

INFORMATION AS A WEAPON OF MASS DISRUPTION: FROM INFORMATION DISORDER TO COGNITIVE WARFARE

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ABSTRACT

The aim of this article is to understand how the information disorder influences and sets the stage for using the information as a weapon. It claims that bearing in mind the means, the message, and the audience, information can be utilized as a weapon of mass disruption. The paper examines the chaotic environment that surrounds the informational sphere, the information disorder. It analyses why it is possible to assert that information is a weapon of mass disruption, and it presents definitions to support the analysis, beginning with the meaning of disruption and conceptualizing the term “weapons of mass disruption”. The paper brings another concept that has evolved recently, the “Cognitive Warfare”. The essay states that information disorder background supports and provides the necessary conditions to the use of information as a weapon of mass disruption. At the same time, this weaponization itself feeds back and boosts disorder, in a vicious cycle that represents a direct threat to global security. It concludes that when introduced into a disordered world fueled by emerging technology and social media, information may cause harsh damage in a culture or government by exploring manipulation and the vulnerabilities and cognitive biases of the human brain.

Keywords: Information Disorder; Cognitive Warfare; Mass Disruption.

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INTRODUCTION

Today's world is overwhelmed by the amount of information available to it. Emojis, hashtags, and narratives are diverting our attention, algorithms influence our relationships, and our world is replaced by a "virtual" one. At the core is social media's unprecedented ability to provide average individuals with the power to determine the future of both the physical battlefield and the narratives around it.

... the general tendency, driven by the information revolution, is away from that paradigm and towards an open-ended, networked conflicts that occupy a gray zone³ between war and peace (SIMPSON, 2014).

Internet and social platforms are now a factor in the conflict, and governments worldwide have recognized the significance of Internet battles in their strategic planning⁴. It's a new paradigm and a different type of conflict. Online information deconstructs specific facts and replaces them with new ones, allowing groups and nations to impose significant political, social, and economic change without firing a single shot.

Moreover, Visacro argues that before being a political phenomenon, war is a social one. Transformations in the conduct of war stem, in the first place, from social transformations. So, as humanity leaves the Industrial Age to enter the Information Age, we must seek to understand how these changes affect the nature of armed conflict. After all, few phenomena have been as recurrent over the last 5,000 years as

³ The conflicts below the threshold of armed conflict are known as "gray zone conflicts." It is interesting to note that the document does not use the expression mentioned above. That may be done on purpose, to protect the official text of the academic debate, always permeated by disputes between new acronyms and terminologies. For a text that offers a theoretical delineation of the gray zone conflict and examines the various levels of escalation that can arise in a conflict of this nature, see Jordan (2020, pp. 1-24).

⁴ As an example, the core of the UK's Defense Command Paper - Defense in a Competitive Age - is the identification of future threats to be faced by the United Kingdom; and the search for the development of capabilities that can defend the UK from these threats. The UK's Integrated Review was used as the guiding document for this endeavor, both of which were released in March of 2021. For more information, see *Global Britain in a Competitive Age: The Integrated Review of Security, Defence, Development and Foreign Policy* (UK, 2021a); and *Defence in a Competitive Age* (UK, 2021b). More examples can be found at the *Getting Strategy Right (Enough)* (UK, 2017); the UK's *Global Strategic Trends* (UK, 2018); and the U.S. *International Strategy for Cyberspace* (USA, 2011).

armies preparing to fight the wrong war. This is not an effort to anticipate the “war of the future”. On the contrary, the problem that affects us are the current conflicts. Over the last decades, conflagration areas around the world have demonstrated how innocuous and anachronistic the use of military force has become, based on precepts and parameters of the Industrial Age (VISACRO, 2018, chap. 2).

In this context, and despite of the fact that the topic is a current issue and due to this contains under construction concepts and thoughts, the aim of this article is to bring for discussing the idea that information, when inserted into a disordered environment fueled by new technologies and social media, exploring manipulation and the flaws and cognitive biases of the human brain, can cause severe damage in a society or government. In other words, it claims that bearing in mind the means, the message, and the audience, information can be utilized as a weapon of mass disruption.

Supporting this argument, the paper will first examine the chaotic environment that surrounds the informational sphere, which, from now on, will refer to as information disorder. The aim is to understand how it influences and sets the stage for using the information as a weapon.

After this, the essay will analyze why it is possible to assert that information is a weapon of mass disruption. In this sense, it will present some definitions to support the analysis, beginning with the meaning of disruption and conceptualizing the term weapons of mass disruption. The sequence will examine, from the communication theory, how the main elements of the informational ecosystem relate to the three aspects of the main argument: mass, disruption, and weapon, to see if information fits in all of them per se to be considered a weapon of mass disruption.

Before concluding, the paper will reinforce the main statement through recent examples and bring another concept that has evolved recently: Cognitive Warfare. The worldwide growing concerns with this form of war and its direct relation with information and narratives will help support the disruptive and threatening role information can take.

And finally, a conclusion, where this essay will address that the information disorder supports and provides conditions to the use of information as a weapon of mass disruption. At the same time, this weaponization itself feeds back and boosts the disorder. Additionally, it will show that the utilization of communication elements for malicious purposes is a real threat and a concern for key national interests like security – the freedom to live, act and make country’s own choices,

stability – a balanced, harmonious, and adaptable society and prosperity – nation’s material wealth and well-being (Royal College, 2022).

INFORMATION DISORDER

Information manipulation, conspiracy theories, and fabricated material are not new (BAYLIS, 2020), but the pace at which information is generated, communicated, and transmitted has changed in the twenty-first century (WARDLE, 2017). This dynamic results in unparalleled levels of information emissions, which Wardle coined as “information disorder” and proposed a conceptual structure that divided it into three categories: Disinformation, misinformation, and mal-information (ibid). When it comes to information disorder, the first two will be in the subject of this essay. Both contain false facts, but in the case of disinformation, the individual disseminating it is aware that it is incorrect. In contrast, in the case of misinformation, the spreader assumes it is accurate (UN, 2018).

The biggest problem is the technological advances in social media, which have changed the pace, spread, and accessibility of information. As Facebook’s Product Manager for Civic Engagement, Chakrabarti, put it: “if there is one fundamental truth about social media’s impact on democracy, it is that it amplifies human intent – both good and bad” (ibid). On the virtuous side, it brings more clarity and transparency to democratic processes, allowing accountability. By contrast, it can lead to destabilization, mistrust, and lack of confidence in governments. And the problem extends beyond political issues to include all areas of knowledge, such as climate change, social differences, populism, ethnic tensions, and every other global problem area. In the words of Bradshaw and Howard, “social media are particularly effective at directly reaching large numbers of people, while simultaneously micro-targeting individuals with personalized messages” (BRADSHAW, 2018). Furthermore, the fact that everyone can publish makes it difficult for people to determine the actual points. Friedman claims that “there is no cost for stating your views, no means to compel the speaker to identify himself and no consequence for slander, lying or mounting campaigns with malicious intent” (FRIEDMAN, 2020).

Apart from the grave danger posed by social media, traditional media also leads to information disorder. As defined by Rand Corporation, the Truth Decay indicated some developments in mass media and its associated agents, which may include academics and research organizations,

as well as international and domestic political actors (KAVANAGH; RICH, 2018). The following patterns are essential: a heightened disagreement about facts and analytical interpretations of data, a blurred line between opinion and reality, and an increased volume and influence of opinion and personal experience (ibid). Another study found a steady and subtle change toward a more subjective style of journalism, based on individual perspective and extensive use of opinion, over time (KAVANAGH et al, 2019). Despite the fact that this study is based on American reality, it can be applied to any place. In Kavanagh's words, "in many parts of the world, trust in media and journalism was fragile and weakening long before the advent of social media" (EDELMAN, 2020).

Social media technologies and platforms are at the heart of the information disorder, with insufficient regulation and the enormous potential to spread misleading content associated with traditional media decay. However, with the rise of artificial intelligence technology, creating digital content such as false photos or videos that are not easily distinguishable from reality will become easier and cheaper for anyone. And, as a result, there is a complete lack of confidence and truth within and between communities, which can easily jeopardize stability, security, and prosperity. Information manipulation, for example, can affect election results, influence public sentiment, and even spark conflict in the worst-case scenario.

In other words, this complex environment of information disorder is the ideal scenario for malicious state or non-state actors to conduct activities weaponizing information to reach broad audiences and achieve their proposed aims.

So, with this in mind, is it reasonable to say that one can use information as a weapon of mass disruption? Before analyzing the preceding statement, it is necessary to introduce some concepts from the communication process to aid in the study.

INFORMATION: A WEAPON OF MASS DISRUPTION?

Among some definitions of disruption, this paper highlights two from the Macmillan Dictionary. The first one: "a situation in which something cannot continue because of a problem" (MACMILLAN, 2021). The second comes from the business context: "doing things in new ways that change the way an industry or business operates" (ibid). In the

particular case of information, it can have both connotations. On the one hand, various sectors, including television, advertising, and retail, have been affected by major technology and social media firms. On the other hand, they allow disinformation, misinformation and even propaganda to occur, leading to harmful consequences (NEMR; GANGWARE, 2019). The difference will lay on the intended effect or result of the disruption.

With this in mind, the following important definition is the conceptualisation of weapons of mass disruption. Although the term has been around for a few years, it has never been adequately defined. Nevertheless, Bunker describes the concept as weapons that “target bonds and relationships, rather than things, at the systemic level.” Yet, he considers two main characteristics: the first regards the threshold of effect (individual, group, or systemic), and the second to the target influenced, rather things or bonds/relationships (BUNKER, 2000). So, a disruptive weapon could aim to cause an alteration or degradation within or between societies, for example – an effect on relationships at the mass or systemic level.

Up till now, the above definitions have shown what one can understand of a weapon of mass disruption, its reach and effects. Based on the primary elements of communication theory, this essay will focus on the feasibility of using the information as a weapon, with a mass scope and disruptive capacity, emphasizing its possibilities and basing the conclusions on pieces of evidence.

According to Nemr and Gangware, there are three primary and interconnected elements in the informational ecosystem: the medium, represented by the existing platforms; the message, compounding the content conveyed; and the audience that consumes it (NEMR; GANGWARE, 2019). And the Internet and social media play a crucial role in influencing all these elements, especially if compared with the diminished participation of an eroded and discredited mainstream media. But, the fact of being at the core of information flow comes for good and ill. In the words of Patrikarakos, “[...] as well as offering great opportunities, these technologies pose great risks” (PATRIKARAKOS, 2017, p. 255). With this in mind, it is mister to analyse the social media and new platforms’ influence on those elements.

Incidentally, as stated by Nemr and Gangware: “the first two elements, the medium and the message, operate hand in hand. Social media and news platforms are designed to deliver information to mass audiences quickly, optimizing for viral content that generates clicks and

thus revenue” (NEMR; GANGWARE, 2019). Consequently, it creates the opportunity for disinformation and distorted narratives to prevail in the context of information disorder. In the words of Singer and Brooking: “social networks reward not veracity but virality” (SINGER; BROOKING, 2018, p. 20). Over the last ten years, social media platforms have evolved from small companies to global mass information platforms, bringing people together and separating them at previously unimaginable speeds and scales. Furthermore, as technology costs have decreased, its usability has increased exponentially. As quoted by Singer and Brooking, “half of the world’s population is online, and the other half is quickly following” (ibid, p. 50). Therefore, it is reasonable to assume that information has, nowadays, a massive reach, especially considering the technological advances in the medium and channels where it flows. Consequently, any message can attain huge audiences, and anyone can produce these messages.

Due to social media, citizens and networks of people now have access to critical communication spaces previously only available to institutions and traditional media hierarchies. It has democratised information dissemination and consumption, and as a result, the situation is ideal for bad actors to take advantage of. Today, states and individuals can quickly disseminate disinformation, with potentially disastrous results. However, as Singer and Brooking claim, “as unprecedented as all this information may be, it matters little unless there is someone on the other end to appreciate – or exploit – it” (ibid, p. 61). This statement brings the discussion to the third element, the audience. Spreading disinformation and false narratives would be pointless if the messages did not take advantage of fundamental human biases and behaviour. And another aspect of social media is that it provides a window into our psychological and neurological states (ibid). Regarding the rationality, or its absence, of information consumers, Nemr and Gangware mentioned: “They seek swift, reassuring answers and messages that give them a sense of identity and belonging” (ANASTASION, 2016 apud NEMR; GANGWARE, 2019).

Yet, concerning the audience, cognitive biases inherently limit the human brain capacity. Cluzel listed some particularly interesting flaws when it comes to information processing: in the event of information overload, takes shortcuts in determining the trustworthiness of messages; believes statements or notices that you have already heard as true, even if they are false; and accepts the information as accurate if supported by evidence, regardless of the authenticity of that evidence (CLUZEL,

2021). Disinformation is effective in part due to psychological flaws in people's information consumption and handling. It appeals to emotions and perceptions, simplifies complex subjects, gives the impression that the listener reveals reality, and provides identity affirmation (NIEMAN, 2018 apud NEMR; GANGWARE, 2019). Some other factors also favor disseminating disinformation, such as the need for social belonging, status-seeking and identity projections (NEMR; GANGWARE, 2019).

Social media directly impacts exploiting the human brain's psychological flaws and cognitive aspects since it plays a prominent role as the means that delivers the message to a broad audience. Quoting Singer and Brookings, "Social media encouraged political society to self-segregate into communities of the like-minded, intensifying connections among members of the same group while increasing the distance among different groups" (SINGER; BROOKING, 2018, p. 126). It becomes a more significant issue when a malign actor, taking advantage of the platforms' massive reach, can manipulate the message, transforming it into disinformation and exploiting the audience's inherent flaws. The desired outcome can be to harm any of the core spheres of society, name it political, economic, or even social. It is the disruptive role of the information.

Moreover, Alec Ross, Senior Advisor for Innovation to Secretary of State Hillary Clinton, said "I think the Internet is the single most disruptive force for the sovereign nation-state since the concept was founded [...]" (apud PATRIKARAKOS, 2017, p. 12).

According to Patrikarakos, the nation-state exercised power in two areas during the twentieth century: the monopoly on the use of force and the dominant control of information (PATRIKARAKOS, 2017, p. 9). Yet, he claimed that Web 2.0 had endowed individuals with critical capabilities to disrupt this power (ibid). Despite the questionable consistency of the states' complete information control, this political and social systems disruption perspective raises many concerns, especially in Western democracies. Disinformation and false narratives can influence elections, devastate markets, or start conflicts. And all efforts by state and non-state actors to capitalize on the opportunities provided by new technologies and social media can occur through manipulating information. It is the use of information as a weapon.

Singer and Brookings stated that the Internet is a battlefield, "a platform for achieving the goals of whichever actor manipulates it most effectively" (SINGER; BROOKING, 2018, p. 261). And they added, "what

determines the outcome isn't mastery of the facts, but rather a back-and-forth battle of psychological, political and (increasingly) algorithmic manipulation" (ibid, p. 262). Online information can deconstruct specific facts and replace them with new ones, allowing individuals and nations to effect political change without firing a shot. It attempts to interrupt, damage, or change what a target population knows and believes about itself and the world around it. In the 2016 presidential election in the United States and the 2016 Brexit referendum in the United Kingdom, Russian meddling shows two recent high-profile examples of this weaponization of information (NEMR; GANGWARE, 2019). Countries like China also understand this reality, as illustrated in its military information policy, which consists of three warfares: psychological (manipulating perceptions and beliefs), legal (treaties and international law), and public opinion (domestic and foreign) (SINGER; BROOKING, 2018, p. 184).

With this in mind, it is plausible to consider the weaponization of information as a serious issue. Its reach and speed, enabled by internet technologies and social media tools, combined with the consequences of disinformation targeting and malicious intentions, give it the status of a weapon of mass disruption. And information disorder contributes to this process, increasing distrust and uncertainty. Simultaneously, a disordered informational environment is boosted by its use as a weapon, in a vicious circle capable of exacerbating the existing challenges.

Reinforcing the threat posed by information weaponization and its effects and outspread on the warfare domain, many states, through the military, think tanks, and institutions, like NATO, have been studying and developing concepts regarding a new type of war, Cognitive Warfare.

COGNITIVE WARFARE

"Cognitive Warfare is a strategy that focuses on altering how a target population thinks – and through that how it acts" (BACKES; SWAB, 2019 apud BERNAL et al, 2020, p. 9).

Expanding this straightforward definition, Cluzel argues that this kind of warfare gradually and subtly disrupts ordinary understandings and responses to events with significant long-term negative consequences (CLUZEL, 2021, p. 4). Yet, it has a global presence, ranging from individuals

to states and multinational corporations, and feeds on disinformation and propaganda techniques aimed at psychologically exhausting information receptors (ibid). It is fair to say that society's interconnectedness, a result of the increase in social media and its profit model dependent on gaining control of the human brain's attention, has a direct impact as a tool in this warfare field. Another important aspect, and quoting Cluzel, "even if a cognitive war could be conducted to complement to a military conflict, it can also be conducted alone, without any link to an engagement of the armed forces" (ibid, p. 7). All this capacity is available to any state or state-sponsored actor at low costs and using the information as a means for achieving its purposes.

Moreover, Western Democracies are particularly vulnerable to the disruptive effects of cognitive warfare. Bernal et al. observed that Democracy is based not only on laws and public order but also on confidence and mutual respect. With trust under attack and at risk, Democracy is in jeopardy (BERNAL et al, 2020, p. 4). Additionally, they define Cognitive Warfare as "the weaponization of public opinion by an external entity, for the purpose of influencing public and/or governmental policy or for the purpose of destabilizing governmental actions and/or institutions" (ibid, p. 10). It is a slightly different conceptualisation from the one this paper provides, in which the information itself is the weapon aimed to cause mass disruption within and between societies. The desired effect is to shape public opinion causing destabilisation or influencing its knowledge and thinking processes, aligning it with the expected outcomes and goals.

Indeed, these are precisely the two separate but complementary goals that Bernal et al. define for Cognitive Warfare: destabilisation, including some strategies like increase polarization, delegitimize government/leadership, reinvigorate movements/issues, or disrupt critical economic activities; and influence, like promoting extremist ideologies, manipulating civilian beliefs, or delegitimize elections (ibid, p. 11). Some recent examples can illustrate these techniques. The earliest events concerning the Covid-19 pandemic, where China and Russia adopted disinformation and false narratives, confused and undermined public trust in Western countries. In the United States 2016 elections, Russia's campaign intended to increase pre-existing divisions and polarise society, which caused chaos that still reflects in today's American politics. Another evidence is the use of cognitive warfare by terrorist groups like Al-Qaeda for recruiting "soldiers" for a cause, targeting people with narratives to spread its ideology.

These developments have shown a rising concern, mainly in the West, related to this “new” domain of war and its impacts on governments and societies. And due to this, it should not be an exclusive military issue. It involves and suggests a whole-of-government approach since it includes harm that interferes with our ability to live our social, economic, and political lives on our terms. Cognitive Warfare concepts emphasize and confirm the previously stated argument that using the information as a weapon of mass disruption presents a crucial threat currently.

CONCLUSION

This essay has argued that when introduced into a disordered world fuelled by emerging technology and social media, information may cause harsh damage in a culture or government by exploring manipulation and the vulnerabilities and cognitive biases of the human brain. And taking into account the three primary communication elements, medium, message, and audience, information can be used as a weapon of mass disruption.

Information disorder makes it hard to distinguish between false content and reality, leading citizens, and societies to a world of mistrust and lack of truth. This chaotic information landscape is suitable for malicious state or non-state actors to use the information to reach a broad audience and achieve their goals.

Analyzing the primary elements of communication concerning the characteristics of a weapon of mass disruption, the turbulence of the information disorder environment, combined with the nature of social media platforms and technologies, directly impacts the medium and on the message’s content. In addition, these same aspects can also influence the audience since they can explore and catalyse the human brain’s flaws and cognitive biases. Thanks to technological advancements in the means and networks where it flows, information has a massive reach. By manipulating the audience’s inherent vulnerabilities through disinformation and false narratives, one can impose desired disruptive outcomes. And when these aims are to cause damage to societies or governments, so information turns into a weapon of mass disruption.

As stated in this paper, information disorder background supports and provides the necessary conditions to the use of information as a weapon of mass disruption. At the same time, this weaponisation

itself feeds back and boosts disorder. This vicious cycle represents a direct threat to global security since it impacts core values like trust and generates instability in world societies, with harmful global prosperity effects.

Emphasising this essay's argument, many governments have started studying and implementing concepts of a "new" type of warfare known as 'Cognitive warfare' where the weaponization of information is a threat, especially to societies and states. All of this capability is available at low cost to any state or state-sponsored actor seeking to achieve its goals through the use of disinformation and false narratives. The ending effects of Cognitive Warfare are destabilisation and the influence of large audiences to cause harm and disruption.

It is not the purpose of this essay to suggest solutions or adopt specific measures and procedures. Still, the perception of the use of information as a weapon of mass disruption can warn those countries and respective populations that are not fully aware or concerned with these possibilities. Other states have already considered this threat and included it in their agendas under the concept of Cognitive Warfare. An educational emphasis on the issue, making populations aware of the menace and a trustworthy informational environment, could be an opportunity to face this challenge and make the world more stable, secure, and prosperous.

INFORMAÇÃO COMO ARMA DE DISRUPÇÃO EM MASSA: DA DESORDEM DA INFORMAÇÃO À GUERRA COGNITIVA

RESUMO

O objetivo deste artigo é compreender como a desordem da informação influencia e prepara o terreno para o uso da informação como arma. Alega que tendo em mente os meios, a mensagem e o público, a informação pode ser utilizada como uma arma de disrupção em massa. O artigo examina o ambiente caótico que envolve a esfera informacional, a desordem da informação. Analisa a informação como uma arma de disrupção em massa e apresenta definições para subsidiar essa análise, partindo do significado de disrupção e conceituando o termo “armas de disrupção em massa”. O artigo reforça a afirmação principal trazendo outro conceito que evoluiu recentemente, o da “Guerra Cognitiva”. O ensaio afirma que o ambiente da desordem informacional sustenta e fornece as condições necessárias para o uso da informação como arma de disrupção em massa; e que tal utilização por si só, retroalimenta e aumenta a desordem, em um ciclo vicioso que representa uma ameaça direta à segurança global. O texto conclui que, quando introduzida em um cenário mundial complexo e desordenado, alimentado por tecnologias emergentes e mídias sociais, a informação pode causar danos severos em uma cultura ou governo, explorando a manipulação e as vulnerabilidades e vieses cognitivos do cérebro humano.

Palavras-chave: Desordem da Informação; Guerra Cognitiva; Disrupção em massa.

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