volumes of new content – including convincing audiovisual materials such as synthetic videos and voices – has significantly amplified the reach and credibility of disinformation and conspiracy theories.

Estimates suggest that a substantial and growing proportion of content in the online information environment is now AI-generated or AI-assisted (Wired 2024; Forbes 2025, Spennemann 2025). This poses serious challenges to information discernment and trust, especially among users who lack advanced media literacy. While AI offers tremendous benefits across sectors, it also demands robust safeguards against its misuse.

Developing reliable tools for detecting, attributing, and countering AI-generated disinformation is becoming an urgent necessity. This responsibility will lie with a wide spectrum of actors – from scientific research institutions and the defence and security industry to other organisations, such as various think tanks and international governance bodies. As AI continues to evolve, so must collective ability navigate and secure the information space. The development of tools for detecting and analysing AI-generated content is crucial for protecting the information space. An overview of current approaches is provided, for example, by Saeidnia et al. (2025), who systematically map the challenges and technological solutions in this area.

Although the correlation between the simple level of education and trust in disinformation or conspiracy theory turns out to be questionable and research or studies come to different conclusions (Allcott and Gentzkow 2017; Pennycook, Cannon, and Rand 2018; Guess, Nyhan and Reifler 2020; Schaeffer 2020), according to the authors, education in the field of disinformation and targeted education of society will continue to be critical in the fight against disinformation, especially in the fields of media literacy, critical thinking, and safe behaviour in cyberspace. In this respect, it would be necessary to review the education system starting from primary education. We can look for inspiration in selected European countries, e.g., Finland (Ditrych and Bahenský 2021), but also the EU approach (see, for example, the guidelines of the European Commission for media literacy). In view of the above, there is a need to strengthen digital literacy education activities in general and to promote the concept of citizen resilience in general.

Equally important and rather underestimated is appropriate strategic communication of the state and its representatives. Governments should actively inform citizens about current events and measures and provide relevant and credible sources of information. They should also be open to criticism and feedback so that they can responsibly respond to citizens' concerns and questions. They should be able to react quickly to fake news and disinformation (so-called debunking – refuting disinformation) or, even better, to prevent the establishment of disinformation (so-called prebunking). Prebunking currently appears to be one of the most promising and effective strategies. It is a warning and 'inoculation' against disinformation carried out in advance, i.e., before someone is exposed to disinformation. Prebunking is based on the assumption that if we want to reduce the impact of fake news, we should develop a prevention strategy based on the same principles used by disinformers. Before any disinformation begins to spread, people will be warned that it may appear. They will

receive a message that appears correct but at the same time is emotionally charged because it reports danger, which will increase the attention of the recipients of the information. In the second step, a narrative is released into the public space, which resembles a conspiracy theory, only it is supplemented with an explanation and set in the proper context so that people do not believe it. When they are later confronted with the actual disinformation or conspiracy theory, they will not succumb to it, because they have been warned about it in advance, as explained by Prof. Horáček (Aktuálně.cz 2023). These methods need to be appropriately combined with awareness-raising and explaining why disinformation arises, what it is aimed at, what its effects are, and how manipulative techniques work – i.e., society should thus develop immunity to disinformation. This requires adequate staffing and technological solutions at the level of the responsible ministries to enable the early detection of impending disinformation or the disinformation potential of a particular narrative, and possibly the isolation of the sources that disseminate such disinformation.

It is relatively difficult for most countries (especially smaller ones, such as the Czech Republic) to act effectively and independently in the fight against disinformation at the global level (for example, against social networking giants). Therefore, it is necessary for individual states to promote their interests primarily through international organisations. Engaging in international initiatives and joint efforts with other countries will enable these countries to exchange best practices, share information, and coordinate activities in the fight against disinformation. This will strengthen the position of individual states and increase their ability to counter disinformation in a broader international context. Cooperation and coordination at the international level must thus constitute a strategic approach that will enable individual states (especially smaller ones) to promote their interests and protect society from the influence of disinformation more effectively and efficiently.

In the fight against disinformation, a number of fundamental policy measures will have to be taken at the level of governments of individual European countries (Wardle and Derakhshan 2017; Harrison 2021). The authors tried (without claiming completeness) to summarise them into the following groups:

1. Regulation of social media and Internet platforms: Governments and consumer protection authorities can regulate social media and online platforms to minimise the spread of disinformation (for example, by setting clear rules for flagging fake news and censoring dangerous content, including removing it). Here, the interconnection with current EU initiatives is desired.
2. Strengthening the media and their involvement in raising awareness and combating the spread of disinformation: Governments can empower media companies, especially public service media, to have sufficient resources to deal with disinformation and provide relevant and verified information to the public. Through them, they can also spread awareness in this area, reaching a large number of recipients.
3. Cooperation with technology companies: Governments can work with technology companies such as Google, Facebook, Twitter, etc. that dominate cyberspace to improve their algorithms to identify disinformation and minimise its spread.
4. Support for transnational and international activities: Use their outputs and tools and ensure their promotion to the public (e.g., EDMO).

5. Transparency: Governments should ensure that political institutions and politicians are transparent about their resources and funding, thereby minimising the risk of being accused of using disinformation and false propaganda.
6. Supporting science and research in this area, with an emphasis on outputs that can be implemented in practice. Thoughtful and purposefully grasped strategic communication of the state and its representatives towards citizens: A centralised approach across ministries based on responsible management of this issue and sharing responsibility for strengthening society's resilience to disinformation influences. Responsible steps are already being taken in this direction in many countries, but the Czech Republic in particular, in the context of the elections and the proximity of the war conflict, still has substantial reserves in this direction.

Conclusion

The issue of disinformation and its impact on society is an increasingly visible phenomenon of the present and its importance grows even more with the further development of artificial intelligence. This paper focuses on the analysis of the mechanisms that enable the spread of disinformation and the consequences that disinformation can have for society and individuals. At the same time, it outlines the possibilities for the state to face them effectively.

Disinformation, in addition to the fact that it can threaten the health, safety, and private funds of people or interpersonal relationships, can cause distrust between individuals, groups, and across society, distrust of citizens in the state, polarisation of society, or threaten democratic processes in the state. For this reason, it is essential to adopt a system of measures to counteract or mitigate the impact of disinformation on individuals and society. In this sense, it is vital that governments cooperate with the private sector and support measures that will be necessary to protect society from the danger of disinformation, which applies to EU-wide and other international activities. Last but not least, it is crucial in this endeavour to reflect current technological developments based primarily on AI and its potential in both the dissemination of disinformation and the fight against it.

A societal approach is needed to combat disinformation – it is essential that governments, the private sector including technology companies, media platforms, the security community, and individuals work together to create a safe and healthy online environment for all. The ambition of this paper is to become part of the much-needed enlightenment.

Based on conducted analyses, three key priorities can be identified for strengthening societal resilience against information threats in practical terms:

1. Investment in preventive communication (prebunking/inoculation), embedded in media and digital literacy programmes tailored to age and risk groups, supported by simple, reusable playbooks for crisis situations.
2. Strengthening whole-of-government strategic communication (rapid monitoring, attribution, message testing, and transparent updates) in collaboration with independent media, fact-checkers, and security and policing agencies.
3. Implementation of proportionate platform governance (transparency and data access for researchers, calibrated friction for high-risk content) alongside clearly

defined evaluation procedures (e.g. pre-/post-testing), enabling resilience gains to be measured and sustained over time.

Across public authorities, security and policing organisations, educators, and digital platforms, the common denominator lies in embedding prevention, building communication capabilities, and systematically measuring outcomes to ensure that resilience improvements are both demonstrable and durable in an increasingly information-intensive environment.

References

- AI Revolution. 2023. "WormGPT is like ChatGPT for Hackers and Cybercrime." YouTube video, 0:09:45. July 20, 2023. <https://www.youtube.com/watch?v=sXqsPlnTkQU>
- Aktuálně.cz. 2023. "Horáček: Konspirační teorie mohou vést k občanským válkám. Platí na ně jen 'očkování'." <https://bit.ly/3PZLEAI>
- ALLCOTT, Hunt and Matthew GENTZKOW. 2017. "Social media and fake news in the 2016 election." *Journal of Economic Perspectives* 31 (2). pp. 211–236. doi: 10.1257/jep.31.2.211
- ASHLEY, Seth et al. 2022. "Can news literacy help reduce belief in COVID misinformation?" *Mass Communication and Society*. pp. 695–719. doi: 10.1080/15205436.2022.2137040
- Asurion. 2019. "Americans check their phones 96 times a day, according to new research." <https://bit.ly/3NYwzw9>
- RØD, Bjarte; Christer PURSIANEN; and Niklas EKLUND. 2025. "Combatting Disinformation – How Do We Create Resilient Societies? Literature Review and Analytical Framework." *European Journal for Security Research*. doi: 10.1007/s41125-025-00105-4.
- BOYD, Danah M. and Nicole B. ELLISON. 2007. "Social network sites: Definition, history, and scholarship." *Journal of Computer-Mediated Communication* 13 (1). pp. 210–230. doi: 10.1111/j.1083-6101.2007.00393.x
- CALED, Danielle and Mário J. SILVA. 2021. "Digital media and misinformation: An outlook on multidisciplinary strategies against manipulation." *Journal of Computational Social Science* 5. pp. 123–159. doi: 10.1007/s42001-021-00118-8.
- Český rozhlas. 2017. "Emoce nás ovládají, jsme ve vleku dopaminu, říká psychiatr." <https://bit.ly/3pSrvl8>
- Český rozhlas. 2023. "Abychom ochránili své duševní zdraví a demokracii, potřebujeme zvyšovat odolnost vůči nejistotě, říká psychiatr Horáček." <https://bit.ly/3XWibcy>
- DITRYCH, Ondřej a Vojtěch BAHENSKÝ. 2021. "Finský model čelení hybridním hrozbám: inspirace pro Českou republiku." <https://bit.ly/3OjLltj>
- FLETCHER, Richard. 2021. "How News Audiences Think About Misinformation Across the World." In *Disinformation and Fake News*. <https://bit.ly/3pPAYJU>
- Forbes. 2025. Constantino, Tor. "AI Writing Is Now Widespread Online—New Research Explores Its Impact." *Forbes*. <https://www.forbes.com/sites/torconstantino/2025/03/24/ai-writing-is-now->

- widespread-online---new-research-explores-its-impact
- GREGOR, Miloš and Petra VEJVODOVÁ. *Fake News – Nejlepší kniha o dezinformacích a manipulacích*. Brno: CPRESS, 2018.
- GUESS, Andrew M.; NYHAN, Brendan; and Jason REIFLER. 2020. "Exposure to untrustworthy websites in the 2016 US election." *Nature Human Behaviour* 4 (5). pp. 472–480. doi: 10.1038/s41562-020-0833-x
- HARRISON, Ruairí. 2021. "Tackling Disinformation in Times of Crisis: The European Commission's Response to the Covid-19 Infodemic and the Feasibility of Consumer-centric Solution." *Utrecht Law Review* 17 (3). pp. 18–33. doi: 10.36633/ulr.675
- HAVLÍK, Martin. 2022. "Inovativní pohled na metodický proces čelení dezinformacím." *Vojenské rozhledy*. 31 (4). pp. 023–036. doi: 10.3849/2336-2995.31.2022.04.023-036
- HORÁČEK, Jiří. 2022. "Teorie vědomí a současná společnost." YouTube video, 1:31:00. October 25, 2022. <https://www.youtube.com/watch?v=vibmkvF2k3E>
- HORÁČEK, Jiří and Daniela DRTINOVÁ. *Vědomí a realita. O mozku, duševní nemoci a společnosti*. Praha: Albatros Media, 2021.
- KANNENGIESSER, Udo and John S. GERO. 2019. "Design thinking, fast and slow: a framework for Kahneman's dual-system theory in design." *Design Science* 5 (e10). doi: 10.1017/dsj.2019.10
- KOCH, Michael. 2020. "95 % rozhodnutí probíhá v podvědomí." Interview with Vojtěch Prokeš from Behavio. Digichev. <https://bit.ly/44pXqlz>
- KRUIJVER, Kimberley et al. 2025. "The disinformation lifecycle: an integrated understanding of its creation, spread and effects." *Discover Global Society* 3. Article 58. doi: 10.1007/s44282-025-00194-5.
- LeDOUX, Joseph. 2000. "Emotion circuits in the brain." *Annual Review of Neuroscience*, 23, 155-184. doi: 10.1146/annurev.neuro.23.1.155. PMID: 10845062
- LEWANDOWSKY, Stephan; ECKER, Ullrich K. H.; and John COOK. 2017. "Beyond misinformation: Understanding and coping with the 'post-truth' era." *Journal of Applied Research in Memory and Cognition* 6 (4). pp. 353–369. doi: 10.1016/j.jarmac.2017.07.008
- LIBET, Benjamin et al. 1983. "Time of conscious intention to act in relation to onset of cerebral activity (readiness-potential). The unconscious initiation of a freely voluntary act." *Brain* 106 (3). pp. 623–642. doi: 10.1093/brain/106.3.623
- LIBET, Benjamin et al. 1993. "Time of conscious intention to act in relation to onset of cerebral activity (readiness-potential): the unconscious initiation of a freely voluntary act." In: *Neurophysiology of Consciousness*. pp. 249–268. doi: 10.1007/978-1-4612-0355-1_15
- LANS, Sebastiaan. 2021. "13 AI-Powered Tools for Fighting Fake News." <https://bit.ly/4717Os0>
- LUO, Yongcong and Jing Ma. 2018. "The influence of positive news on rumor spreading in social networks with scale-free characteristics." *International Journal of Modern Physics C* 29 (9). doi: 10.1142/S012918311850078X
- Médiář. 2024. "AMI Digital Index 2024: většina Čechů už chodí na sítě každý den,

- převážně z mobilu.” <https://www.mediar.cz/ami-digital-index-2024-vetsina-cechu-uz-chodi-na-site-kazdy-den-prevazne-z-mobilu/>
- MILLER, Earl K. and Jonathan D. COHEN. 2001. “An integrative theory of prefrontal cortex function”. *Annual Review of Neuroscience*, 24, 167-202. doi: 10.1146/annurev.neuro.24.1.167. PMID: 11283309.
- MÜLLER, Philipp and Anne SCHULZ. 2019. “Facebook or Fakebook? How users’ perceptions of ‘fake news’ are related to their evaluation and verification of news on Facebook.” *Studies in Communication and Media* 8 (4). pp. 547–559. doi: 10.5771/2192-4007-2019-4-547
- MÜLLER, Philipp and Anne SCHULZ. 2021. “Alternative media for a populist audience? Exploring political and media use predictors of exposure to Breitbart, Sputnik, and Co.” *Information, Communication & Society* 24 (2). pp. 277–293. doi: 10.1080/1369118X.2019.1646778
- PENNYCOOK, Gordon; CANNON, Tyrone D. and David G. RAND. 2018. “Prior exposure increases perceived accuracy of fake news.” *Journal of Experimental Psychology: General* 147 (12). pp. 1865–1880. doi: 10.1037/xge0000465
- PENNYCOOK, Gordon and David G. RAND. 2021. “The psychology of fake news.” *Trends in Cognitive Sciences* 25 (5). pp. 388–402. doi: 10.1016/j.tics.2021.02.007
- PIERCE, Glenn L.; HOLLAND, Curtis C.; CLEARY, Paul F. and Gordana RABRENOVIC. 2022. “The opportunity costs of the politics of division and disinformation in the context of the twenty-first century security deficit.” *SN Social Sciences* 2. Article 241. doi: 10.1007/s43545-022-00514-5.
- PLOUS, Scott. 1993. *The Psychology of Judgment and Decision Making*. New York: McGraw-Hill.
- ROSLING, Hans; ROSLING, Ola and Anna RÖNNLUND. *Faktomluva*. Praha: Jan Melvil Publishing, 2018.
- SAEIDNIA, Hamid Reza et al. 2025. “Artificial intelligence in the battle against disinformation and misinformation: a systematic review of challenges and approaches.” *Knowledge and Information Systems*. pp. 3139–3158. doi: 10.1007/s10115-024-02337-7.
- SANTOS, Fátima C. Carrilho. 2023. “Artificial Intelligence in Automated Detection of Disinformation: A Thematic Analysis.” *Journalism and Media* 4 (2). pp. 679–687. doi: 10.3390/journalmedia4020043
- SCHAEFFER, Katherine. 2020. “A look at the Americans who believe there is some truth to the conspiracy theory that COVID-19 was planned.” *Pew Research Center*. <https://pewrsr.ch/43xtnxB>
- SPENNEMANN, Dirk H. R. 2025. „Estimating the Volume of AI-Generated Text on the Web: A Preliminary Survey“. <https://arxiv.org/abs/2504.08755>
- STOJANOVIĆ, Božo. 2013. “The riddle of thinking: Thinking, fast and slow.” *Panoeconomicus* 60 (4). pp. 569–576. doi: 10.2298/PAN1304569S
- THALER, Richard H. 2015. *Misbehaving: The Making of Behavioral Economics*. New York: W. W. Norton & Company.
- VOSOUGHI, Soroush et al. 2018. “The spread of true and false news online.” *Science* 359 (6380). pp. 1146–1151. doi: 10.1126/science.aap9559

WARDLE, Claire and Hossein DERAKHSHAN. 2017. "Information disorder: Toward an interdisciplinary framework for research and policymaking." Council of Europe report. <https://bit.ly/3NYKq5V>

Wired. 2024. SAWERS, Paul. „AI Is Flooding Medium With Junk Content“ Wired. <https://www.wired.com/story/ai-generated-medium-posts-content-moderation>

Mgr. Lenka Jakubcová, Ph.D. (*1982)

A graduate of the Police Academy of the Czech Republic in Prague, where she has worked as an academic at the Department of Crisis Management since 2006. Since 2012, she has also been a lecturer at the Central European Management Institute. She focuses primarily on the issues of security and crisis management, population protection, and the integrated rescue system. Since January 2023, she is the principal investigator of the project Resilience of Members of the Police of the Czech Republic to Disinformation Influences and Possibilities of Strengthening Their Resistance Through Education, VK01020187.

col. Mgr. Kristýna Holubová, Ph.D. (*1977)

Graduate of the Faculty of Law of the Charles University in Prague. She works as the head of the Education Department of the Police Education and Training Unit of the Police of the Czech Republic. At the same time, she is an academic at the Crisis Management Department of the Police Academy of the Czech Republic in Prague (specialist on security policy and international cooperation). She participated in the integration processes of the Czech Republic into the EU and Schengen cooperation. An author or co-author of professional theses and articles focused on topics of internal security, incl. manipulative information influence and the use of modern technologies.

doc. Ing. Karel Šilinger, Ph.D. (*1985)

A graduate of the University of Defence in Brno. He specialises in the field of information and cyber operations in the context of the hybrid operation of state and non-state actors. He focuses primarily on the field of disinformation. Previously, he worked in the academic environment as an assistant professor and vice-dean.

