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Gabriella Rosta

HIDDEN TRADITION OF MILITARY ANTHROPOLOGY IN EUROPEAN THINKING

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ABSTRACT: *The aim of this article is to uncover the hidden historical tradition of military anthropology in European thinking and to demonstrate that the anthropological perspective on war did not “emerge” only in the 20th and 21st centuries but has been present in reflections on warfare since antiquity. Through the works of Plato, Xenophon, Thucydides, Julius Caesar, Titus Livius, Machiavelli, and Clausewitz, the study reconstructs an intellectual trajectory in which war appears not merely as a technical or strategic phenomenon, but as a mirror of human nature and social norms. The article shows how the armed forces became social and cultural institutions in the modern era, and how methods from cultural anthropology were gradually integrated into military studies. In its final part, the paper uses the example of the Sahel region to illustrate how the toolkit of military anthropology can contribute to understanding complex, multi-layered security challenges. It argues that military anthropology constitutes a key language of dialogue between military science and the humanities, and that without it, the contemporary operational environment – especially in postcolonial theatres – cannot be adequately understood.*

KEYWORDS: *military anthropology, military culture, civil-military cooperation, Sahel region, postcolonial conflicts*

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INTRODUCTION

Anthropology is the discipline that studies the human being as a biological, cultural, and social creature: it examines how human communities live, think, organise themselves, and change over time. Its interest extends to the body, everyday practices, symbolic meanings, rituals, and relations of power, that is, to the ways in which a given society is constituted and maintains itself, whether civilian or military. Traditionally, two main branches are distinguished: physical anthropology and cultural anthropology; one of the specific subfields of the latter is military anthropology.

Military anthropology as an autonomous discipline is a relatively young field of study, which emerged at the end of the 20th and the beginning of the 21st century, primarily in Anglo-Saxon military and cultural research (e.g., Winslow 1999; Ben-Ari 1998; Kilcullen 2009). Its essence is the study of human behaviour, identity, and cultural patterns in military and wartime contexts, that is, the exploration of how culture shapes and influences the

soldier, how the soldier shapes culture, how the relationship between the community and the soldiers is formed, and how all these affect the conduct of war. At the same time, the roots of this approach reach back much further than one might assume on the basis of modern terminology. The relationship among the human being, war, and society already appeared in the writings of ancient thinkers, even if they did not use the term “anthropology”.

The anthropological dimension of war – that is, the interpretation of human conflicts within cultural and moral frameworks – is already present in Plato’s *Politeia* (The Republic), where warfare appears as a metaphor for human nature and the structure of the state.¹ Similarly, Xenophon’s *Anabasis* is not merely a military-historical account but also an empirical description of the behaviour, discipline, and values of the military community, which prepares the ground for the anthropological understanding of collective identity.²

The “tacit” presence of a military-anthropological perspective in these texts is therefore not a matter of terminology but that of viewpoint. Among ancient historians, several authors – for example, Thucydides and Titus Livius – wrote about war as a mirror of human nature and social order, in which patterns of behaviour, morality, fear, and honour are just as much subjects for observation and analysis as strategy or tactics.³ This approach, namely the centrality of the human factor and culture, became a constant basic motif of later military thinking and, ultimately, a theoretical antecedent of modern military anthropology.

One of the most striking historical examples of the military-anthropological perspective is Julius Caesar’s *Commentarii de Bello Gallico* (Commentaries on the Gallic War), which, at first sight, seems to be a campaign report but in fact constitutes a deeply empirical social observation. Caesar not only records military events, but also analyses the cultural characteristics, behavioural patterns, religious customs, and decision-making mechanisms of the Gallic tribes and their leaders.⁴ These descriptions reveal that for the commander, the key to victory was not solely military superiority, but also an understanding of the enemy’s culture – a realisation that is regarded today as one of the basic principles of military anthropology.

The classical representatives of Roman historiography, especially Titus Livius, further deepened this perspective. In his extensive work *Ab Urbe Condita*, Livius discusses war and military virtue not only in political, but also in moral and cultural contexts. For him, questions of human character, loyalty, and moral decay are closely linked to military performance and the fate of the empire.⁵ This way, in Livius’s work, warfare becomes a laboratory of human nature in which the dynamics of social norms and collective identity can be observed.

In the Renaissance, a new shift in perspective was brought by Machiavelli, who, in *Il Principe* (The Prince) and *Dell’arte della guerra* (The Art of War), interprets war as an anthropological scene of political power.⁶ For him, the human being is not merely a rational creature, but one moved by passions, fears, and interests, whose behaviour is just as important to understand in the exercise of power as it is on the battlefield. In doing so, Machiavelli builds a bridge between classical and modern military thinking: he recognises that successful command is not solely a technical question, but a profoundly anthropological one, based on knowledge of human nature.

¹ Plato 1968.

² Xenophon 1968.

³ Thucydides 2023; Livius 2002.

⁴ Caesar 1994.

⁵ Livius 2002.

⁶ Machiavelli 1987; 2001.

The tradition stretching from antiquity to the Renaissance thus sketches an implicit military-anthropological discourse in which war is not only a strategic event, but also a cultural mirror. In war, human beings reveal their own value system, social organisation, and moral boundaries – a recognition that will be systematised in the modern era by Clausewitz, when he describes war as a manifestation of the “human spirit”.⁷

Modern military anthropology did not arise out of nothing: its theoretical roots lie in those historical and philosophical traditions that have always placed the human being at the centre of war. At the turn of the 18th and 19th centuries, when the industrialisation of warfare and the emergence of nation-state armies created new types of human experience, Clausewitz recognised that war is “a special form of human intercourse”, in which both rational and irrational forces are at work.⁸ This idea – the human being as the principal variable of war – became one of the starting points of modern military-anthropological thinking.

From the mid-20th century onwards, the methods of social and cultural anthropology gradually entered the field of military studies, particularly in the United States and Great Britain (e.g., Janowitz 1960; Moskos 1977; Soeters–Wong 2014). In the context of the Cold War and post-colonial conflicts, the question of how the military organisation can be interpreted as a cultural system and the soldier as the bearer of a social role and identity re-emerged. Modern research works explicitly with anthropological categories when examining the armed forces as communities structured by rituals, symbols, and norms.⁹

Nevertheless, these modern approaches are deeply rooted in ancient and classical traditions of thought that portrayed the human being not only as a fighter, but also as an interpreting creature. Plato’s guardian-warriors of the ideal state, Xenophon’s self-disciplined mercenaries, Caesar’s tactical observations, Livius’s moral exempla, and Machiavelli’s political realism all lead to the same recognition: war is not merely a technical practice, but a cultural and anthropological event.

This study argues that military anthropology is not a new invention, but the new language of the historical self-reflection of military thinking. When a 21st-century researcher examines military identity, social integration, or the effects of cultural differences on events in the theatre of operations, they are in fact asking the same questions as Thucydides or Machiavelli: what does war reveal about the human being, and how does culture influence the course and outcome of war? Recognising the historical continuity of this set of questions not only strengthens the scientific self-definition of military anthropology but also contributes to making military science an organic part of the human sciences.

Beyond its historical dimension, the question of military anthropology is also highly relevant in contemporary military practice. Although military anthropology is often perceived as a relatively recent and specialized field, its analytical relevance for contemporary armed forces is well established. Anthropological approaches contribute to a deeper understanding of military cultures, civil–military interaction, local social structures, and the limitations of purely technical or doctrinal solutions in complex operational environments. This article argues that such analytical sensibilities are not exclusively modern inventions but have deeper intellectual roots in European thinking. By examining earlier forms of culturally and socially informed military reasoning, the paper demonstrates that what today is referred to as military anthropology represents the rediscovery and systematisation of a much older, though largely unacknowledged, tradition.

⁷ Clausewitz 2013.

⁸ Clausewitz 2013.

⁹ Winslow 1999; Ben-Ari 1998; Kilcullen 2009.

PLATO AND THE ANTHROPOLOGICAL INTERPRETATION OF MILITARY VIRTUE

Plato's (427–347) political philosophy aims not only at constructing the ideal state, but also at understanding human nature. In his work *Politeia*, the threefold division of the social structure – the orders of the rulers, the guardians (soldiers), and the producers – also functions as an anthropological model, in which the three parts of the human soul (reason, courage, and desire) take on social forms.¹⁰ The military order, that is, the caste of guardians, represents the sphere of *thumos*, courage and honour, which plays a key role in maintaining social harmony. According to Plato:

“Good guardians are by nature at once gentle and brave: gentle towards their own people, but fierce towards the enemy. [...] We must look for a soul in them in which these two qualities are in harmony.”¹¹

The Platonic guardian is not only a warrior but also a moral type, who through education (*paideia*) brings passions under discipline and places them at the service of the state.¹² This idea is closely linked to one of the basic tenets of military anthropology: the behaviour and identity of the soldier are not innate capabilities, but culturally shaped constructs. In Plato, military virtue (*andreia*) is a social construction mediated by the system of education, arts, and religious-symbolic order. The education of the guardians is not only physical training, but also a moral and aesthetic process that shapes the individual into a complete human being.

In Book V of *Politeia*, Plato goes even further: he abolishes private property and traditional family bonds among the guardians so that their loyalty to the state may be absolute and their actions in war may not be influenced by their material or familial background.¹³ He writes: “Let no one say any longer that this or that belongs to him, but let all say: it is common to us, whether it be a house, a child, or anything else.”¹⁴

This radical communal structure highlights the anthropological aspect of military identity: the individual finds self-identity in the collective ethos. In Plato's conception, war and military order are not ends in themselves, but metaphors for the preservation of the common good.

This conception of military ethos also reappears in modern military anthropology. Similar to Bourdieu's concept of *habitus*, the idea appears in Plato, namely that military virtues are learned patterns of behaviour arising from the interaction between individual and community.¹⁵ Bodily practices, rituals, and shared education serve to symbolically reinforce identity – this cultural dimension is what distinguishes military anthropology from purely strategic military science.

In his late work *Laws*, Plato presents military education as a general form of civic virtue, emphasising that the army is not only an instrument of state defence, but also a means of the state's moral self-preservation. Here he writes:

¹⁰ Plato 1968, III.

¹¹ Plato 1968, III, 410b–411a, translated into English by the author.

¹² Plato 1968, II–III.

¹³ Plato 1968, V.

¹⁴ Plato 1968, V, 464c.

¹⁵ Bourdieu 1977.

“All education is a form of combat, and life in peace is also a school of war: for we must constantly struggle not only against others, but also against our own desires and pleasures.”¹⁶

Here, war is no longer a mere response to an external threat, but a projection of the inner contradictions of human nature. This reflexive approach – linking military behaviour and human existence – provides one of the earliest antecedents of military anthropology.

In Plato’s works, military order gradually becomes the moral and anthropological mirror of society. In *Politeia*, the caste of guardians is the bearer of *thumos*, courage, and honour: that part of the human soul which ensures the maintenance of order and self-control.¹⁷ In Book V of *Politeia*, this military community, through the dissolution of personal bonds, becomes the symbol of absolute loyalty to the state: individual identity is dissolved in the communal ethos. Finally, in *Laws*, the concept of struggle is transformed: war is no longer merely an external compulsion, but a projection of the contradictions inherent in human nature, a kind of moral exercise in self-discipline.

In this developmental arc, the soldier is no longer merely an armed actor, but a cultural-anthropological type: a figure standing at the boundary of body, soul, and community. Military education (*paideia*) thus becomes the highest form of shaping the human being, transforming him through discipline and communal ethos.

This interpretation is of key importance to military anthropology, because it shows that military behaviour is not only a strategic, but also a cultural and ethical construct. In Plato, the defence of the state is in fact a metaphor for human self-knowledge: the struggle begins in the soul and continues in society.

XENOPHON AND THUCYDIDES: MILITARY EXPERIENCE AS AN ANTHROPOLOGICAL MIRROR

While Plato treats military virtue primarily as a normative and philosophical category, in the works of Xenophon (434–359) and Thucydides (460–395), warfare appears as a concrete human experience. The stories of the *Anabasis* and the *History of the Peloponnesian War* are not merely historical accounts, but also anthropological studies of collective action, discipline, fear, and leadership.

In *Anabasis*, Xenophon not only recounts the campaign of the Greek mercenaries but also examines a specific human survival mechanism: how a disintegrating community in a foreign land is able to reorganise itself based on shared norms, rituals, and loyalties.¹⁸ In a crisis situation, when the original chain of command collapses, the survival of the military community depends on whether it is capable of appointing new leaders, accepting common rules, and reproducing cooperation based on trust. Xenophon’s narrative clearly shows that the army is not merely a technical organisation, but a moral community in which survival depends on maintaining shared meanings and customs.

¹⁶ Plato 1998, I, 626a–b, translated into English by the author.

¹⁷ Plato 1968, IV.

¹⁸ Xenophon 1968, I–III.

In the narrative of *Anabasis*, cultural adaptation also plays a prominent role: Greek mercenaries repeatedly come into contact with local communities whose language, customs, and norms they must at least partly understand in order to secure passage, supplies, or alliances.¹⁹ The need to adjust to local rituals, practices of hospitality, and religious customs indicates that military success and survival depend not only on discipline and weaponry, but also on “cultural intelligence” – a realisation that foreshadows one of the fundamental ideas of modern military anthropology.

The difficulties accompanying the expedition – hunger, cold, and the proximity of the enemy – reveal the limits of human behaviour, and in this sense, *Anabasis* can be read as one of the earliest “field descriptions” of modern military anthropology. In Xenophon’s text, the army appears as a community whose survival depends on the reproduction of trust, rituals, and shared interpretive frameworks.

Thucydides, by contrast, highlights the tragic constants of human nature in the context of war. The *History of the Peloponnesian War* is not a heroic epic, but an analytical anthropological diagnosis: in the course of war, social order and moral norms break down, and the instinctive forces inherent in the human being come to the surface.²⁰ The description of the Athenian plague, for example, shows how the combined presence of an epidemic and a war dismantles previously valid moral and legal norms: people no longer act according to law, but according to their fears and momentary desires.²¹

For Thucydides, war is not merely the result of political decisions, but a consequence of the deeper layers of human nature: the movements of ambition (*philotimia*), fear (*phobos*), and interest (*kerdos*) reveal the basic structures of human behaviour.²² This perspective shows close affinity with 20th-century military anthropology, which examines war not only as a strategic, but also as a cultural and moral event.²³

In the works of Xenophon and Thucydides, war is therefore both a social laboratory and a moral testing ground: a situation in which loyalty, power, and identity are reshaped. Military anthropology – although a modern term – essentially seeks answers to the same questions that Xenophon and Thucydides already raised: how do human beings behave in community, under conditions of power, and in extreme situations, and how do different cultures interact with one another in wartime?

This approach makes it possible for the soldier to appear not only as the embodiment of strategic rationality but also as a cultural actor whose actions can be interpreted within a system of values, symbols, and rituals. In this way, war becomes an anthropological event: a mirror of society and of human nature, in which every age can recognise itself.

JULIUS CAESAR, TITUS LIVIUS, AND MACHIAVELLI – THE BIRTH OF MILITARY RATIONALITY AND THE POLITICAL HUMAN

In Roman thinking, military experience is closely intertwined with the concepts of statehood and civic virtue. In the works of Julius Caesar (100–44), Titus Livius (59–17), and Niccolò Machiavelli (1469–1527), the figure of the soldier is no longer merely the guardian

¹⁹ Xenophon 1968, IV–VI.

²⁰ Thucydides 2023, I–III.

²¹ Thucydides 2023, II, 47–54.

²² Thucydides 2023, III.

²³ cf. Janowitz 1960; Moskos 1977.

of moral order, but the embodiment of political rationality: the human being who acts according to the laws of power and survival.

In *Commentarii de Bello Gallico*, Julius Caesar's description of his campaigns is documentation and self-representation at once. Caesar presents his own military actions not as a heroic epic, but as a process of rational decision-making: he sets out in detail the features of the terrain, the alliance systems and internal divisions of the enemy tribes, as well as the logic of the organisation and movement of his own forces.²⁴ His description of the Gallic tribes – whether in terms of social hierarchy, religious customs, or modes of warfare – reveals the pragmatic, empirical side of the Roman outlook: military success depends on understanding the cultural specificities of the enemy.

In Caesar's narrative, the functioning of the army is, in an anthropological sense, the creation of order in chaos: discipline, hierarchy, and obedience appear as fundamental organising principles of Roman identity. The commander not only issues orders but also shapes a particular communal ethos in which military virtue – courage, endurance, and loyalty – can be understood as an extension of Roman civic virtue.

Titus Livius, by contrast, interprets the role of military virtue from a historical perspective. On the pages of *Ab Urbe Condita*, Roman history unfolds as a moral study, in which wars appear as stages of civilisational and moral development.²⁵ For Livius, military virtue (*virtus militaris*) signifies not only bravery, but also civic responsibility: loyalty to the community, obedience to the laws, and commitment to political stability. Through the figures of commanders and soldiers, the moral basic structure of Roman society becomes visible: the army is not a separate sphere, but the mirror of the moral order of society.

The Roman model thus shows the birth of the “political human” in an anthropological sense: the human being who interprets power, hierarchy, and collective identity according to their own cultural and social rules. This model had a decisive impact on Renaissance political thinking, particularly on Machiavelli.

In *Il Principe* and *Dell'arte della guerra*, Machiavelli interprets war as an anthropological stage of political power.²⁶ In his work, the figures of the soldier and the ruler come close to one another: both are moved by the same human instincts – fear, ambition, and desire for glory. According to Machiavelli, the state and the army are “manifestations of the same soul”: both are arts of managing human nature. The success of the commander and the prince depends on the extent to which they are able to control passions, direct loyalties, and create order in a world marked by uncertainty and conflict.

Anthropologically speaking, Machiavelli describes the human of power: the actor who is at once the product and the shaper of his own cultural environment. In his work, military rationality is not a value-neutral technique, but a practice deeply embedded in culture and ethics. War is not exclusively a political instrument, but an expression of human nature: the meeting point of collective existence and individual ambition.

Thus, in the historical continuum of military anthropology, the works of Caesar, Livius, and Machiavelli mark a new era: the age of the rational, political human, in which war and human nature can no longer be separated. In this tradition, military experience is no longer merely organised violence, but a cultural practice that reveals the deepest layers of human action.

²⁴ Caesar 1994.

²⁵ Livius 2002.

²⁶ Machiavelli 2001.

CLAUSEWITZ AND THE HUMAN DIMENSION OF WAR

By the beginning of the 19th century, the interpretation of war had gone beyond purely technical and strategic levels: Carl von Clausewitz (1780–1831) defined war as a complex moral and social phenomenon of human existence. In his work *Vom Kriege (On War)*, war is no longer merely an armed conflict between states, but “the continuation of policy by other means”, that is, the most acute manifestation of human will and emotion.²⁷

For Clausewitz, war is not a mechanical process, but the interaction of irrational and rational forces emerging from human nature. This dynamic is expressed in his famous “trinity of war” (*wunderliche Dreifaltigkeit*):

- The world of violence and passion (the people, the realm of instincts and emotions);
- the dimension of probability and chance (the sphere of the army and military leadership);
- and the sphere of political reason and purpose (the state as a rational organising principle).²⁸

This threefold unity is not static in Clausewitz’s thinking, but a constantly shifting system of equilibrium. The “fog” of war (*Nebel des Krieges*) and its “friction” (*Friktion*) are metaphors that point to the limits of human rationality, perception, and decision-making. Thus, war appears, in an anthropological sense, as a mirror of human existence: a situation in which instinct, fear, will, and belief play just as much a role as logic and strategy.

According to Clausewitz, the human being stands at the centre of military action, simultaneously a decision-maker and a prisoner of circumstances. The figure of the commander is therefore not merely a technical or administrative actor, but a moral and psychological centre: the success of war depends on character, judgement, and the capacity to be “courageous in understanding” (*Mut des Verstandes*).²⁹ This way, Clausewitz anticipates the foundations of a later military-anthropological perspective: he interprets war as a system of human relations, in which decisions, emotions, and cultural patterns are at least as decisive as weapons and strategies. The human factor is therefore not a disturbing element, but the very essence of war.

WAR AS A HUMAN AND CULTURAL SPACE – CLAUSEWITZ’S ANTHROPOLOGICAL LEGACY

In Clausewitz’s thinking, war is not merely a political instrument, but one of the basic structures of human culture. When he describes war as an “extended duel” (*erweiterter Zweikampf*), he points out that violence and conflict are enduring companions of human existence.³⁰ By this, he does not praise war; on the contrary, he attempts to interpret the irrationality and tragic nature of human experience.

The “fog of war” symbolises not only the uncertainty of military operations, but also the limits of human cognition. According to Clausewitz’s famous observation, “in war, everything that is simple is difficult”, because the human mind is unable to fully grasp the

²⁷ Clausewitz 2013, translated into English by the author.

²⁸ Clausewitz 2013, I.

²⁹ Clausewitz 2013, I.

³⁰ Clausewitz 2013, I/1.

complexity of reality.³¹ This recognition – that war is a stage for human errors, emotions, and limitations – makes Clausewitz one of the forerunners of a modern anthropological outlook.

In Clausewitz' view, the human being acting in war is not merely the instrument of his own rationality, but also the bearer of his own moral and cultural codes. Military decisions are underpinned by traditions, beliefs, and social norms: these determine what a commander regards as courage, honour, or necessity. When Clausewitz writes about the role of the commander, he emphasises that his activity cannot be defined solely by rules and calculations; judgement, experience, and a “spark of genius” are always present.³²

This idea later became one of the antecedents of anthropological studies of military habitus and professionalism. In Pierre Bourdieu's conceptual framework, *habitus* denotes the totality of behaviour patterns embedded in culture; similarly, in Clausewitz, the commander and the soldier are products of a given cultural and moral field.³³ Military virtues – courage, loyalty, and self-discipline – are not biological givens but culturally coded norms, which the armed forces institutionalise and reproduce.³⁴

Thus, in Clausewitz's interpretation, war is also a cultural practice: communities project their own values, fears, and aims onto it. For this reason, war becomes, in an anthropological sense, a “mirror”: not of destruction for its own sake, but of the extreme form of societies' self-expression and identity formation. When he writes that in war every nation acts “in accordance with its spirit, customs, and social condition”, he indicates that armed forces carry their own social realities with them into conflicts.³⁵

Twentieth- and twenty-first-century military anthropology – in the works of Ben-Ari (1998), Winslow (1999; 2004), McFate (2005), and Kilcullen (2009) – represents a further elaboration on this Clausewitzian legacy. War as a human space is not only a political, but also a cultural system of interactions: a network in which soldiers, civilians, local communities, and ideologies mutually shape one another.

Therefore, Clausewitz's legacy does not end in the 19th century: reinterpreted, his ideas continue to live on in the basic assumptions of military anthropology and in the investigation of the human, cultural, and moral nature of war.

THE TURN OF THE 19TH–20TH CENTURIES: THE ARMY AS A SOCIAL LABORATORY

By the end of the 19th century and the beginning of the 20th, the army was no longer merely an instrument of military power, but also a social and cultural institution. The emergence of nation-state armies radically transformed military life: military training, discipline, hierarchy, and collective identity took on new cultural forms. According to Michel Foucault's (1926–1984) analysis, the modern army is a “disciplinary institution” that regularly shapes bodies and wills in order to produce disciplined agents subordinated to the aims of society.³⁶

³¹ Clausewitz 2013, I/7, translated into English by the author.

³² Clausewitz 2013, I.

³³ Bourdieu 1977.

³⁴ Boda 2016.

³⁵ Clausewitz 2013, VIII, translated into English by the author.

³⁶ Foucault 1975.

Military discipline does not consist merely of physical constraints. Foucault's concept of the "disciplined body" (*corps docile*) refers to the transformation of the body and the will, and to the reproduction of routines, rituals, and norms as the basis of military effectiveness.³⁷ In this way, the army becomes a cultural laboratory: training, marching, ranking, and common rituals all serve to shape the collective *habitus*.

Norbert Elias's (1897–1990) work *The Civilizing Process* similarly points out that military hierarchy and discipline constitute an experimental field for social norms and mechanisms of control.³⁸ In industrialising armies, discipline and self-control become cultural constructions that not only secure the internal order of the armed forces but also provide a model for a civilian society.

The experience of colonial armies made the role of culture in military success particularly salient. During colonial wars, soldiers were confronted with foreign cultures, customs, and religions. Understanding the behaviour of local communities became crucial for logistics, alliances, and military strategy.³⁹ On the basis of these experiences, one of the core ideas of modern military anthropology was formed: military action is always embedded in a specific cultural context.

The combination of an anthropological perspective and discipline enabled the army to exercise not only physical force but also cultural and psychological control. Military identity and loyalty were built through collective customs, rituals, and norms, which provided a starting point for modern anthropological investigations. Ben-Ari, for example, emphasises that the survival of the military community depends not only on the technical superiority of its weapons, but also on whether soldiers interpret their actions within a shared cultural and moral space.⁴⁰

Overall, the turn of the 19th–20th centuries brought about the unfolding of the cultural and moral dimensions of the military organisation. Modern armies institutionalised the concepts of "disciplined body" and military *habitus*, while the experiences of colonial and international campaigns anticipated the later development of military anthropology, in which culture and human behaviour alike would become decisive factors in war – a process that can also be traced in 19th-century Central European and Hungarian debates on military virtues and obedience.⁴¹

THE EMERGENCE OF MODERN MILITARY ANTHROPOLOGY: COLD WAR AND POSTCOLONIALISM

From the middle of the 20th century onwards, the methods of social and cultural anthropology gradually entered the field of military studies, particularly in the United States and the United Kingdom. The Cold War context and postcolonial conflicts posed new challenges for military leadership: technological superiority no longer proved sufficient; success also required cultural intelligence and a deeper understanding of social relations.

³⁷ Foucault 1975.

³⁸ Elias 2004.

³⁹ Boas 1911; Mead 1928.

⁴⁰ Ben-Ari 1998.

⁴¹ Boda 2023, 99–116.

During this period, military anthropology as an analytical approach became an area of practical significance. Studying the rituals and group cohesion of Canadian airborne units, Winslow showed that military order and performance rest not only on rules and orders, but also on social rituals, beliefs, and shared experiences. In her analysis, she emphasises that the internal structures of military culture – rituals, symbols, and norms – play a key role in the functioning of the unit and the formation of military identity.⁴²

Ben-Ari, drawing on examples from Israeli military units, demonstrated that conflict, emotional tension, and the understanding of the “other side” are fundamentally anthropological questions, critical both for military decision-making and survival. Soldiers are not merely armed units, but actors whose behaviour is shaped by social norms, beliefs, and customs.

In his research on postcolonial theatres, David Kilcullen argues that understanding the relationship between armed forces and local communities can provide a strategic advantage: in modern wars, the key to success lies in integrating cultural dimensions into operational planning. In Kilcullen’s analyses, conflict is not simply a clash of armed forces, but an overlap of cultural, social, and psychological spaces, in which military power can only operate effectively if it takes these dimensions into account.⁴³

Montgomery McFate similarly stresses that the lack of “cultural knowledge” can have serious consequences on the outcome of military operations: misunderstood local norms, alliances, and identities can undermine even the legitimacy of the military presence. Modern military anthropology is thus both scientifically and practically significant: it enables military science to examine human factors, cultural differences, and social structures systematically, and to understand the armed forces not merely as mechanical machines, but as cultural and social environments.

This scientific paradigm remains alive and relevant in the 21st century, particularly in complex conflicts such as those of the Sahel region, where military and social dimensions are closely intertwined. The toolkit of military anthropology makes it possible to integrate past and present experiences and gain a deeper understanding of the enduring regularities of human behaviour in conflict situations.⁴⁴

In the 21st century, military anthropology has gained renewed relevance as armed forces increasingly operate in complex social and cultural environments shaped by irregular warfare, stabilisation missions, and civil–military interaction. Contemporary analyses of the operational environment point to the growing complexity of military missions, where cultural awareness and social understanding are increasingly important alongside traditional military capabilities.⁴⁵ Contemporary research further emphasizes that military effectiveness cannot be understood solely through technological superiority or doctrinal frameworks, but must account for cultural knowledge, social organisation, and local perceptions of authority and legitimacy.⁴⁶ Hungarian military scholarship has similarly highlighted the importance of integrating anthropological and social scientific perspectives into military

⁴² Winslow 1999.

⁴³ Kilcullen 2005; 2009.

⁴⁴ Winslow 1999; Ben-Ari 1998; Kilcullen 2005; McFate 2005.

⁴⁵ Boldizsár 2014, 15–46.

⁴⁶ Ben-Ari 1998; Winslow 1999; Kilcullen 2009.

thinking, particularly in relation to civil–military interaction and culturally informed operational planning.⁴⁷ In this sense, 21st-century military anthropology does not represent a break with earlier traditions of military thinking, but rather the systematic articulation of long-standing concerns regarding the human, cultural, and social dimensions of warfare.

THE ENDURING PERSPECTIVE OF MILITARY ANTHROPOLOGY AND THE EXAMPLE OF THE SAHEL REGION

Military anthropology is not merely a modern scholarly trend, but one of the oldest and most persistent ways of thinking about the human being, society, and conflict. From antiquity to the 21st century – from Plato and Xenophon through Caesar and Machiavelli to Clausewitz – military thinking has consistently addressed questions of human behaviour, social norms, and collective identity. Modern authors such as Winslow, Ben-Ari, Kilcullen, or McFate, in fact, reformulate this long tradition in the contemporary language of anthropology.⁴⁸

In the 21st century, the toolkit of military anthropology has become particularly important in complex, multi-level conflicts. The example of the Sahel region – primarily Mali, Niger, and Burkina Faso – clearly illustrates that security threats and local social structures are not isolated phenomena. In this region, insurgent and jihadist groups, local communities, national armies, regional coalitions, international forces, and civil organisations coexist within a dense cultural and political web, in which every military action is at the same time a social and cultural message.

Good examples are the French-led Serval and later Barkhane operations, as well as the UN MINUSMA (United Nations Multidimensional Integrated Stabilization Mission in Mali): soldiers arriving under different flags moved in the same geographical space, often among the same villages, yet the meanings attributed to them by the local population differed greatly. For local inhabitants, the military presence is not an abstract “stabilisation operation”, but an everyday experience: who greets whom, who pays at the market, who speaks a local language, who appears closer to which community, and against whom the weapons are directed. Postcolonial sensitivities – particularly the perception of the French presence – further complicate the picture: operations led by the former colonial power carry one kind of meaning for the elite in Bamako, another for Tuareg communities, and yet another for rural populations along the Niger River.

In this environment, the application of military anthropology makes it possible for military decision-makers to focus not only on combat techniques and logistics but also on the norms, customs, and power structures of local society. McFate emphasises that integrating anthropological knowledge into military operations is not a luxury but a strategic necessity: the use of force can only be effective in the long term if it takes the cultural context into account. In the context of counterinsurgency operations, Kilcullen points out that understanding local networks, loyalties, and informal power structures is often more important than analysing classical rank structures and chains of command.

⁴⁷ Sztankai 2014; 2024.

⁴⁸ Winslow 1999; Ben-Ari 1998; Kilcullen 2005; McFate 2005.

In the Sahel region, conflicts are often underpinned by ethnic, religious, land-use, and regional factors: competition for resources between pastoral and farming communities, the historical burdens of centre–periphery relations, and the differing legitimacy of religious leaders and traditional chiefs. Understanding these structures is essential for developing sustainable security strategies. By analysing the behaviour, loyalties, and rituals of local communities, military anthropology helps minimise misunderstandings and the escalation of conflicts, while also supporting civil-military cooperation.⁴⁹

In modern warfare, soldiers are not merely armed actors, but also cultural and social agents who influence community dynamics with every step they take. A patrol, a check-point, a house search, or even the distribution of aid is a performative act that the local population interprets according to its own categories: as guest, occupier, protector, rival, or ally. This perspective makes it possible to view military operations not only in technical, but also in humanistic terms. Ben-Ari points out that without understanding the human, social, and cultural dimensions of military actions, operations can easily turn into self-contradiction: short-term tactical successes may result in long-term political defeat if local social realities are ignored.

In summary, military anthropology is a new language for the dialogue between history, culture, and military science. The example of the Sahel region shows that, by linking past experience to present challenges, military strategy and human sciences can function in a mutually reinforcing way. The joint examination of military decisions, collective identity, and cultural context ensures that the armed forces are not only agents of violence, but also of knowledge and understanding of human beings – especially in those conflicts where security and social stability are inextricably intertwined.

The contemporary relevance of military anthropology lies in its ability to bridge cultural understanding and operational practice. As current military engagements – including those in regions such as the Sahel – demonstrate, armed forces increasingly rely on culturally informed analysis to navigate complex human and social environments. The historical cases discussed in this article show that similar modes of thinking existed long before the formal institutionalisation of military anthropology as a discipline. Recognizing this hidden tradition not only enriches the intellectual history of European military thinking but also reinforces the practical value of anthropological perspectives for modern military organisations operating in culturally sensitive contexts. In this sense, the article seeks to reconnect historical insight with contemporary military understanding.

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⁴⁹ Winslow 1999; Ben-Ari 1998; Kilcullen 2005.

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THE UNIPOLAR MOMENT IN THE NORTH POLE – THE MYTH OF THE ARCTIC’S MILITARY IRRELEVANCE AFTER THE COLD WAR

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ABSTRACT: *The strategic importance of the Arctic today justifies a deeper understanding of the dynamics of the region. The post-Cold War period and the impact of unipolarity on the region are less studied periods from a military perspective. This analysis examines the military changes that took place in the European Arctic, Greenland, and North American Arctic (Alaska, Canada) after the Cold War and how they follow Charles Krauthammer’s unipolar theory. The study concludes that it was not the region’s lack of military significance that served as a catalyst for Arctic Exceptionalism, but rather the global military centre of gravity that shifted to other regions and threats. Therefore, this proves that military and security interests and Arctic cooperation are not necessarily mutually exclusive.*

KEYWORDS: *unipolar moment, Arctic, Russia, nuclear defence, Greenland, Arctic Exceptionalism*

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INTRODUCTION

Current political changes are making the Arctic increasingly important, underscoring the need to understand the dynamics of the region. The unipolar moment following the Cold War brought significant changes to the world order, but its impact on the Arctic has been less thoroughly analysed than the preceding era and the current events. However, this would be particularly justified, as after the Cold War, the image of a militarized Arctic began to be replaced by the concept of Arctic Exceptionalism, according to which the region is a unique area that enjoys immunity from the geopolitical problems of the world.

With the region’s growing importance, it is increasingly necessary to obtain a complete picture of the military changes in the region in reflection of the creation of Arctic Exceptionalism. Therefore, a historical overview of this era is necessary, as without it, it is impossible to understand current events and draw correct conclusions. How the Arctic has changed in military terms during this timeframe can fundamentally contribute to our understanding of the origins of Arctic Exceptionalism and the threats it faces today.

In his 2022 study, Rasmus Gjedssø Bertelsen argues that the unipolar theory, which is rarely applied in the study of the region, is necessary for understanding the post-Cold War and (post-post-Cold War) Arctic.¹ The main findings of his study contribute greatly to

¹ Bertelsen 2022.

understanding the post-Cold War era Arctic, but little is said about the specific military changes caused by the unipolar moment. Bertelsen instead focuses on the development of liberal institutions. For this reason, this study deals only with military issues and not with the broader security policy, institutional changes, and developments in the region.

The study examines how the military significance of the Arctic has changed in the unipolar moment following the Cold War and whether Arctic Exceptionalism really arose from the region's declining military importance. It first briefly reviews the characteristics of the Cold War in the Arctic and discusses the theory of the unipolar moment. Following this, it focuses on the European/Russian Arctic, Greenland, and the continental US from the perspective of the unipolar moment. During this, the author argues that although a decline in the role of the military can be observed in some cases, it is more accurate to speak of a transformation of military challenges.

An important consideration in the analysis is which time period needs to be examined. To this day, there is debate about when the unipolar position of the US ended. For example, Christopher Layne wrote his study entitled "This Time It's Real: The End of Unipolarity and the Pax Americana" in 2012, while others, such as Alexei Pilko, believe that it has not ended at all, but that the old unipolarity will be replaced by a new one.² Other authors, instead of multipolarity, talk about the emergence of a polyarchic world, the core of which is that several greater powers coexist, and in this system, all the states, both greater and smaller, establish temporary alliances.³

For this reason, no specific time frame has been defined, but the main focus will be on the 1990s and 2000s.

THE ARCTIC IN THE COLD WAR

In order to examine the changes that followed the Cold War, it is worth briefly reviewing the main characteristics of the Cold War in the Arctic first. In my previous article, I already reviewed the main military issues concerning the region during the Cold War period, but it is necessary to recall these findings here as well, in order to analyse the effects of the unipolar moment.⁴ The main conclusion of the article is that the strategic importance of the region predates even the Cold War, and that certain parts of the region (i.e., Greenland) already had military and strategic significance during World War II. During the Cold War, the role of the region was largely determined by strategies and concepts related to the use of nuclear weapons. The theories behind nuclear weapons had a direct impact on the nature of the military presence in the Arctic. From the early 1960s, with the principle of flexible response replacing mass retaliation, the strategic role of the region began to take shape for NATO, and it became a region that was understandable separately for the Alliance. Then, from the second half of the 1960s, it received greater attention due to the "Flexible Response" strategy (MC 14/3) issued by NATO's Military Committee. NATO's changed response in the event of an attack also shed new light on the Alliance's flanks. Subsequently, from 1970 until the end of the Cold War, the military significance of the Arctic could be understood in its own right.⁵

² Layne 2012; The new unipolarity will become a reality, the expert warns 2025.

³ Boda 2023, 12–13; Boda 2024, 6.

⁴ Szalkai 2025.

⁵ Szalkai 2025, 46–47.

For the US, Greenland was a source of raw materials and meteorological information, and its geographical location made it strategically essential for the defence of continental America and the supply of Europe, even during World War II. During the Cold War, the US increased its military presence on the island, always adapting to the challenges of the time. While previously there had been no need to establish air bases, this arose in the 1950s due to new military requirements. Subsequently, due to advances in long-range aircraft and missile technology, the island's function was transformed once again, this time taking on strategic importance in communications and early warning. On the other side of the Atlantic, missile defence and early warning were also key considerations. Constructions began here in the 1960s, and the missile defence early warning system was continuously expanded until the end of the Cold War.⁶

For Europe, the GIUK Gap⁷ was one of the most important strategic points in the region. Although the role of the passage changed during the Cold War, its importance remained the same. In the early decades, Soviet submarines had to pass through the passage to strike America. Later, with the development of missile technology, this requirement ceased to exist, but NATO continued to attach great importance to the passageway due to the protection of transatlantic routes. Similar to the passageway, the Scandinavian Peninsula was also of great importance due to its flight routes and land border with Russia.⁸

THEORY OF THE UNIPOLAR MOMENT

In order to understand how the unipolar moment influenced the military significance of the Arctic after the Cold War, it is necessary to briefly review what the unipolar moment actually is.

The term was first used in 1990 by neo-conservative political commentator Charles Krauthammer in his article "The Unipolar Moment" published in *Foreign Affairs*. In his opinion, several ideas existed about how the post-Cold War world would function. These included the emergence of multipolarity and the elimination of the risk of war. In his view, these were all misconceptions; the world did not become multipolar, but unipolar. This means that there is one central world power, the US, supported by its Western allies, while small aggressive states with weapons of mass destruction are emerging, which increases rather than reduces the risk of war.⁹ In his words:

*The unipolar moment means that with the close of the century's three great Northern civil wars (World War I, World War II and the Cold War) an ideologically pacified North seeks security and order by aligning its foreign policy behind that of the United States.*¹⁰

However, he also emphasizes that multipolarity will eventually emerge and that the world order will resemble that of the period before World War I. However, until then, the US will remain the sole world power for decades. The decline of the US will not be caused by imperial overstretch, but by domestic political reasons. The reason for this is that the US

⁶ Szalkai 2025, 44–49.

⁷ The name is derived from Greenland, Iceland, and the United Kingdom. It is a strategic maritime passage between the three islands. See more: Padányi 2025, 110–111.

⁸ Szalkai 51–52.

⁹ Krauthammer 1990, 23.

¹⁰ Krauthammer 1990, 25.

resembles the former British Empire. It is a trading, maritime power based on a stable global economy. For this reason, eliminating threats that jeopardize these factors is not a burden, but a necessity.¹¹

In 2002, Krauthammer revisited his decade-old theory in an article titled “The Unipolar Moment Revisited” published in *The National Interest* magazine. In this article, he continues to advocate his views. The Soviet Union collapsed, the European Union focused on internal integration and the welfare model rather than military capabilities, and China grew stronger but was still lagging far behind. The result is a dominance that is unprecedented, as even the British Empire had to keep a closer eye on its rivals. He also points out that while many initially disputed his theory, over time, it has become clear to everyone.¹² In this article, reflecting on the terrorist attacks of September 11, he places great emphasis on the issue of terrorism. He criticized the United States for not taking the threat of terrorism seriously before September 11, while in a unipolar moment, the fight against terrorism is of paramount importance.¹³

Critics of the theory, such as Christopher Layne, argued that other countries view US hegemony as a threat and that the unipolar moment did not change the fundamentals of international relations.¹⁴ Another critic of the theory, Robert W. Murray, argued that “Though it is difficult to deny that the world has become more stable at the systemic level, the role of hard power and military capabilities did not disappear with the Soviet Union; instead, the use of militarism to achieve national goals in the unipolar moment greatly decreased as a direct result of the values and grand strategy of the United States.”¹⁵

Proving the critics right and in line with Krauthammer’s 1990 prediction regarding the emergence of multipolarity, China and Russia very quickly began to criticize US supremacy in their joint statements. In 2009, Susan Turner examined Russia and China’s joint campaign for a multipolar world order. She highlighted that a “constructive partnership” was established between the two countries in 1994, and then from 1996 onwards, the term “strategic partnership” was used. In her analysis, Turner drew attention to the (joint) statements of the two countries. One example is the 1996 statement by Yevgeny Primakov, then foreign minister and later prime minister, to Kremlin News Broadcast, in which he emphasized that Russia must act as a counterweight to the forces that want to dominate the transition from a bipolar system to a multipolar one. Turner also recalled the 1997 Joint Russian–Chinese Declaration about a Multipolar World and the Formation of a New World Order, one of the first joint statements to reflect the view already expressed in Primakov’s statement.¹⁶ However, considering that Krauthammer himself claims that the unipolar moment is only temporary, these criticisms merely supplement his theory rather than refuting it.

¹¹ Krauthammer 1990, 23–27.

¹² Krauthammer 2002, 6–7.

¹³ Krauthammer 2002, 7.

¹⁴ Layne 2006, 9.

¹⁵ Murray 2012, 13.

¹⁶ Turner 2009, 163–164.

CHANGE OF NUCLEAR DETERRENCE IN THE UNIPOLAR MOMENT

The theory of unipolarity needs to be supplemented with a review of the new nuclear deterrence theory that emerged after the Cold War. The reason for this is that during the Cold War, as previously discussed, nuclear theories played a significant role in the military revaluation of the Arctic over actual military presence. It is therefore logical that a changing global nuclear situation could once again influence the military role of the Arctic.

The end of the Cold War and the unipolar moment had a significant impact on nuclear deterrence. The “second nuclear age” dawned when India and Pakistan became nuclear powers. Some date it from 1998, while others place its beginning somewhat earlier. However, there is relative agreement on the characteristics of this era. It was typically marked by much greater proliferation than the previous period, and the nuclear monopoly of the great powers came to an end. The new system has encouraged small states to acquire nuclear weapons. This, in turn, could lead to an unstable nuclear arms race. Another change is that the nuclear powers themselves are different from what they were during the Cold War. Weapons of mass destruction are now available to less powerful states, and so the previous logic of deterrence will no longer work. In addition, preventive wars have also become more common. Finally, vertical proliferation also appears. Due to Russia’s reduced nuclear spending, the doctrine of mutually assured destruction is less viable, and the US may gain nuclear primacy.¹⁷

However, when examining the theory of nuclear weapons and the unipolar moment, it should also be mentioned that not everyone agrees that there is a unipolar moment with regard to nuclear weapons. According to some branches of the realist school, if we place nuclear weapons at the centre of the balance of power, then we cannot speak of unipolarity, because although the US has the most powerful nuclear arsenal, Russia is not far behind and has the capability to destroy the United States. In many respects, the collapse of the Soviet Union led to a significant decline in economic, soft power, and conventional military strength. In contrast, Russia still had decisive capabilities in terms of nuclear weapons. Similarly, other nuclear powers in the international system, such as France and Great Britain, are also capable of causing significant destruction with their arsenals.¹⁸

The theory of unipolarity outlined in this section has two main features that may be relevant to the Arctic. One is that, unlike in a bipolar world order, there are not two great powers facing each other, but a single superpower facing smaller revisionist rogue states. Since there are no such states in the Arctic, the main military focus will theoretically shift away from the region, while economic issues may receive greater emphasis. Another aspect is the issue of nuclear weapons, which, according to the arguments presented, will pose a different kind of threat globally, but will also not lose its significance entirely in NATO (US)-Russia relations, as Russia’s nuclear capabilities have remained relatively intact. Thus, based on this theory, military devaluation may be observed in the Arctic, but the issue of nuclear weapons might be an exception to this process, as it may remain a key issue even after the Cold War.

¹⁷ Fettweis 2018, 51–54; Deudney 2011, 302.

¹⁸ Deudney 2011, 289–290.

THE CHANGING MILITARY SIGNIFICANCE OF THE ARCTIC IN THE UNIPOLAR MOMENT

European Arctic – Russia

It is worth examining the European and Russian Arctic together, as they clearly interact with each other due to their proximity. Although the region's military significance declined with the end of the Cold War, following the theoretical framework, it remained an important issue, albeit in a different context than before.

A good example which clearly shows that Russian attention did not shift away from the region with the collapse of the Soviet Union is that in 1992, then Russian President Boris Yeltsin and then Canadian Prime Minister Brian Mulroney signed a memorandum of agreement on the development of their countries' Arctic territories. Among other things, this included ambitious plans such as the Arctic Bridge, which would have connected Russia, Norway, and Canada (and, in its future iteration, China too, as seen in Figure 1).¹⁹

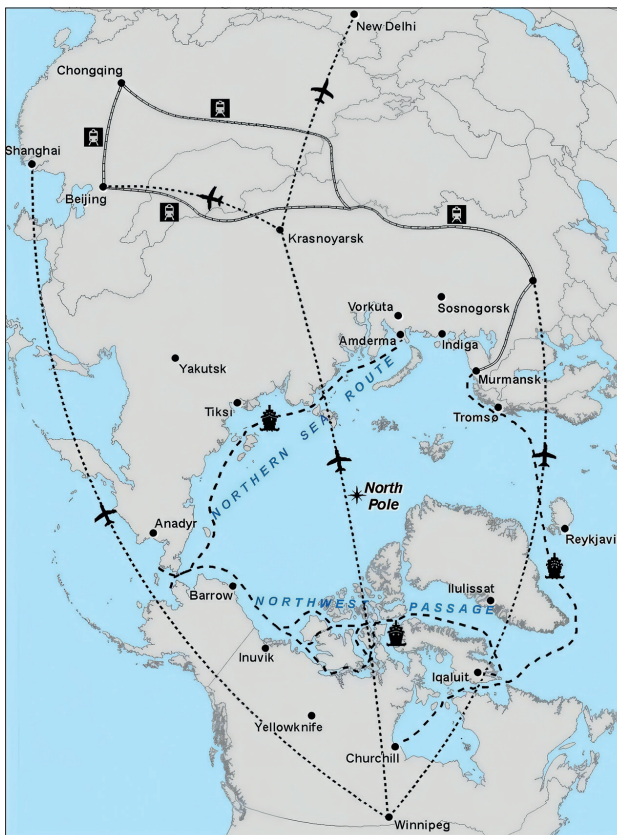


Figure 1 *Arctic Bridge*

Source: *Stephenson 2012, 327.*

¹⁹ Bázsó-Vigh 2025, 27.

This attitude has not changed with the arrival of the new president. On April 5–6, 2000, President Putin, immediately after his first election, but before his inauguration, travelled to the Arctic region, to the city of Murmansk, where he spoke about the importance of the region, the Northeast Passage, and the Northern Fleet. In his speech, he emphasized that the Arctic is a strategic reserve for Russia in the next century and a significant factor in Russia's economic and foreign policy towards the world.²⁰

Focusing on the field of military, one aspect is that the Russian Northern Fleet, whose primary function is nuclear deterrence at sea, remained a decisive factor even after the Cold War. The submarines stationed on the Kola Peninsula also represented a strategic capability that could not be ignored. In addition, the role of the Russian Coast Guard and the Northern Fleet in protecting economic interests was also enhanced after the Cold War. These organizations became responsible for protecting Russian economic interests in the Russian-European Arctic. This includes pipelines, offshore installations, and ships. The reason for this is that LNG²¹ and oil carriers, as well as onshore and offshore petroleum infrastructures, can be attractive targets for terrorists.²² This inevitably involves a blurring of civil and military roles, as the coast guard's duties include policing, border control, search and rescue, assistance with passage and navigation, oil spill response, and other environmental damage prevention.²³

The second important military aspect is nuclear weapons. When examining military issues after the Cold War, it should be noted that Western–Russian cooperation went through several ups and downs in the post-Cold War era. Kristian Åtland referred to this as “re-securitization.” According to him, the consequence of this is “a partial revival of Soviet-era security thinking and defense planning, also with regard to the European Arctic.”²⁴ Within this framework, First Russian Deputy Defence Minister Andrei Kokoshin presented the concept of a “Northern Strategic Bastion” (NSB) in the mid-1990s, which was approved by President Yeltsin in 1998. This was a stark change after the waning hours of the Soviet Union when “in 1987, during a trip to the Kola Peninsula, Mikhail Gorbachev (...) proposed to transform the Arctic into a ‘zone of peace’, in what later became known as the ‘Murmansk Initiative’.”²⁵

This concept was based on Soviet naval doctrine, which argued that the nuclear ballistic missile submarines (SSBNs) force would be strongest when it could conduct its operations in relatively safe domestic waters. During the Cold War, the Barents Sea was the strongest bastion of the Soviet fleet, but as the war drew to a close and thereafter, the size of the Northern Fleet was significantly reduced, primarily for financial reasons. However, Russian submarine capabilities continued to pose a challenge to NATO in the European Arctic.²⁶

Following the initial rapprochement after the end of the Cold War, NATO's eastward expansion encouraged the Yeltsin administration to halt the decline of the navy and reorganize it, as contemporary Russian thinking held that the navy was the only branch of the

²⁰ Ilyás 2025, 177.

²¹ Liquid Natural Gas.

²² Åtland 2007a, 13.

²³ Márton 2016, 128.

²⁴ Åtland 2007a, 21.

²⁵ Schaller 2019.

²⁶ Åtland 2007b, 500.

armed forces capable of repelling Western aggression from the sea. The essence of the NSB concept is to concentrate a significant part of Russia's maritime nuclear deterrent forces in the European Arctic, reinforced by the full arsenal of the Russian Armed Forces. Its function is twofold: to provide credible nuclear deterrence and to maintain a navy capable of securing Russian interests at sea. The deployment of this strategic force to the Kola Peninsula is no coincidence, but it does not stem from Russia primarily expecting a Western attack from the Arctic. The reason for this was, first, that during the Cold War, the Soviet Union invested significant resources in mapping and exploring the Arctic, thus gaining a significant advantage in the region, and second, that from here it was easy to reach the Atlantic and Arctic Oceans and potential targets on other continents. It can therefore be said that Northwest Russia and the Northern Fleet did not lose their importance with the end of the Cold War, but rather gained in relevance. Furthermore, in addition to geopolitical reasons, the industrial and economic facilities located in the region and the protection of economic interests in the Arctic have also made the region of vital importance.²⁷ The military importance of the concept and the region is well illustrated by the fact that even in 2006, 11 of Russia's 15 operational strategic nuclear ballistic missile submarines were based in the Northern Fleet, and the remaining 4 in the Pacific Fleet.²⁸

It should be noted, however, that although Russia had strategic plans for the Arctic after the Cold War and built up significant military strength in the region, its military presence was more limited than before. In 2002, for example, not a single SSBN submarine left port, and it was not until 2009 that these submarines resumed regular patrols, still lagging behind US SSBN patrols in both length and frequency, which always maintained 6–10 on sea patrols.²⁹ NATO submarines were also present in large numbers in the region. There were 3–4 permanently stationed in the Barents Sea and another 8–10 in the Atlantic Ocean.³⁰

Just as Russia's military presence in the Arctic adapted to the new challenges of the post-Cold War era, similar processes can be observed on the European side. The role of military presence did not diminish with the end of the Cold War, but its function changed significantly. In the post-Cold War Norwegian perception, Russia appeared as an unstable and unpredictable superpower, and the relationship between the two countries was characterized by asymmetry. In the early years, Russia was still seen as a "lingering threat", and the possibility of an invasion was considered. From 1998, however, defence policy focused less on Russia, and from 2002 onwards, the focus of the armed forces shifted to expeditionary operations and responding to domestic crises.³¹ Meanwhile, the Norwegian Navy and the Coast Guard, like their Russian counterparts, were also strengthened after the Cold War to effectively prevent illegal fishing, raw material extraction, and to protect industrial infrastructure.³² In addition, the armed forces of the two countries began cooperating in the 1990s. In 1994, the Norwegian and Russian navies held their first joint military exercise, then, starting in 2004, they began holding trilateral exercises, in which the US also participated. These were held at regular intervals until 2013.³³

²⁷ Åtland 2007b, 507, 509–512.

²⁸ Åtland 2007a, 13.

²⁹ Regehr 2020, 191.

³⁰ Åtland 2007b, 510–511.

³¹ Saxi 2023, 114.

³² Åtland 2007a, 13.

³³ Åtland 2020, 167.

The Danish navy also underwent significant changes during this period. In the 1980s, Denmark's participation in NATO was rather limited, even though it publicly supported its decisions. In addition to having one of the smallest defence budgets in the country, it conspicuously sought neutrality. It is no coincidence that the term "Denmarkization" appeared as a derogatory term at this time. However, the end of the Cold War had a significant impact on Danish defence thinking. With the threat gone, it had much greater room for manoeuvre in foreign policy, which provided an opportunity to restore its international reputation among its allies. The unipolar moment allowed Denmark to participate more actively in NATO and to reorganize its navy, as Norway and, to a certain extent, Russia did. While a significant part of the navy has been modernized with the aim of participating in NATO and UN operations far from Denmark, the patrol vessel fleet of Greenland and the Faroe Islands has only received limited upgrades in the form of three new patrol vessels. Although the three ships represent a significant leap forward compared to their predecessors, even in 2010, they were still operating without a fire control system and with a crew of 19 instead of 43.³⁴

Summarizing the impact of the unipolar moment on the European/Russian Arctic, it can be concluded that, in certain aspects, both sides reacted similarly to the changes in the global environment. The military significance of the region did not cease (it was even upvalued in some respects by the Russian side), and the parties continued to treat each other with caution. However, the end of the Cold War logic is well illustrated by the fact that the adoption of the Northern Strategic Bastion concept in 1998 and the concentration of Russian nuclear forces in the region coincided with Norway and Denmark's shift in focus from territorial defence to mission tasks.

This highlights the fact that Russian armament and nuclear bastions in the north were considered less of a threat than during the Cold War, and that Russian reorganization was seen more as a defensive measure, even though the region had become even more important to Russia.

Greenland

Given that Greenland's decisive strategic role stemmed from the bipolar Cold War system, the island's role was significantly reevaluated in the 1990s. Although the island's post-Cold War strategic importance was not affected, it was an important moment in 1995 when the US acknowledged that it had stored nuclear weapons in Greenland during the Cold War, two years after admitting that Strategic Air Command bombers routinely overflew Greenland with nuclear weapons during most of the 1960s. Interestingly, in the same year, the Danish government investigated nuclear activities in Greenland and concluded that the US had acted in good faith. Responsibility was attributed to the late Prime Minister H. C. Hansen instead, who in a 1957 meeting with the US Ambassador had failed to clearly articulate Denmark's non-policy stance when asked whether Denmark wished to be notified of any potential US nuclear deployments in Greenland.³⁵

³⁴ Choi 2021, 188–190.

³⁵ Kristensen 1999.

The role of the Thule base itself was expanded after the Cold War. It no longer served only military functions, but also civilian ones. The BMEWS radars³⁶ functioned as a space control centre. The radars surveyed every man-made object in orbit around the Earth, including non-functional satellites, rocket boosters, and other space debris.³⁷ In addition, it also served as a research centre, fulfilling another civilian function. This is well illustrated by the fact that, after the Soviet threat had diminished, the US Arctic Research Commission discussed withdrawing American soldiers from the base for a short period of time due to the maintenance costs.³⁸

At the same time, military presence did not ultimately cease at the base, and within the framework of the National Missile Defense (NMD) plan laid out in the new defence concept of 1998–99, it continued to perform its previous predictive function, and was even further developed by the US administration.³⁹

The NMD program is a system of systems, the functions of which are distributed to different sites over vast distances linked by high-speed data communications. According to the plans, it would consist of six parts:

1. initial launch detection and tracking system,
2. five ground-based early warning radars (including one in the UK and one in Greenland),
3. four or more, possibly as many as nine (including one in the UK, Greenland, and South Korea) X-band (high-frequency, short-wavelength) radars,
4. interceptor booster, a modified three-stage commercial “off-the-shelf” very fast rocket that carries the exoatmospheric kill vehicle (EKV),
5. exoatmospheric kill vehicle, the on-board computer of which processes updates on the location of the hostile missile after the EKV has separated from the booster,
6. Battle Management, Command, Control, and Communications (BMC3) network.⁴⁰

For Greenland, the plan is to upgrade the existing early warning radars in the first phase, followed by the second and third phases, with Thule to be also equipped with an X-band radar (see Figure 2).⁴¹

The official request regarding the inclusion of the base in the missile defence shield was made in December 2002 by the US, and after a lengthy debate, the *Igaliku Agreement* with the US and Denmark was concluded in 2004. This agreement replaced the 1951 agreement that had been in force until then.⁴² It established that the Thule base was

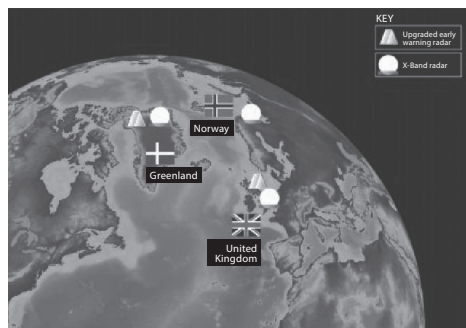


Figure 2 *Europe's Role in National Missile Defense*
Source: Valasek 2000, 34.

³⁶ The Ballistic Missile Early Warning System (BMEWS) can predict ballistic missile launches deployed by 1961. Of the system's three radar stations, one was deployed in Alaska, one in Greenland, and one in Britain. See more: Szalkai 2025.

³⁷ Taagholt – Hansen 2001, 56–57.

³⁸ Takahashi et al. 2019, 11.

³⁹ A National Security Strategy for a New Century 1998.

⁴⁰ Smith 2000, 10–11.

⁴¹ Valasek 2000, 34.

⁴² Takahashi et al. 2019, 7–8.

the only defence area in Greenland and allowed the US to carry out the desired developments at the base.⁴³

The main motivation behind the development program (officially) was fear of North Korean and Middle Eastern missiles, while arms control agreements with Russia guaranteed cooperation. At the June 4 Moscow summit in 2000, Presidents Clinton and Putin signed a Joint Statement of Principles on Strategic Stability. The agreement emphasized that the international community is vulnerable to the proliferation of weapons of mass destruction, which must be addressed jointly.⁴⁴ According to the White House website:

*The United States has made clear to Russia that we are prepared to engage in serious cooperation to address the emerging ballistic missile threat and have identified a number of specific ideas for discussion. At the June 4 Moscow Summit, Presidents Clinton and Putin signed an agreement to establish a Joint Center for exchanging early warning data on missile launches; they also agreed to explore more far-reaching cooperation to address missile threats.*⁴⁵

However, this statement is seen in a somewhat different light, given that Russia, together with China, significantly criticized the US during this period (as detailed in the previous section), and also heavily criticized the National Missile Defense program. Russia was not entirely convinced by the argument that the defence system had been designed solely to counter threats from North Korea and the Middle East. As the 2002 report of the Congressional Research Service reveals, Russia believed that the system, combined with American nuclear and conventional weapons, would place the United States in a position of strategic superiority and undermine stability. The combination of NATO enlargement and the NMD program could undermine Russia's strategic nuclear deterrent and possibly acquire a disarming first strike capability, with even a relatively limited missile defence capability. For this reason, Russia indicated under both the Clinton and Bush administrations that if the United States withdrew from the Anti-Ballistic Missile Treaty and deployed an NMD, Russia would withdraw from a range of offensive arms control agreements and deploy multiple warheads on its intercontinental ballistic missiles to overcome a U.S. NMD or deploy new intermediate-range missiles or shorter-range nuclear systems to enhance its military capabilities.⁴⁶

Russian uncertainty about why the system needs to be deployed in Greenland and Norway in response to the threat from the Middle East was supported by the fact that critics of the program raised the same issue back in 2000. Theodore A. Postol emphasized that the Alaskan component of the system would be tasked to collect detailed intelligence data on Russia's long-range ballistic missiles. According to him, "the data collected by these radars will be of primal value to a U.S. national missile defense system. The information will be fed into the NMD database, which will increase the discrimination capabilities of the proposed system against Russia's ballistic missiles."⁴⁷ In his assessment, it is unclear whether the system violates existing agreements, but even if it does not, it is clearly provocative, and both Russia and China were aware that these developments were perfectly suited to be used against them.⁴⁸

⁴³ Agreement between the United States of America and Denmark 2004.

⁴⁴ National Missile Defense 2000.

⁴⁵ National Missile Defense 2000.

⁴⁶ National Missile Defense: Russia's Reaction 2002, 4–12.

⁴⁷ Postol 2000, 32.

⁴⁸ Postol 2000, 32.

Greenland's role in the unipolar moment was rather mixed and contradictory. On the one hand, in line with global trends, its function in the former bipolar system has undergone significant changes. It can be observed that civil aviation and research activities have also received significantly more attention than before, and the US presence in Greenland has also shrunk considerably, which was also set out in writing in the 2004 agreement, stipulating that Thule is the only defence zone on the island. On the other hand, the US has not given up on the island's strategic function against Russia, as evidenced by its place in the NMD program. Although the program was not officially designed to counter a major power threat, it is difficult not to notice, as already pointed out in 2000, that developments related to early warning capabilities on the island and in the Arctic in general were always primarily directed against Russia and China. Taking into account the clearly visible characteristics of the era, this highlights a key factor that is still highly relevant today. The United States has fundamental strategic interests in Greenland, which are unrelated to changes in the global system.

Continental US

Finally, it is necessary to briefly mention how the continental defence of the US changed after the end of the Cold War, with particular regard to the North Warning System (NWS), which was agreed upon by the US and Canada in 1985 and replaced the former Distant Early Warning (DEW) Line.

The North Warning System radar line (see Figure 3) was built in 1987–88 to replace the outdated DEW Line, which, although expanded with several new stations during its operation, did not see any development in radar technology itself. New structures were placed at 11 existing DEW Line stations, two dismantled Pine Gap sites, and a Polevault Line site on southeastern Baffin Island. In addition, around 40 unmanned short-range (112 km) gap-filler radars were deployed, and eight radars in Canada's eastern Arctic and eight in the west began being constructed from 1990. The radar system has been supplemented with interceptor fighter bases at Anchorage, Cold Lake, Bagotville, and several smaller ones in Alaska and Canada. Furthermore, Airborne Warning and Control System (AWACS) aircraft were stationed in Alaska for rapid response, and Over-the-Horizon Backscatter (OTH-B) radars to detect air-breathing and rocket-powered targets.⁴⁹

The new system eliminated the flaws of the DEW Line, as well as low-altitude coverage gaps, and improved radar performance while reducing operational and maintenance costs. It was able to detect modern aircraft and cruise missile threats from Russia. Canada was given a greater role in the operation of the system than it had previously had. Canada's previous low level of participation in the system's operation meant a loss of sovereignty for the country. The 1985 agreement allowed Canada to take over the system on its territory and contribute significantly to its operation. It was tasked with replacing 51 DEW Line stations with 31 stations that fitted into the new system.⁵⁰

⁴⁹ Fletcher 1990, 274–275.

⁵⁰ North Warning System 1998, 3.

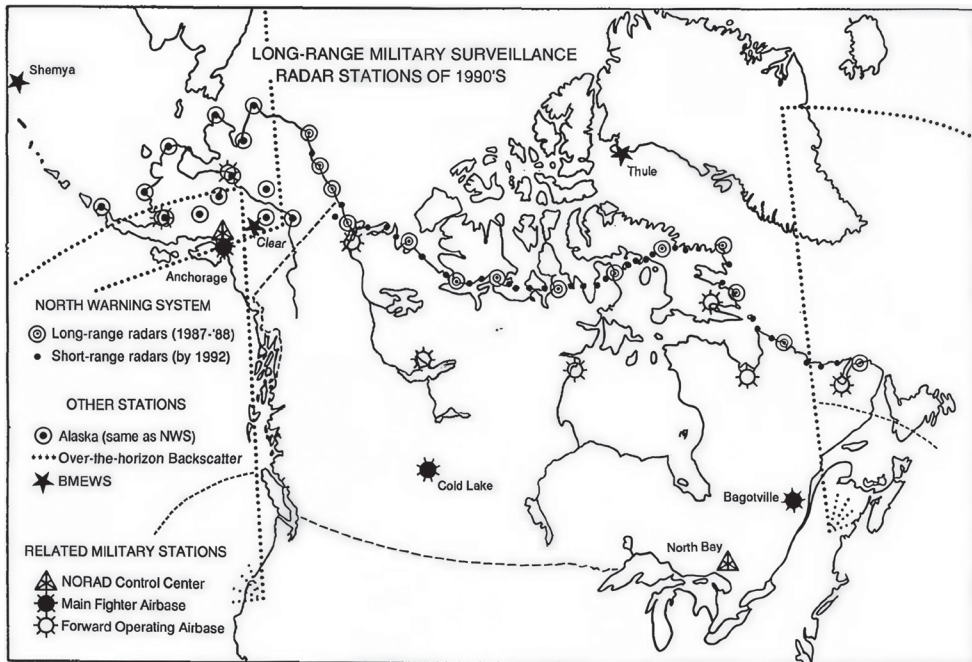


Figure 3: Long-range military surveillance radar stations of the 1990s

Source: Fletcher 1990, 273.

Beyond that, however, the US has significantly reduced its military presence in Alaska. According to Siedler William J. from the Alaska Department of Natural Resources, “the years since the end of the Cold War have been ones of major change for the military in Alaska.”⁵¹ The Air Force placed Galena and King Salmon Forward Operating Bases in caretaker status after 1989. Shemya Island, which was a refuelling station for Northwest Airlines and the U.S. Military Transport Service in the Korean War, as well as home to the 375th Weather Reconnaissance Squadron, was renamed Eareckson Air Station in 1991 and has been downsized. The Army closed Fort Greely by 2000, which was opened as the Arctic Training Centre (ATC) in 1948. Furthermore, the Navy also closed Adak Naval Air Facility by 2000, which served as the main base for the Alaskan Sea Frontier (ALSEAFRON) from 1950 to 1993.⁵² This behaviour clearly reflects the idea presented earlier that, after the Cold War, general military attention shifted away from the Arctic, but nuclear defence remained relevant in the region.

CONCLUSION

The study examined how the end of the Cold War and the radically different global situation following it affected the military presence in the Arctic. Looking at three key areas of the

⁵¹ Siedler 1996, 73.

⁵² Siedler 1996.

region, it can be concluded that Krauthammer's unipolar theory was fairly well reflected in the military changes in the Arctic. Based on this theory, it was expected that the military presence in the Arctic would undergo significant changes during this period.

This was precisely the process observed in the cases examined. The specific military presence developed in different ways: while the US began to significantly reduce its bases, the region played an even greater role in Russian naval strategy than before (although Russia also closed many bases after the Cold War). At the same time, the main strategic challenges no longer concerned the Arctic, and attention shifted to other regions. As a result, the nature of military presence in the Arctic has changed, as can be seen, for example, at Thule Air Base and in the modernization of Arctic countries' navies, where the protection of infrastructure and the fight against illegal fishing and mining have become key considerations, rather than territorial defence. Thus, military presence in the Arctic did not cease after the Cold War, but transformed activities were carried out according to a significantly different logic. An exception to this process is the issue of nuclear defence, which not only did not decline in the 1990s, but also underwent significant developments, as can be seen from the US development program and the fact that Yeltsin devoted considerable attention to the region, even with his limited defence resources.

The analysis thus leads to two conclusions. For one, Greenland has such strategic importance to the US that it continued to pay close attention to it even during a period when a significant number of bases in the region were being closed. The second, and probably more important, conclusion is that Arctic Exceptionalism did not arise from a complete lack of military interest. It is clear that the end of the Cold War did not mean the end of the region's military importance. In fact, it was precisely at this time that Russia concentrated its nuclear focus even more in the region. It was the global military centre of gravity that shifted to other regions and other types of threats.

What does this mean for the present day and for the concept of Arctic Exceptionalism? It was not the region's lack of military significance that served as the catalyst for Arctic Exceptionalism, which was clearly not the case. It is much more accurate to speak of a process in which military challenges affecting the region were transformed, in parallel with the global rise in the importance of other regions. From the perspective of today's great power competition, this is a very important observation because it proves that military and security interests and Arctic cooperation are not necessarily mutually exclusive. With that being said, the increasing importance of the region, climate change, and the emergence of new players such as China do not necessarily mean that the region will not be characterized by a more competitive and confrontative mindset in the future, but does give cause for some optimism.

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Sándor Bence Ács

THE DEVELOPMENT OF THE TURKISH ARMED FORCES' PRECISION STRIKE CAPABILITIES THROUGH THE CASE OF THE SYRIAN CIVIL WAR

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ABSTRACT: *By the second half of the 2010s, Türkiye had unquestionably become an unavoidable geopolitical actor not only in the Mediterranean basin but also in the Middle East. Ankara's cultural and economic influence on the Islamic world is by no means negligible; nevertheless, it was most likely the rapid development of military capabilities that captured global attention. One of the earliest and most serious tests of Turkish drone technology was the Syrian civil war, where unmanned aerial vehicles had to operate in close cooperation with ground forces. In this article, the author aims to present the results achieved by Turkish military drones in Syria and examine how these experiences influenced Ankara's military doctrine.*

KEYWORDS: *Middle East, Syrian civil war, unmanned aerial vehicles, military technology, Türkiye*

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INTRODUCTION

From the 2000s onward, the spread of unmanned aerial vehicles (UAVs) and precision-guided munitions (PGMs) has fundamentally reshaped the character of modern warfare. Drone warfare is no longer the exclusive domain of great powers. Regional middle powers and non-state actors have also become capable of developing strike capabilities that were previously available only to states with the most advanced air forces. In this process, Türkiye has emerged over the past decades as one of the most dynamically developing actors. Relying on drone technology and its defense industry, it has significantly increased its military autonomy and regional influence in the Middle East and several regions of Africa.

The Syrian civil war has become a terrain of particular importance for the Turkish Armed Forces, as it has simultaneously served as a strategic buffer zone, a source of domestic security risks, and an active “experimental laboratory” for new weapons systems. With the appearance of Turkish Unmanned Aircraft Systems (UAS), precision strike capabilities underwent a qualitative leap. The integration of real-time reconnaissance, target designation, and air or artillery strikes made it possible to conduct operations that had previously entailed greater risk, slower reaction times, or dependence on the support of external allies. Türkiye's involvement in Syria, therefore, cannot be understood without reference to drone technology and the associated precision strike capabilities.

The central question of this study is how Turkish drone warfare reshaped the precision strike capabilities of the Turkish Armed Forces during the Syrian civil war, and what military – and to a lesser extent political – consequences followed from the use of these capabilities. Accordingly, the paper first presents the development of Turkish drone technology and the defense industry, and examines how the new platforms and weapon systems were integrated into the Turkish military doctrine. Second, through brief case studies of the major operations in Syria – particularly the interventions carried out in northern Syria –, it analyses the concrete application of precision strikes, the types of targets engaged, and the operational outcomes.

This study applies a qualitative, case-study-based analytical approach. The selection of Afrin (Operation Olive Branch), north-eastern Syria (Operation Peace Spring), and Idlib (Operation Spring Shield) is not intended to provide a comprehensive overview of all Turkish military activities in Syria, but rather to illustrate distinct phases in the evolution of Türkiye's drone-enabled precision strike capability.

The analysis relies primarily on open-source material, including academic literature, policy reports, official statements, and visually documented strike footage. While these sources enable detailed reconstruction of operational patterns and doctrinal trends, they are inherently affected by selective disclosure, propaganda, and post hoc narrative framing by the involved actors. Accordingly, claims regarding effectiveness and impact are interpreted with caution and treated as indicators of relative, rather than absolute, military performance.

The aim of the paper is therefore not to provide an exhaustive damage assessment, but to identify recurring operational logics, learning processes, and doctrinal adaptations that shaped the Turkish Armed Forces' approach to drone warfare during the Syrian civil war.

THEORETICAL FRAMEWORK

The Concept of Modern Precision Warfare

Since the end of the Cold War, one of the most important qualitative changes in warfare has clearly been the spread of precision strike capabilities. While for much of the 20th century, artillery and air strikes were primarily directed against area targets – using large numbers of relatively inaccurate shells or bombs –, from the 1991 Gulf War onward, highly accurate weapons employed against specific targets (command-and-control centers, radar stations, armored vehicles, logistical hubs) have increasingly become dominant.¹ The essence of modern precision warfare lies not merely in the use of “more accurate” weapons, but in the integration of reconnaissance, decision-making, and strike execution into a single, unified system – the so-called “kill chain.”

Precision-guided munitions are weapons that, through various guidance systems (GNSS²/INS,³ laser designation, infrared or radar homing), are capable of striking very close to a designated target, typically with a circular error of only a few meters.⁴ In technical terms,

¹ Rossiter – Cannon 2022.

² Global Navigation Satellite System.

³ Inertial Navigation System.

⁴ Düz 2020.

PGMs are thus advanced versions of traditional “dumb” bombs and projectiles. The basic munition itself (for example, the American Mk-82/83/84 bomb bodies) may remain unchanged, but by adding a guidance kit (such as JDAM,⁵ HGK,⁶ KGK,⁷ etc.), it is transformed into a “smart” weapon.

Precision strike capabilities, however, cannot exist without extensive intelligence, surveillance, and reconnaissance (ISR) capabilities. ISR systems – satellites, manned aircraft, UAVs, and electronic intelligence assets – provide data necessary for locating targets, tracking enemy movements, and conducting post-strike assessments.⁸ In modern warfare, strike operations must therefore be understood not as standalone actions, but as elements of a data-driven operational cycle.

This cycle is captured by the frequently cited concept of the “kill chain” (find–fix–track–target–engage–assess), which frames the process as a sequence: (1) detecting the target, (2) localizing it, (3) continuously tracking it, (4) authorizing engagement, (5) executing the strike, and (6) assessing the results.⁹ The effectiveness of precision warfare depends not only on the technical accuracy of the weapon itself, but also on how quickly, reliably, and coherently this entire chain functions – especially in complex theaters of operation, such as Syria.

Classical Artillery/Air Strikes and Precision Strikes

The logic of classical artillery and air strikes was based on mass and repetition, as heavy-caliber artillery fire or carpet bombing would “blanket” a target area in the hope that the objective was located somewhere within. This approach is problematic not only from a military but also from a political perspective, as the use of less accurate weapons leads to greater collateral damage – including civilian casualties and the destruction of infrastructure –, which can delegitimize operations, especially in densely populated urban environments.

Precision strikes, by contrast, aim to neutralize a specific target (such as a command bunker or an armored vehicle) with minimal expenditure of munitions and the smallest possible amount of collateral damage. Given the high unit cost of precision-guided munitions, the cost-effectiveness of precision warfare can only be ensured if the other elements of the “kill chain” – ISR, communications, and decision-making – also function in close coordination.¹⁰ Precision strikes, therefore, presuppose not only technological but organizational innovation as well, with network-centric command structures, real-time data sharing, and the close integration of different branches of the armed forces (air, ground, and artillery).

It is important to emphasize, however, that precision warfare is not a “magic solution”. In practice, informational uncertainty, the deliberate concealment of targets, and the limitations of sensors and data links mean that even a precise weapon does not automatically guarantee an accurate – or legally and ethically flawless – hit. Precision strikes should

⁵ Joint Direct Attack Munition.

⁶ Hassas Güzüm Kiti – Precision Guidance Kit.

⁷ Kanatlı Güzüm Kiti – Wing-Assisted Guidance Kit.

⁸ Baker 2020.

⁹ Deptula 2001.

¹⁰ Rossiter – Cannon 2022.

therefore be understood as a factor that reduces the probability of civilian casualties, rather than one that eliminates that probability.

Basic Concepts of Drone Warfare

One of the key elements of modern precision warfare is the employment of unmanned aerial vehicles. Collectively, these are referred to as UAVs, or more broadly as UASs (unmanned aircraft systems), a term that also includes the ground control station and the associated communications network.¹¹ When an aircraft – commonly referred to in everyday language simply as a drone – is equipped not only with reconnaissance capabilities but also with strike weapons, it is often described as a UCAV (unmanned combat aerial vehicle).

In military practice, drones are classified in several ways.¹² One widely used categorization distinguishes systems based on altitude and endurance, separating:

- tactical small, mini, and micro UAVs, which are primarily used for company- or battalion-level reconnaissance, often referred to as Class I UAVs;
- low-altitude, long-endurance (LALE) tactical systems used for brigade-level reconnaissance, referred to as Class II UAVs;
- medium-altitude, long-endurance (MALE) systems, capable of operating at altitudes of 5–10 kilometers with endurance exceeding 20 hours;
- and high-altitude, long-endurance (HALE) platforms, which are mainly suited for strategic reconnaissance missions.¹³

Table 1 *UAV categories based on range*¹⁴

Operational levels	UAV Categories	Mass (kg)	Range (km)	Endurance (hrs)
Tactical	Micro (μ UAV)	≤ 5	≤ 10	1
	Mini (MAV)	$\leq 20/25/30/150$	≤ 10	≤ 2
	Close-range (CR)	25–150	10–30	2–4
	Short-range (SR)	50–250	30–70	3–6
	Medium-range (MR)	150–500	70–200	6–10
	Multi-role endurance (MRE)	500–1500	≥ 500	10–18
	Low-altitude deep-penetration (LADP)	250–2500	≥ 250	0.5–1
	Low-altitude long-endurance (LALE)	15–25	≥ 500	≥ 24
	Medium-altitude long-endurance (MALE)	1000–1500	≥ 500	24–48

¹¹ Hegedűs et al. 2023a.

¹² Végh – Daruka 2025.

¹³ Soyaltin-Colella – Demiryol 2023.

¹⁴ Daruka – Végh 2025, 317.

Operational levels	UAV Categories	Mass (kg)	Range (km)	Endurance (hrs)
Strategic	High-altitude long-endurance (HALE)	2500–5000	≥ 2000	24–48
	Stratospheric (STRATO)	≥ 2500	≥ 2000	≥ 48
	Exo-Stratospheric (EXO; E-STRATO)	TBD – to be determined		
Special Task	Unmanned combat aerial vehicle (UCAV)	≥ 1000	150	2
	Lethal (LET)	TBD	300	3–4
	Decoys (DEC)	20–500	0–500	≤ 4

From the perspective of the Syrian theater, the relevance of this categorization lies not in its technical completeness but in its operational implications. The conflict environment favored MALE-class UCAVs, which combined sufficient endurance for persistent ISR with the ability to deliver precision-guided munitions from standoff distances.

Lower-category tactical UAVs primarily supported localized reconnaissance tasks, while HALE systems were largely absent due to political sensitivities and air defense risks. The dominance of MALE platforms such as the Bayraktar TB2 and the ANKA-S thus reflects a deliberate balance between capability, survivability, and escalation control in a congested, multi-actor battlespace.

Advantages and Limitations of Drone Warfare

Supporters of drone warfare highlight several advantages. First, the use of unmanned systems reduces political risk. Because the loss of one's personnel is absent or minimized, it is politically easier to undertake operations that would be considered too risky if conducted with manned aircraft.¹⁵ Second, drones are capable of remaining over a given area for extended periods of time, which makes them ideal for ISR tasks, target surveillance, and identifying patterns of life. Third, drones offer a relatively cost-effective platform for the employment of precision-guided munitions. Although they carry a smaller payload, their operation and maintenance are cheaper than those of larger combat aircraft.¹⁶

At the same time, drone warfare faces several limitations. From a technical perspective, MALE and HALE drones are relatively slow and vulnerable to modern air defense systems and electronic warfare. Their data links – especially when not operating via satellite relay – can be jammed or intercepted, potentially leading to loss of control or compromise of collected data. From an operational standpoint, the effective use of drones depends heavily on adequate ground infrastructure, training, and analytical capacity. Data collected by drones are of limited value if not supported by robust processing and decision-making networks.¹⁷

¹⁵ Düz 2020; Daruka – Végh 2024.

¹⁶ Rossiter – Cannon 2022.

¹⁷ Rosenblatt – Kilcullen 2020.

Finally, drone warfare has sparked serious legal and ethical debates. Some authors argue that the “below-threshold” use of precision, remotely controlled strikes risks normalizing the routine application of military force, as the costs of war become less visible to political decision-makers.¹⁸ Others warn that rhetoric about the “surgical” precision of drones often obscures civilian casualties resulting from intelligence failures, misidentification of targets, or incomplete information.

One of the most frequently voiced concerns regarding offensive drones relates to autonomous decision-making. With the spread of artificial intelligence, the scenario has become conceivable in which UCAVs could independently decide on target identification and, in extreme cases, even on carrying out attacks.

At present, however, it is more realistic to interpret this situation as “autonomous decision support.” The essence of so-called “human-in-the-loop” systems is precisely that the operation of the UCAV is continuously monitored by a trained operator, who not only supervises the weapon’s use during a given mission but also supports the system during the machine-learning process. Criticisms of this approach are therefore largely identical to those that can be raised with regard to any soldier serving on the front line in practice. Soldiers can, of course, make poor decisions and may commit errors under the intense pressure inherent in combat situations; this, however, is an unavoidable element of warfare.

While legal and ethical debates surrounding drone warfare form an important part of the broader scholarly discourse, this study addresses these questions only insofar as they directly influence operational behavior and political decision-making. A detailed normative or legal analysis of civilian harm, proportionality, or accountability mechanisms falls outside the scope of the present article.

Instead, ethical considerations are treated here as contextual constraints that shape how drone operations are framed, communicated, and justified by state actors, rather than as independent objects of evaluation.

State Actors and Proxy Warfare in Syria

Due to its multi-actor nature, the Syrian civil war is often interpreted as a proxy war. A proxy war refers to a situation in which one or more states provide military, financial, or political support to local armed groups – militias, rebel factions, or semi-regular forces – in order to pursue their strategic objectives indirectly.¹⁹ In the case of Syria, for example, the Damascus regime was supported by Russia and Iran, while various opposition and Kurdish forces received backing from the United States, Türkiye, and other regional powers. Each actor sought to minimize its own direct military exposure.

A defining feature of proxy wars is the existence of a “principal–agent” relationship between the sponsor and the local partner. The supporting state seeks to steer the proxy in line with its own strategy, but the proxy has its own interests, motivations, and constraints. This often leads to coordination problems, indiscipline, or even divergent objectives, further complicating the dynamics of the battlefield.²⁰ In the Syrian conflict, multiple competing proxy networks operated in parallel, rendering the situation fragmented and difficult to oversee.

¹⁸ Mumford 2013.

¹⁹ Van Veen 2021.

²⁰ Soyaltin-Colella – Demiryol 2023.

In this environment, precision warfare – and within it, the use of drones – has gained particular significance. External state actors are able to support their proxies or exert pressure on their adversaries in an “over-the-horizon” manner, while minimizing their own ground presence. Precision strikes carried out by drones can thus be understood as a form of “remote intervention” within the context of proxy warfare.

Why Does the Syrian Theater Favor the Use of Drones?

The Syrian civil war exhibits several structural characteristics that make it particularly conducive to the use of drones. First, from a geographical and logistical perspective, Syria constitutes a nearby theater of operations for several regional powers. The proximity of Türkiye, Israel, Iraq, and the Mediterranean Sea allows drones to be launched and controlled from national territory or nearby bases, with relatively short flight distances. This reduces operating costs and increases responsiveness.

Second, the multi-layered balance of forces in the conflict – the simultaneous presence of great powers (Russia and the United States), regional actors (Türkiye, Iran, and Israel), and local armed groups – means that a conventional, overt air war would be politically extremely risky. Drones enable states to carry out “limited escalation”, conducting precision strikes with relatively low risks to personnel and prestige, while attempting to avoid direct confrontation with the air forces of other states.²¹

Third, the complex urban and semi-urban terrain of the Syrian theater – particularly in areas such as Aleppo, Idlib, al-Bab, or Afrin – favors long-endurance, persistent surveillance and pattern-based target identification. In these environments, drones are capable of locating hidden positions, tunnel networks, mobile missile launchers, or vehicles equipped with improvised explosive devices, and, if necessary, executing precision strikes from the same platform.

Finally, throughout the Syrian civil war, not all actors possessed full-spectrum air defense capabilities. While Damascus and its Russian allies established strong air defense bubbles in certain areas, in other zones – especially during the early phases of the conflict and along peripheral front lines – air defenses were fragmented, incomplete, or outdated. This “patchy air defense map” created opportunities for drones to conduct ISR and strike missions at relatively low risk in specific areas, particularly when combined with electronic warfare and other enabling capabilities.

THE DEVELOPMENT OF TURKISH DRONE TECHNOLOGY AND THE DEFENSE INDUSTRY

The Modernization of the Turkish Defense Industry and Its Pursuit of Autonomy

The Turkish drone program did not emerge “out of nowhere” but is closely linked to Türkiye’s broader efforts to achieve autonomy in its defense industry. The U.S. arms embargo imposed after the 1974 Cyprus intervention, followed by subsequent export restrictions,

²¹ Van Veen 2021.

highlighted Türkiye's long-term dependence on foreign suppliers, particularly in the field of high-technology weapons systems. In response, a strategy began to take shape that the academic literature often describes as oscillating between "defense autarky" and continued dependency. Ankara seeks to maximize domestic added value, while still relying on external technologies for certain key components.²²

From the 2000s onward – especially under AKP²³ governance –, the defense industry became a priority area of Turkish industrial policy. A corporate ecosystem emerged and steadily strengthened, in which traditional major firms such as ASELSAN, ROKETSAN, and TAI/TUSAŞ were joined by new actors, most notably Baykar and Vestel, as well as smaller, specialized companies (for example, STM, focusing on small loitering munition systems).²⁴ Baykar grew from a family-owned enterprise and specialized specifically in tactical and MALE-class UAVs (Bayraktar Mini, TB1, later TB2, and Akıncı), while TAI (TUSAŞ) represents the state-owned, large-enterprise model through the ANKA/ANKA-S program.²⁵

The logic of drone development fits well with a "do-it-yourself" approach. Difficulties surrounding the procurement of Israeli Heron systems and restricted access to U.S. Predator/Reaper platforms incentivized Türkiye to develop its own niche technology in an area where catching up appeared feasible.²⁶ In the case of drones, relatively modest capital investment can already yield significant military and political returns – especially if the systems gain real combat experience. In this regard, the Syrian civil war proved to be of decisive importance.

Major Turkish Drone Platforms and Armament

Bayraktar TB2 and ANKA-S as MALE Platforms

The iconic platform of the Turkish drone arsenal is the Bayraktar TB2, which international scholarship classifies as an MALE UCAV.²⁷ The TB2 is approximately 6.5 meters long, has a wingspan of 12 meters, and a maximum take-off weight of 650–700 kg, of which around 150 kg can be carried as payload (sensors plus armament).²⁸ The aircraft is powered by a piston engine – initially Austrian, later Ukrainian, and subsequently of Turkish development – providing an endurance of 22–24 hours at an operating altitude of roughly 5.5–7.6 km (see Table 1). Communication with the ground control station is maintained via a line-of-sight data link, offering an operational range of 150–300 km; in the TB2S variant, satellite (SATCOM) connectivity has also been introduced.²⁹

²² Kurç 2017.

²³ Adalet ve Kalkınma Partisi – Justice and Development Party.

²⁴ Düz 2020.

²⁵ Düz 2020.

²⁶ Rossiter – Cannon 2022.

²⁷ Düz 2020.

²⁸ Hegedüs et al. 2023a.

²⁹ Hegedüs et al. 2023c.

Table 2 Main parameters of some of the most important Turkish drones and the American MQ-9 Reaper³⁰

Parameters	Manufacturer			
	Baykar			General Atomics
Type	TB2	TB3	Akinçi	MQ-9 Reaper
Length (m)	6.5	8.35	12.2	11
Width (m)	12	14	20	20
MTOW ³¹ (kg)	630	1450	5500	4760
Payload (kg)	55	280	1350	1400+360
Payload – MTOW ratio (%)	9	19	25	37
Maximum power (kW)	73.55	128	2×560	671
Engine	Rotax 912	TEI PD170	2×AI-450T	Honeywell TPE-31
Power-to-weight ratio (%)	11.7	8.8	20.3	14.1
Maximum speed (km/h)	220	300	361	482
Cruising speed (km/h)	130	232	240	313
Range (km)	4000	1900 (est.)	7500	1900
Flight time (h)	20	24	25	14
Maximum flight altitude (m)	6858	7620	13,716	15,240
Hardpoints	4	6	8	6+1

The TB2's sensor suite consists of an electro-optical/infrared (EO/IR) turret, a laser designator, and a laser rangefinder. Together, these systems provide continuous ISR capabilities while also enabling semi-active laser guidance for the onboard weapons. Hungarian academic literature often describes the TB2 as the “Poor Man's Predator”. Although it has limited payload capacity, within its category, it stands out for its exceptional endurance, reliability, and extensive combat experience.³²

The TAI ANKA-S is the other key MALE platform. The ANKA family was originally developed as reconnaissance UAVs, but the ANKA-S variant is equipped with SATCOM capability and weapons, making it a quasi-strategic UCAV capable of sustained operations at altitudes of around 30,000 feet with an endurance of more than 24 hours.³³ Its payload capacity is greater than that of the TB2 (approximately 200 kg), allowing the integration of a wider range of sensors and weapons. While the TB2 has become decisive at the “tactical-operational” level, the ANKA-S is more closely associated with long-range, deeper ISR and strike missions.

³⁰ Hegedüs et al. 2023c, 36.

³¹ Maximum Take-off Weight.

³² Hegedüs et al. 2023b.

³³ Düz 2020.

Precision munitions: MAM-L, MAM-C, HGK, LGK

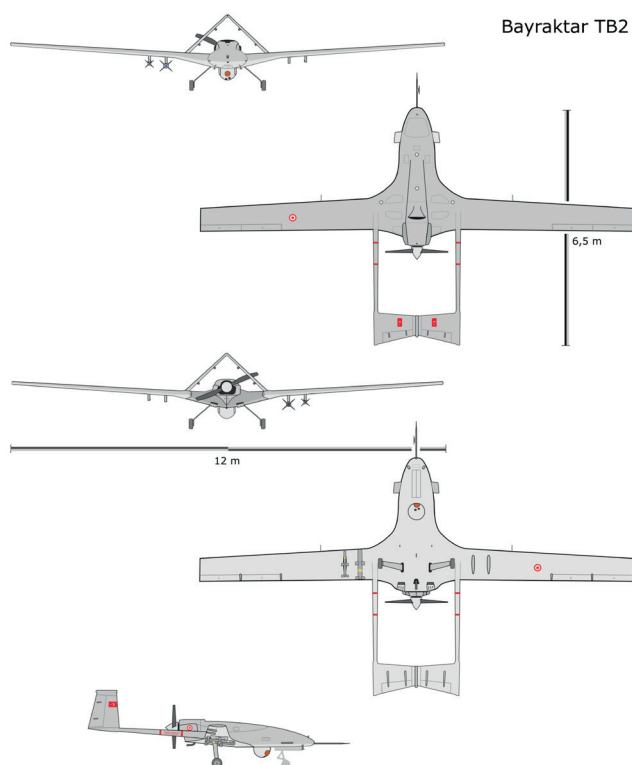


Figure 1 5-view drawing of a Turkish Bayraktar TB2 tactical drone in flight configuration. The craft is armed with an MAM-L bomb on an inner and an MAM-C bomb on an outer starboard hardpoint

Source: Alexpl via Wikimedia Commons

The success of Turkish drone warfare lies not only in the platforms themselves but also in the family of precision-guided munitions specifically developed for them. The MAM-L and MAM-C micro-munitions (Mini Akıllı Mühimmat – “mini smart munition”) developed by Roketsan are weapons optimized in particular for low-payload UCAVs such as the TB2 and ANKA.³⁴

The MAM-L weighs approximately 22–23 kg, has a range of 8–14 km, and uses semi-active laser guidance. It is available with several types of warheads, including shaped-charge (HEAT³⁵), high-explosive fragmentation, and thermobaric variants. The MAM-C is a smaller munition, weighing around 6–7 kg, with a shorter range but a similar guidance principle, designed primarily for lighter targets such as vehicles, light fortifications, and concentrations of personnel.³⁶ On the four hardpoints of the TB2, a typical loadout consists of a combination of 2–4 MAM-L and/or MAM-C munitions, allowing a single UCAV platform to conduct precision strikes against multiple targets on one sortie.

³⁴ Düz 2020.

³⁵ High-explosive anti-tank.

³⁶ Düz 2020.



Figure 2 Turkish MAM-L guided munition

Source: Kingbjelica via Wikimedia Commons

Beyond drones, the Turkish Air Force's traditional bombing capability has also been transformed through the use of precision guidance kits. The HGK-84 kit, analogous to the US JDAM family, converts the 2000-lb Mk-84 bomb into a GNSS/INS-guided, all-weather smart munition with a CEP³⁷ accuracy of around 10 meters. The KGK wing kit increases the range of Mk-82/83 bombs to up to 100 km, while the LGK³⁸ laser guidance kit adds semi-active laser homing capability to existing free-fall bombs.³⁹

Taken together, these weapon systems enable the Turkish Armed Forces to conduct coordinated precision strikes from different platforms – UCAVs, combat aircraft, and artillery. The TB2 and ANKA-S execute small, “surgical” strikes close to the front line, while bombs equipped with HGK/KGK/LGK kits allow the Turkish Air Force to carry out deeper, higher-intensity strikes as well.

Integration into the C4ISR system

A key feature of Turkish drone warfare is that the TB2 and ANKA platforms do not operate as isolated assets, but as components of a broader C4ISR (Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance) ecosystem. Over the past decade and a half, the Turkish military has gradually built a network-centric command and control system (TAFICS, ADOP-2000), in which various sensors (drones, AWACS,⁴⁰

³⁷ Circular Error Probable.

³⁸ Lazer Güdüm Kiti – Laser Guidance Kit.

³⁹ The latest Turkish defence breakthroughs you need to know about 2018.

⁴⁰ Airborne Warning and Control System.

and ground-based radars) and weapon systems (artillery, rocket artillery, and combat aircraft) are linked through a shared information network.⁴¹

An important element of this system is the KORAL electronic warfare complex, which is capable of jamming and deceiving enemy radars and air defense systems. In the Idlib region of Syria, TB2 and ANKA-S drones were specifically employed in “SEAD-type”⁴² operations supported by KORAL. The drones detected and then attacked elements of the Syrian air defense system based on Russian technology (Pantsir, Buk) using MAM-L and MAM-C munitions, while KORAL and other C4ISR assets reduced the effectiveness of enemy countermeasures.⁴³

In practice, this means that real-time video and targeting data collected by TB2 and ANKA-S drones are immediately available in joint operations centers, from where fire missions can be assigned to artillery, rocket artillery, or the air force. The drones, therefore, function not only as “flying weapon platforms” but as critical sensor nodes within the kill chain, linking reconnaissance directly to strike execution.

Doctrinal and Organizational Adaptation of the Turkish Armed Forces

The mass employment of drones within the Turkish Armed Forces required significant doctrinal and organizational adaptation. The experiences of Operation Euphrates Shield (2016–2017) –especially the armored losses suffered during urban combat in al-Bab, the limited availability of close air support, and the threat posed by IEDs⁴⁴/VBIEDs⁴⁵ – highlighted that the traditional model based on the triad of air force–artillery–ground forces was, on its own, insufficient against a hybrid adversary.⁴⁶

As a result of these lessons learned, Türkiye accelerated the doctrinal integration of drones. TB2 and ANKA platforms began to be employed not on an ad hoc basis, but in an institutionalized manner. UAV regiments and independent drone bases were established, while dedicated UAV companies were created within the land forces and the gendarmerie. TB2s are now used in parallel by the army, navy, air force, police, and the intelligence service (MIT), indicating that drones have become a genuinely joint, cross-service capability.⁴⁷

The execution of drone operations also requires specialized expertise. A typical TB2 mission is controlled by a three-person crew at the ground control station: a pilot, a sensor/weapons operator (payload operator), and a mission commander. The real-time video and data feed is available not only to this crew but also up the command chain, allowing target designation and fire authorization to be shared both vertically and horizontally. This model proved particularly effective on the Syrian battlefield, where rapidly changing tactical situations demanded a flexible and short “sense–decide–strike” cycle.

In doctrinal terms, the TB2 and ANKA platforms came to be employed in three primary roles:

⁴¹ Düz 2020.

⁴² Suppression of Enemy Air Defense.

⁴³ Ali Bakeer 2020.

⁴⁴ Improvised Explosive Device.

⁴⁵ Vehicle-borne Improvised Explosive Device.

⁴⁶ Yeşiltaş et al. 2017.

⁴⁷ Rossiter – Cannon 2022, 220–226.

1. ISR platforms, supporting the movement of ground forces, mapping enemy positions, and correcting artillery fire.
2. Precision strike assets, using their own onboard weapons to destroy armored vehicles, artillery systems, and command posts.
3. SEAD roles, operating in coordination with other capabilities (electronic warfare, fighter aircraft) to attack enemy air defense systems.⁴⁸

This threefold role gradually became embedded in Turkish operational thinking, and following the Syrian experience, it has reappeared in other theaters of operation as well – including Libya, Nagorno-Karabakh,⁴⁹ and Ukraine.⁵⁰

THE ROLE OF THE TURKISH ARMED FORCES IN THE SYRIAN CIVIL WAR

Turkish strategic objectives in Syria

In the initial phase of the Syrian civil war, Ankara's primary objective was regime change. The doctrine of "zero problems with neighbors" was quickly replaced by an approach in which Türkiye sought to act as one of the main supporters of the opposition to the Damascus regime and actively influence the outcome of the conflict.⁵¹ During the 2011–2013 period, Turkish decision-makers assumed that Assad's system would collapse relatively quickly, opening the way for the emergence of an Ankara-friendly, Sunni-dominated political order.

However, the protraction of the civil war, the rise of the Islamic State, and the strengthening of the Syrian Kurdish forces (YPG) gradually transformed Türkiye's priorities. After 2014, the logic of threat management increasingly moved to the forefront, first gradually and then more decisively, guaranteeing the security of border regions, preventing the territorial expansion of organizations linked to the PKK,⁵² and addressing the issue of millions of Syrian refugees.⁵³ A central concept in Turkish discourse became that of the "terror corridor" (*terör koridoru*). Ankara feared that YPG-controlled⁵⁴ governorates would become contiguous along the Turkish border, creating a de facto autonomous, PKK-friendly entity in northern Syria.

At the same time, the conflict became ever more closely intertwined with domestic political and security discourse. The anti-PKK operations conducted in Türkiye in 2015, the attempted coup in 2016, and the subsequent "logic of the state of emergency" all contributed to the Syrian war becoming an instrument for maintaining internal order, demonstrating national unity, and restoring the prestige of the armed forces. For the political bloc formed

⁴⁸ Kasapoğlu 2020.

⁴⁹ Szalkai – Daruka 2022.

⁵⁰ Ács 2025.

⁵¹ Siccardi 2021.

⁵² Partiya Karkerên Kurdistan – Kurdistan Workers' Party: a political-military entity registered as a terrorist organization by Türkiye, operating mainly in Türkiye.

⁵³ Van Veen 2021.

⁵⁴ Yekîneyên Parastina Gel – People's Protection Forces: a Kurdish armed group operating in northeastern Syria, which Ankara lists as a terrorist organization. The YPG provides the bulk of the armed forces serving under the Syrian Democratic Forces, an opposition to both the Assad regime and – at the time of the writing of this article – the current government.

by the ruling AKP and the nationalist MHP,⁵⁵ the military interventions in Syria – especially after 2018 – served simultaneously as a security-policy necessity justified by strategic arguments and as a source of domestic political legitimacy.

Turkish strategic objectives in Syria thus gradually crystallized along three interrelated axes:

1. Counterterrorism, primarily against the structures of the PKK/YPG and the Islamic State.
2. Border security and management of the refugee issue, including the concept of a 30-kilometer-deep “security zone” and plans to resettle part of the Syrian refugee population in northern Syria.⁵⁶
3. Regional influence and status-building, in which Syria became a key arena for Türkiye’s middle-power ambitions.

The involvement of the Turkish Armed Forces in Syria can be understood at the intersection of these objectives. Military operations served both immediate security needs (managing threats along the border) and the longer-term foundations of a more assertive, nationalist foreign policy trajectory.⁵⁷

Major Turkish military operations in Syria

From 2016 onward, Türkiye’s intervention unfolded in clearly delineated, named waves of military operations. These operations represent successive phases not only in geographical and chronological terms, but also with regard to the evolving role of drone warfare.

Operation Euphrates Shield was launched by Türkiye on August 24, 2016, and concluded on March 31, 2017. Its official objective was to expel the Islamic State from areas along the Turkish–Syrian border – particularly around Jarabulus, al-Rai, and al-Bab – while simultaneously preventing the linkage of YPG-controlled territories west of the Euphrates.⁵⁸ During the operation, regular units of the Turkish Armed Forces, operating in cooperation with Syrian opposition militias (FSA⁵⁹/SNA⁶⁰), recaptured border towns with the support of artillery and air power.

The decisive lesson of Euphrates Shield was that the Turkish military – especially in the vicinity of al-Bab – suffered significant armored and personnel losses as a result of anti-tank guided missiles (ATGMs) and VBIED attacks employed by the Islamic State, while coalition close air support (CAS) was only available to a limited extent. At this stage, drones were used primarily for reconnaissance and fire adjustment; the strike potential of TB2 and ANKA systems was only partially exploited. The operation’s after-action report explicitly highlighted the expansion of UAV employment as one of the key lessons for future operations.⁶¹

⁵⁵ Milliyetçi Hareket Partisi – Nationalist Movement Party.

⁵⁶ Siccardi 2021; Van Veen 2021.

⁵⁷ Siccardi 2021.

⁵⁸ Yeşiltaş et al. 2017.

⁵⁹ Free Syrian Army: Anti-Assad armed group allied with Türkiye.

⁶⁰ Syrian National Army: Anti-Assad militia allied with Türkiye, successor organization to the FSA.

⁶¹ Yeşiltaş et al. 2017, 13–20.

Operation Olive Branch, launched in January 2018, targeted the city of Afrin, which Ankara perceived as a security threat due to the organizational and ideological links between the YPG and the PKK. The objective of the operation was to eliminate the YPG's military presence along the western section of the Turkish–Syrian border and to bring Afrin and its surroundings under Turkish control.⁶²

Operation Peace Spring, initiated in October 2019, focused on territories east of the Euphrates in north-eastern Syria, particularly the areas around Tel Abyad and Ras al-Ayn. Its aim was to push the YPG southward away from the Turkish border and establish a 30-kilometer-deep “security zone,” which could also serve as a potential area for refugee resettlement.⁶³

Peace Spring generated significant international controversy. The partial withdrawal of U.S. forces, security arrangements brokered by Russia, and criticism from the European Union all indicated that Türkiye was pursuing an increasingly autonomous security policy trajectory in Syria – one that at times brought it into conflict even with its allies.⁶⁴

From the perspective of Turkish drone warfare, a true turning point came with Operation Spring Shield in Idlib in February–March 2020. The immediate trigger for the operation was a Syrian regime attack that killed dozens of Turkish soldiers. In response, Ankara launched a large-scale air campaign against regime forces, relying predominantly on drones.

Spring Shield proved successful for Ankara not only in operational terms, but also from doctrinal and reputational perspectives. As will be discussed later, it was during this operation that it became clear to the international community that Türkiye was capable of conducting an integrated precision campaign built around drones against a conventional army, while sustaining a relatively low casualty rate.

PRECISION STRIKES AND DRONE WARFARE

Afrin (Operation Olive Branch): target types, fire support, and the role of drones

Operation Olive Branch can be regarded as a transitional phase in the evolution of Turkish drone warfare. Drones were no longer merely “flying cameras,” yet they had not become the primary strike instruments of the operation either. Rather, they functioned as key components of an integrated fire support system through which Ankara simultaneously sought (1) to reduce the risks associated with ground advances and (2) to enable more selective, politically defensible use of force.⁶⁵

From an analytical perspective, Afrin represents a transitional phase rather than a fully mature model of Turkish drone warfare. The operation illustrates how UAVs began to move beyond a purely supportive ISR role, yet had not fully assumed the function of primary strike platforms.

⁶² The Operation Olive Branch and the US Policy in Syria 2018.

⁶³ Siccardi 2021.

⁶⁴ Siccardi 2021.

⁶⁵ Siccardi 2021.

This intermediate character is significant, as it demonstrates the gradual nature of doctrinal adaptation: operational concepts, command-and-control arrangements, and rules of engagement evolved incrementally in response to battlefield experience, rather than through a single, disruptive transformation.

Afrin's terrain and tactical environment were particularly conducive to the ISR functions of drones. On the mountainous, partially forested, and highly segmented terrain, many defensive positions and supply routes could only be identified through prolonged observation. The EO/IR sensors of the TB2 and ANKA platforms – especially the stabilized turrets combined with laser target designators – enabled “pattern-based” intelligence collection – not merely the identification of individual targets, but the detection of movement routines, timing patterns, peaks in vehicle traffic, and concealed logistical links.⁶⁶

Targets in Afrin can be grouped into four complementary categories:

1. Tactical defensive elements: trenches, bunkers, observation posts, and concealed firing positions. While some of these could be neutralized by conventional artillery fire, concealment, camouflage, and proximity to populated areas increased the value of drone-enabled target confirmation and precision strikes (or more accurately directed artillery fire).
2. Logistical lines and nodes: roads, temporary storage sites, vehicle assembly areas, and short-term “distribution points.” Although these targets were not necessarily visually striking, they decisively affected the endurance of the defensive system. Here, drones typically appeared in an artillery fire control role, identifying convoys or depots, and then guiding strikes through fire correction.
3. Engineering fortifications and obstacle systems: mined zones, IEDs, rubble, and road-blocks. In these cases, the advantage of drones lies not only in their ability to “see” the terrain, but also in reducing the exposure of reconnaissance patrols by operating ahead of ground forces, thereby assisting engineer units in selecting safer routes.⁶⁷
4. A limited but growing share of direct drone strikes: the Roketsan MAM-L and MAM-C micro-munitions (specifically optimized for MALE/UCAV platforms) appeared in Afrin, not merely in a demonstrative role. Drone strikes proved particularly suitable against targets where artillery posed excessive collateral risk or where rapid, time-sensitive intervention was required (e.g., briefly exposed vehicles or forward observation posts).⁶⁸

In Afrin, therefore, the principal contribution of drone warfare to ground forces lay in achieving superior situational awareness and fine-tuning the application of firepower. ISR data generated by drones effectively “closed” the fire cycle (reconnaissance → decision → fire → assessment), albeit still under the general dominance of artillery and conventional air power. This transitional model is significant because it directly paved the way for the next phase, the shift in the role of drones from a fire support function towards an autonomous strike logic.⁶⁹

⁶⁶ Düz 2020, 9–14.

⁶⁷ Düz 2020, 17–20.

⁶⁸ Hegedüs et al. 2023b.

⁶⁹ Rossiter – Cannon 2022.

North-eastern Syria (Peace Spring): the discourse of “surgical strikes” and the target structure

Operation Peace Spring (2019) is much more explicitly about the political and operational duality of Turkish precision strike capabilities. Turkish political communication emphasized action against “terrorist targets” and the use of “surgically precise” strikes, serving simultaneously as a legitimizing narrative (operations are not directed against civilians) and a capability-signaling message (Türkiye is capable of modern, precision warfare).⁷⁰ This discourse, however, can only be properly understood if set alongside the actual structure of targets and the dynamics of the proxy battlefield.

The frequent reference to “surgical precision” in Turkish political and military communication should therefore be understood less as a purely technical description and more as a strategic narrative. This framing serves to legitimize military action domestically and internationally, while signaling technological competence and escalation control.

Operational reality, however, reveals a more complex targeting environment in which precision weapons coexist with intelligence uncertainty, proxy involvement, and dual-use infrastructure. The concept of “surgical strikes” thus functions as a discursive tool that partially masks, but does not eliminate, the inherent frictions of proxy warfare.

The targeting logic of Peace Spring can be captured along three main axes:

*(1) Command and communications points (C2/C3)*⁷¹

One of the greatest advantages of drones in the north-eastern Syrian environment was their ability to conduct prolonged target surveillance (pattern of life analysis) and to confirm targets. Against command posts, temporary headquarters, and communication nodes, drones – following appropriate target identification – were suitable for rapid strikes with limited destructive effects, particularly using micro-munitions.⁷²

(2) Mobile targets: vehicle columns, resupply, troop movement

During Peace Spring, a significant share of targets was mobile in nature. Here, drones functioned not only as weapons platforms but as “sensor–fire control nodes,” tracking, designating targets, and then either conducting their own strikes (with MAM munitions) or cueing artillery or air strikes. For this category of targets, reaction time and continuous surveillance constituted the decisive resources.⁷³

(3) Warehouses, weapons depots, and logistical hubs (and the dual-use dilemma)

Storage facilities and depots often blended into civilian infrastructure (warehouses, industrial zones, facilities on the outskirts of settlements). Here, the tension between the “surgical” discourse and operational reality becomes acute, since even if a target is military in nature, its surroundings elevate the political and legal risks of a strike. Precision weapons may, in principle, reduce the likelihood of collateral damage, but they do not eliminate the risks stemming from misidentification, incomplete intelligence, or environmental factors.⁷⁴

⁷⁰ Siccardi 2021.

⁷¹ Command, Control, and Communications.

⁷² Rosenblatt – Kilcullen 2020, 61–62.

⁷³ Düz 2020, 20–21.

⁷⁴ Rossiter – Cannon 2022.

At this point, the proxy dimension comes into play. In Peace Spring, Ankara relied heavily not only on regular forces but also on the SNA. The proxy-war “principal–agent” problem is highly relevant here: the political objectives of the sponsoring state (Türkiye) and the local goals of the proxy do not always coincide, and abuses or indiscipline on the ground can politically compromise even the most precise strike operations. Within this framework, drone warfare simultaneously represented (1) a technical advantage (continuous ISR–strike capability), (2) a control mechanism (top-down oversight of the battlefield), and (3) a communication tool (buttressing the narrative of a “precise/limited” operation).⁷⁵

Overall, in the case of Peace Spring, the narrative of the “surgical” use of drones only partially captures the actual target structure. The reality is closer to a hybrid targeting system in which drones cover a broad spectrum – from command nodes through mobile targets to logistical infrastructure – all within a highly politicized, proxy-laden battlespace.

Idlib and Operation Spring Shield: the drone campaign, PGMs, and the “industrialization” of the kill chain

What distinguishes Operation Spring Shield from earlier Turkish interventions is not merely the scale of drone usage, but also the routinized, repetitive, and accelerated functioning of the kill chain. In this sense, the campaign can be described as the “industrialization” of drone-enabled precision warfare, in which detection, engagement, and assessment were conducted in a continuous, near-real-time loop.

Operation Spring Shield represents the methodological apex of Turkish drone warfare in the sense that this was the point at which drones became the primary operational strike instrument. The campaign in Idlib had a dual objective: to rapidly degrade the Assad regime’s offensive capabilities and to compel Moscow to accept a ceasefire arrangement while keeping Turkish escalation risks to a minimum.⁷⁶

At the core of the campaign were the TB2 and ANKA-S, flown in large numbers of sorties – an approach described by several analyses as a “drone blitz”.⁷⁷ Targeting in Idlib focused explicitly on the nodal points of the regime’s conventional combat power:

- armored vehicles (tanks, armored personnel carriers);
- artillery batteries and rocket artillery elements;
- air defense systems (particularly Pantsir and Buk);
- logistical hubs and command elements.⁷⁸

The essence of the operation was not sporadic drone employment, but the organized, accelerated, and repetitive functioning of the kill chain. In Idlib, the Turkish side effectively “industrialized” this cycle:

1) Reconnaissance (*find–fix*)

Drones remained persistently over the front lines, continuously generating data on mobile targets. Syrian government armored and artillery units, due to the nature of their offensive

⁷⁵ Rosenblatt – Kilcullen 2020, 5–7.

⁷⁶ Rossiter – Cannon 2020.

⁷⁷ Kasapoğlu 2020.

⁷⁸ Düz 2020, 22–23.

operations, inherently exhibited a higher “observability profile” (they had to maneuver and fire), which favored ISR effectiveness.⁷⁹

2) Targeting and decision-making (track–target)

During target identification and prioritization, drone video and sensor data could be rapidly exploited along the command chain. Different target types required different decision logics, as mobile armored units demanded faster reactions, while air defense targets required more cautious confirmation and often a “decoy–response” logic.⁸⁰

3) Engagement

This phase highlighted the importance of the Turkish micro-munition ecosystem. MAM-L and MAM-C enabled drones to conduct a large number of strikes using their own onboard weapons, while tube artillery and rocket artillery could simultaneously engage targets designated by drones. This “drone + ground fire” combination became one of the operation’s defining features.⁸¹

4) Assessment

Drones’ immediate battle damage assessment (BDA) capability further shortened the cycle, as after a strike, the same platform could re-observe the target and, depending on the outcome, initiate follow-on strikes. As a result, the “closure” of the kill chain occurred in near real time, which proved particularly effective against artillery systems and mobile targets.⁸²

A frequently cited factor behind the success of Spring Shield is the integration of electronic warfare and networked C2. The role of KORAL must be emphasized, as well as the fact that drone operations were not treated in isolation but within a true joint-force framework (EW, artillery, and supporting air components).⁸³ At the same time, one of the most frequently quoted lessons of Turkish drone warfare is precisely that MALE drones are inherently vulnerable on their own. The operation is truly effective only when drones operate within a system that at least partially suppresses, bypasses, or attenuates the air defense threat.⁸⁴

Effectiveness and military outcomes: success, adversary adaptation, and Turkish lessons learned

When assessing drone warfare in Syria, it is useful to distinguish clearly between tactical effects, operational outcomes, and the learning and adaptation responses of the adversary.

Tactical level

In Afrin, drones improved the accuracy of artillery fire, the quality of target identification, and the survivability of ground units. During Peace Spring, strikes against mobile targets and command nodes supported a higher operational tempo; while in Idlib, drones destroyed

⁷⁹ Rossiter – Cannon 2020.

⁸⁰ Düz 2020, 22–23.

⁸¹ Hehedüs et al. 2023c.

⁸² Düz 2020, 22–23.

⁸³ Bakeer 2020, 2–4.

⁸⁴ Bakeer 2020, 3–4; Düz 2020, 22–23.

a significant number of regime assets (armored vehicles, artillery, air defense systems) within a short period of time, producing an immediate tactical shock along the front.⁸⁵

Operational level

In Idlib, the campaign was not merely about “hitting many targets,” but also about breaking the momentum of the Syrian offensive and improving Ankara’s political–diplomatic bargaining position. After initial territorial losses, the Turkish operation halted further advances and steered the situation towards a ceasefire arrangement.⁸⁶ This marks the point at which drone warfare ceased to be merely a tactical innovation and became a strategic instrument. Military force, applied in a controlled manner and with relatively low own losses, generated pressure for negotiations.

Adversary adaptation

Syrian actors responded to the drone threat through several well-known measures:

- Dispersion and concealment: distributed deployment of vehicles, short halts, rapid relocation, and reinforcement of “shoot-and-scoot” practices.
- Camouflage and deception: camouflage nets, shelters, false positions, and decoys.
- Electronic countermeasures: jamming of data links, navigation interference, and localized EW solutions.⁸⁷

As a result, the effectiveness of drone warfare is not constant; it depends heavily on the density and sophistication of the air defense and electronic warfare environment.

Türkiye has channeled the Syrian experience in several directions:

- Platform and weapons development: the introduction of higher-payload UCAVs (e.g., Akıncı), further development of micro-munitions and guidance solutions, and the expansion of SATCOM connectivity.⁸⁸
- Organizational and doctrinal integration: drones are no longer treated as a separate “branch,” but as a capability integrated with artillery, EW, and command-and-control systems. This process can be described as a learning curve or “trial by fire,” in which Syrian experience feeds back into Türkiye’s overall operational thinking.⁸⁹
- Refinement of proxy-warfare practices: drones also function as tools for supporting and exercising control over proxies such as the SNA, mitigating information gaps and principal–agent tensions.⁹⁰

Taken together, the three case studies clearly illustrate how the role of Turkish drones evolved during the civil war. Afrin was primarily the terrain of ISR-based fire support and limited drone strikes; Peace Spring introduced the political–communicative framing of precision strikes and laid the foundations for cooperation with proxies; and Spring Shield delivered the accelerated, networked operation of the kill chain, in which drones emerged as the *de facto* backbone of the campaign.

⁸⁵ Van Veen 2021.

⁸⁶ Van Veen 2021.

⁸⁷ Rossiter – Cannon 2022.

⁸⁸ Düz 2020, 23–26.

⁸⁹ Rossiter – Cannon 2022.

⁹⁰ Rosenblatt – Kilcullen 2020, 6–9.

IMPLICATIONS AND LESSONS FOR TÜRKİYE AND THE INTERNATIONAL SYSTEM

Türkiye's precision strike capability – especially UCAVs and the associated ISR–C2–fire support architecture – represented a clear advance in Ankara's battlefield capabilities in Syria. At the same time, it became a defining element of Türkiye's force development, foreign-policy toolkit, and its ability to shape the *status quo* on the battlefield. Syrian operations provided a live “learning environment” in which Ankara simultaneously improved the speed of the kill chain, inter-service integration, and the management of expeditionary and proxy-type operations.

Turkish force development and doctrinal evolution

One of the most important consequences of the Syrian experience is that drone warfare did not remain a standalone “capability island,” but was gradually embedded in the Turkish Armed Forces' long-term strategy. The lessons are reflected not only in the growth of the number and range of drone types, but also in Ankara's increasing reliance on a network-centric operational logic with accelerated decision cycles. Also, shortening the kill chain became routine on the Syrian battlefield.

A key element of this process was the role expansion of drones. In practice, Turkish UCAVs functioned simultaneously as reconnaissance sensors, target-designation platforms, and strike weapon carriers, while being integrated with artillery, rocket artillery, and electronic warfare into a single system. This was particularly evident in Idlib. Although Operation Spring Shield was retaliatory in the short term, its strategic payoff was the stabilization of the boundaries between Turkish-held and regime-held territories – effectively fixing Ankara's “red lines” vis-à-vis the regime and Russia.

The spillover of doctrinal lessons to other theaters is likewise rooted in Syria. The literature frequently notes that without the Syrian experience, the rapid and confident emergence of the Turkish drone model in Libya and the South Caucasus would have been unlikely. The essence of the “Syrian model” is that Ankara was able to influence operational outcomes at relatively low risk to its own forces, using standoff methods based on drones and local partners/proxies. Early lessons from Syria were incorporated into later interventions driven partly by secondary interests (Libya, Nagorno-Karabakh), where drones delivered both tactical advantage and political prestige.

At the same time, the Syrian experience also highlighted a key limitation, as the success of MALE/UCAV platforms depends heavily on the nature of the air defense threat and the electromagnetic environment. Consequently, a hard doctrinal lesson for Türkiye was the need to deepen integration (EW, C2, artillery) and to move towards new drones with greater payloads and more advanced sensor suites (e.g., Akıncı).

The international reputation of Turkish drone technology

The Syrian deployments – especially Idlib in 2020 – generated significant combat-proven marketing value for Turkish drones. On the international arms market, one of the most important currencies of credibility is whether a system has demonstrated its effectiveness in real combat conditions. In the case of the TB2 (and to a lesser extent the ANKA), Syria served as a “showcase battlefield,” where drones not only conducted reconnaissance but

also delivered operationally meaningful precision strikes and, in some cases, proved capable of achieving results against air defense systems.

A tangible consequence of this reputational capital has been export success. According to Baykar's own statements, 36 countries have signed export agreements for the Bayraktar TB2, which in itself indicates that the TB2 has become a "global mass product" on the market for medium-capability, cost-effective armed drones.⁹¹ This reputation was further strengthened by the fact that the TB2 became attractive not only to authoritarian or developing states. In 2021, Poland announced the purchase of TB2s as the first NATO member to do so, and by 2024, the delivery of the full package had been completed – an important milestone in terms of European legitimacy.⁹² The striking performance of TB2 drones employed by Kyiv during the early phase of Russia's 2022 invasion of Ukraine likewise provided excellent publicity for Ankara.

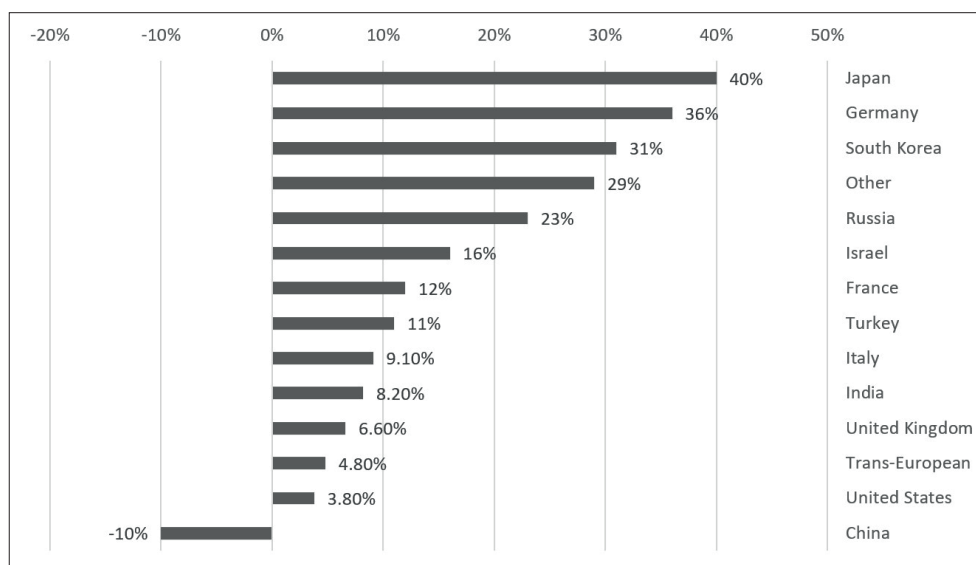


Figure 3 *Percentage change in the arms revenues of companies in the SIPRI Top 100 by country, 2023–2024*

Source: Created by the author based on: Scarazatto et al. 2025, 2.

Another reputational dimension of the Syrian “proof of concept” is that Türkiye has become a model middle power in the eyes of certain states. Drone-supported, networked precision strike operations offer a capability package that can partly substitute for expensive manned air forces and complex weapon systems that heavily depend on great powers. By the mid-2020s, this interest had also materialized in industrial cooperation. Baykar's European presence, for example, was strengthened by the acquisition of the Italian Piaggio Aerospace and by planned cooperation with Leonardo, suggesting that the Turkish drone

⁹¹ Baykar 2025.

⁹² Reuters 2021.

industry may gradually move from the role of a “peripheral supplier” towards that of a partner within certain European defense ecosystems.⁹³

At the same time, this reputation is ambivalent. Drone exports and the Turkish “no-strings-attached” approach – highlighted in several analyses – do increase Ankara’s influence, but they also generate controversies related to proliferation, conflict escalation, and arms export regulation.

The Modification of the Dynamics of the Syrian Civil War

In Syria, Türkiye’s precision strike capability altered the balance of power on several levels. At the tactical level, drones and precision-guided munitions reduced the exposure of Turkish and proxy forces. Continuous ISR coverage over the front line and rapid strike capabilities enabled Ankara to selectively degrade certain capabilities of Damascus or the Kurdish militias (armored vehicles, artillery, logistical hubs).

At the operational-political level, drones reshaped the concept of “local air superiority.” During Operation Spring Shield, Türkiye did not establish sustained air superiority in the classical sense; instead, it achieved a form of “functional superiority” concentrated in specific time windows and target areas. This proved sufficient to halt the advance of Syrian government forces and influence the negotiation dynamics. One of the operation’s key effects was precisely that it created a new balance between Turkish forces and Russian-backed regime units, effectively turning northern Idlib into a de facto Turkish protectorate for as long as the Turkish military presence remained.

At the systemic level, Turkish drone warfare contributed to the deepening of the Syrian conflict’s “multi-layered” nature. While the theater remained multipolar – comprising states, proxies, and non-state armed groups –, the possession of precision drone capabilities provided Ankara with a tool that supported tighter control over proxies, rapid response, and the maintenance of the local *status quo*. For Türkiye, Syria thus generated a new foreign policy toolkit that later appeared in other regions as well.

All of this also feeds back into the international system. The proliferation of drones lowers the entry threshold for precision strike capabilities, potentially encouraging more middle powers to pursue harder power politics while accepting only limited risk. At the same time, Syrian – and subsequently especially Ukrainian – experience also indicates that drone superiority is not absolute. Adversary adaptation (camouflage, dispersion, electronic warfare, layered air defenses) gradually raises costs and reduces the “dramatic” effect. Accordingly, the durability of the Turkish model depends on Ankara’s ability to sustain technological and organizational integration and adapt to the rapid spread of counter-drone capabilities.

CONCLUSIONS

Türkiye’s drone technology and the associated precision strike capability in Syria did not merely appear as a new weapons system; they fundamentally reshaped both the Turkish Armed Forces’ way of warfare and the political room for maneuver of Türkiye’s involvement in Syria. The TB2 and ANKA/ANKA-S platforms, the MAM-L/MAM-C micro-munitions, and the integration of ISR–C2–artillery–electronic warfare demonstrably shortened

⁹³ Reuters 2025.

the kill-chain cycle in practice. As a result, the role of drones in Syrian operations gradually shifted from an early, supporting ISR function towards that of a primary strike platform.

On the basis of the analysis presented in this study, the following conclusions can be stated with a high degree of confidence:

- (1) Türkiye's precision strike capability in Syria is not an isolated technological innovation, but the outcome of a learning process closely linked to defense industrial autonomy ambitions and doctrinal adaptation within the armed forces.
- (2) The impact of drones is most clearly captured in the TAF's ability to sustain and enforce their interests at lower political and personnel risks, particularly in environments where the establishment of sustained, costly classical air superiority was not feasible.
- (3) Drones and precision strikes functioned as tools for modifying the local balance of power in the Syrian conflict. Within short time windows and in specific areas, Türkiye was able to create "functional superiority," influencing both front-line dynamics and negotiating positions.

It is important to emphasize that, like all analyses dealing with armed conflicts in the Middle East, this article also encounters clear limitations. A significant portion of reporting on the Syrian conflict carries an inherently propagandistic tone, as the various actors (state institutions, proxy groups, external sponsors) publish divergent casualty figures and success indicators, while visual evidence (footage, social media material) may be selective, decontextualized, or post-edited. Moreover, the case-study-based approach itself imposes constraints. Afrin, Peace Spring, and Idlib represent markedly different operational environments, meaning that conclusions drawn from them can only be cautiously generalized to the Syrian war as a whole or to other theaters of conflict.

At the same time, the findings presented here should not be interpreted as evidence of a universally applicable or permanently dominant model of warfare. The effectiveness of Turkish drone operations in Syria was contingent upon specific contextual factors, including fragmented air defenses, favorable geography, and the ability to combine UAVs with electronic warfare and artillery support.

Consequently, the "Turkish drone model" should be understood as a context-dependent solution rather than a blueprint that can be mechanically replicated in all conflict environments.

There are, however, two areas which, in my view, offer particularly promising avenues for further research. The first is an international comparison. Systematically comparing Turkish drone warfare with the approaches of the United States, Israel, Iran, or those observed in the Russo-Ukrainian war would help to distinguish more precisely what constitutes universal patterns of drone warfare (e.g., acceleration of the kill chain, ISR dominance) and what can be considered specifically Turkish characteristics (e.g., proxy integration, a "low-cost air force" logic, export-oriented industrial policy). The second is the deepening of quantitative analysis. Statistical examination of the relationships among strikes, target types, timing, operational outcomes, and adversary adaptation (using open-source event databases, geolocation, and time-series trends) could provide a stronger empirical foundation for conclusions regarding both effectiveness and limitations.

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Krisztián Végh, Oszvald Viktor Juhász

TOOLS OF SUPPORTING RISK AVOIDANCE IN MODERN WARFARE: DRONES – DOES NOVEL WARFARE PRESUPPOSE NOVEL LOGISTICS?

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ABSTRACT: *In modern conflicts, unmanned aerial vehicles (UAVs) have become central instruments of risk-averse warfare, enabling the conduct of reconnaissance, strike, information gathering, and electronic operations without the direct endangerment of human life. The study presents the rapid development of drone technology and highlights the significance of the emergence of autonomous capabilities. The employment of drones not only provides operational advantages but also fundamentally transforms the logistical dimension of warfare. The central focus of the research is the assumption that the effective employment of drone-based warfare can be ensured through a decentralized, adaptive, and technology-oriented logistics system. We achieve this by doctrinal comparison, coupled with and proven by published, real-life experience. The authors also emphasize the new technology-oriented and adaptive logistics that must be the basis of future planning processes.*

KEYWORDS: *modern warfare, risk-averse operations, unmanned aerial vehicles, military logistics, sustainment*

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INTRODUCTION

The security environment of the 21st century has undergone a fundamental transformation, in which the boundaries between conventional and unconventional warfare have gradually become blurred. As early as 2018, NATO stated that “we face a dangerous, unpredictable, and fluid security environment, with enduring challenges and threats from all strategic directions; from state and non-state actors; from military forces; and from terrorist, cyber, and hybrid attacks.”¹

Armed conflicts and wars have never been waged for their own sake. Behind every form of confrontation lies a political, economic, or social objective, the achievement of which is pursued through the organized use of violence.

¹ Brussels Summit Declaration 2018, 2.

At the same time, understanding the inherent laws of modern warfare is impeded by the perception of war as a phenomenon, conceived by the image commonly held in public thinking, as manifesting strictly through campaigns, operations, and battles. This image fundamentally reflects the characteristics of direct warfare. Public perception generally equates war with direct (maneuver-centric) warfare.

However, if the attritional characteristics of indirect (resource-centric) warfare are taken into account, complemented by the opportunities inherent in modern technology, the information domain, cyberspace, and the media, a system of instruments emerges that makes it clear that achieving the objectives of war no longer necessarily or exclusively depends on the destruction of the adversary's military forces or the occupation of territory.

From a practical perspective, modern conflicts can also be interpreted as the aggregate of effects produced in pursuit of objectives. The range of activities supporting these effects, primarily as a result of technological development, has undergone a significant transformation in recent years. For these reasons, we ourselves maintain that military and non-military instruments, complementing and reinforcing one another, serve the realization of strategic objectives, the achievement of which hinges on a carefully selected combination of effects. Such complex effects may focus, for example, on influencing the adversary's decision-making, gaining information superiority, undermining societal morale, or directly dismantling the opposing party's military capability. These effects, in turn, are functions of the successful execution of specific actions. In this study, the examination of the means employed in such actions focuses on UAVs.

In our view, the examination of this topic may contribute to the correct determination of the level, areas, and means of defense or protection. Furthermore, our objective is to analyze potential risk-avoidance aspects of modern warfare, including the logistical support of operations, in order to highlight possible differences and propose new approaches to the implementation of logistical support.

Methodologically, the study applies a qualitative, comparative analytical approach. It combines doctrinal analysis of NATO sustainment concepts with examination of contemporary operational experiences – primarily derived from the Russo–Ukrainian conflict – in order to identify structural differences between conventional and drone-based warfare logistics. The research does not aim to provide quantitative modeling; rather, it seeks to establish a conceptual framework that supports adaptive and risk-averse logistical thinking in modern warfare.

For the purposes of this study, the term 'drone' is used as a general designation, while 'unmanned aerial vehicle' (UAV) is applied in a technical sense.

TOOLS OF RISK AVOIDANCE IN MODERN WARFARE: DRONES

Conflicts of the 21st century, such as the Russo–Ukrainian conflict, ongoing since 2014/2022, are often characterized as complex hybrids of attritional warfare, conventional warfare, or multiple proxy relationships. Alongside traditional military power, the exploitation of information warfare, cyberattacks, disinformation, and propaganda has become increasingly evident. These instruments, similarly to cyber warfare, are inherently risk-averse in nature. They are capable of achieving objectives independently or of complementing and reinforcing the effects of conventional military operations, thereby supporting the attainment of strategic goals.

In the context of this study, risk aversion is interpreted not merely as casualty avoidance but as a multidimensional operational principle encompassing the reduction of human exposure, the minimization of critical vulnerabilities within support systems, and the deliberate dispersion of decision-making and sustainment nodes. Consequently, risk aversion functions as an active force-shaping mechanism rather than a purely defensive posture.

Drones, as autonomous weapon systems, essentially embody the “post-heroic” mindset.² Their risk-avoidant character manifests on multiple levels:

- Elimination of physical risk: the most evident factor in the employment of drones is the complete absence of direct human presence in the target area.
- Psychological distancing: the military application of artificial intelligence – particularly in the case of autonomous systems – removes humans from the battlefield not only physically but also psychologically, which may lead to the objectification and dehumanization of the adversary.³

The employment of drones can be regarded as one of the most important instruments of risk avoidance, alongside cyber capabilities. Drone technology enables the execution of tactical, operational, and strategic level activities, including reconnaissance, strike operations, electronic disruption, psychological, information, or deception activities, while operational effectiveness is not diminished but rather enhanced. This, in turn, allows commanders to assume greater risks.

Consequently, the deployment of drones does not merely provide a tactical advantage but also serves as a protective umbrella: their use makes it possible to avoid direct human confrontation while sustaining pressure and influence, as well as the destruction of the adversary’s military capabilities.

THE EVOLUTION OF DRONES

With regard to the drone toolkit, the combat employment of COTS⁴ drones does not represent a really new phenomenon, as they appeared in the arsenals of non-state and terrorist groups shortly after the turn of the millennium. Their initial use focused primarily on close-range ISR⁵ tasks among other roles. They were also employed to guide S/VBIEDs⁶ toward unobstructed targets by exploiting the advantages of real-time live video feeds from a safe distance.

Concurrently, the concept of delivering various types of IEDs by drone emerged. This idea was subsequently further developed, and with the increase in drone payload capacity, the precise employment of HEAT⁷ charges against armored targets also became feasible. At present, a significantly broader range of application modes is known, which are fundamentally attributable to the availability and adaptability of COTS drones.

² Luttwak 1995.

³ Johnson 2022.

⁴ COTS: Commercial Off-The-Shelf.

⁵ ISR: Intelligence, Surveillance, Reconnaissance.

⁶ S/VBIED: Suicide/Vehicle-Borne Improvised Explosive Device.

⁷ HEAT: High-Explosive Anti-Tank.

The Russo–Ukrainian conflict has drawn particular attention to drones modified for strike missions and equipped with various explosive devices. Initially employed at short, tactical ranges, these systems enabled the delivery of explosive payloads along non-ballistic, adaptable flight paths, with variable speed and altitude, followed by the detonation of the payload in close proximity to the selected target.

The multitude of attacks presented online as successful, their observable effects, and the minimal risk associated with their employment have drawn global attention to the potential inherent in drones. As a result, their continuous presence on the modern battlefield is now accepted as ubiquitous. According to the lessons drawn from daily reporting, not a single day passes in the Russo–Ukrainian conflict without the deployment of drones.

The initial capabilities of drones have undergone extraordinary development. First, advancements are evident in their range and operational altitude; second, their early ISR and short-range task sets have been expanded to include the capability to designate and adjust targets for artillery strikes. Strike operations conducted with OWA⁸ drones now pose threats to critical infrastructure at strategic depth,⁹ while their employment has also been extended to include EW-related¹⁰ mission sets.

Experience from the Russo–Ukrainian conflict indicates that the capabilities of drones employed by Ukraine are largely comparable to those of the opposing side, particularly in terms of their operational use, and in several cases, their innovations have preceded Russian developments.¹¹ Particular attention should be given to loitering munition (LM) systems of various ranges, which are drones optimized for strike missions and, depending on the type, possess autonomous target acquisition, identification, and limited decision-making capabilities.¹² Notably, the achievement of all these capabilities required less than two decades.

Machine-based decision-making capabilities, such as those of drones supported by AI¹³ and sensor systems, appear to be one of the driving forces of technological development. However, they already raise questions concerning human decision-making, particularly from the perspective of risk avoidance.¹⁴ In this regard, key issues include target identification and engagement, as well as positioning¹⁵ in GNSS-D¹⁶ environments and the Return-to-Home function, which serves as a system safety response in the event of communication disruption. Among these functions, target identification and destruction are especially sensitive, carrying significant ethical and strategic dimensions, as they directly affect the protection of human life, the allocation of responsibility in decision-making, and the extent of military risk-taking.

In practice, drones primarily serve to reduce operational risks, as they enable intervention without endangering human life. At the same time, however, the automation of decision-making introduces new types of political, military, and moral risks since the link between action and responsibility may become blurred.

⁸ OWA: One-Way Attack.

⁹ Kovács 2024.

¹⁰ EW: Electronic Warfare.

¹¹ Pettyjohn 2024.

¹² Végh – Daruka 2025.

¹³ AI: Artificial Intelligence.

¹⁴ Lucas 2017.

¹⁵ Boda 2022.

¹⁶ GNSS-D: Global Navigation Satellite System Denied.

Based on the level of human supervision, drones can be divided into three main categories:¹⁷

- Remote-Controlled (Human-in-the-Loop): One operator usually controls one drone. If there are multiple drones, several operators handle their respective units. This is the conventional method that is still in use for the most valuable assets.
- Automated (Human-on-the-Loop): The drone flies along a set route or task. A person supervises the operation and can intervene or stop the mission if needed.
- Autonomous (Human-out-of-the-Loop): The swarm acts as an independent entity. It uses AI and machine learning for target selection, navigation, and task allocation. It can also adjust to changes in the environment without needing further instructions from a human.

From an ethical and strategic perspective, the expansion of autonomous decision-making capabilities introduces a critical tension between operational efficiency and accountability. While autonomous systems may significantly reduce reaction times and human exposure, they simultaneously complicate the attribution of responsibility, particularly in cases of misidentification or unintended collateral effects. This ethical ambiguity represents a latent strategic risk that may undermine the political legitimacy of military operations, even when tactical objectives are successfully achieved.

The first type represents a typical example of risk-averse operation, as it maintains human control and thereby reduces the likelihood of bad decisions and unintended consequences. In contrast, the third model seeks to enhance rapid response and efficiency by expanding decision-making autonomy at the expense of human control, thereby generating new and more difficult-to-manage security and ethical risks. This aspect is likely to become a major issue in the near future.

The security environment of the 21st century is characterized by the blurring of boundaries between conventional and unconventional warfare, creating new types of multidimensional challenges for decision-makers and operational planners.

We maintain that drones are capable of providing numerous advantages to their users. However, in parallel, they also generate a range of issues, at times ethical or technical in nature, and at other times highly practical, such as the logistical support of drone operations. Accordingly, in the following sections, we examine how the logistical support of operations conducted with drones is structured, what conditions it requires, and, based on these considerations, we formulate principles and requirements for the development and implementation of adaptive, appropriately flexible logistics.

LOGISTICAL SUPPORT SYSTEM FOR DIFFERENT FORMS OF WARFARE

To illustrate the specifics of the logistical support of modern warfare and highlight and understand its differences, we consider it worth briefly introducing the logistics support of conventional warfare in the theatre.

At the doctrinal level, in NATO, the definition of logistics used to be as follows:

¹⁷ <https://uav-defence.com/the-future-of-autonomous-drone-swarms-in-modern-warfare/>

“Logistics is the science of planning and carrying out the movement and maintenance of forces. In its most comprehensive sense, the aspects of military operations which deal with:

- design and development, acquisition, storage, movement, distribution, maintenance, evacuation and disposition of materiel;
- transport of personnel;
- acquisition, construction, maintenance, operation and disposition of facilities;
- acquisition or furnishing of services; and
- medical and health service support.”¹⁸

It is worth noting that the newer AJP-4 doctrine now uses a broader concept of sustainment as an umbrella term, which includes logistics, but also treats personnel, medical support, military technical support, finance, and contractual support as separate functions. It defines sustainment as “the provision of personnel, logistics, medical support, military engineering support, finance and contractor support necessary for Alliance operations and missions.”¹⁹

The former document interprets logistics quite broadly. It says that logistics is “the science of planning and carrying out the movement and maintenance of forces”, so it treats logistics as a kind of umbrella term, which includes almost all non-combat, support activities necessary for the maintenance of combat forces. The latter AJP-4 doctrine, which is already about “Sustainment of Operations”, gives a much narrower definition of logistics. The most obvious difference is that the new definition lacks an explicit mention of the entire life cycle of materiel (design, development, scrapping), a focus on personnel transport, a list of detailed activities related to facilities, and, most importantly, medical support. The new definition focuses on four key activities: supply, movement, maintenance, and services.

The difference between the two definitions is not only at the level of words but also reflects a fundamental doctrinal rearrangement. Instead of the previous, very broad concept of logistics, NATO has introduced a more differentiated “sustainment” framework based on several independent functions, in which logistics appears as an important element that no longer includes everything else. This change is likely to build on operational experience and a better understanding of the specifics of different support areas, more in line with the increased civilian presence in modern warfare.

In accordance with the new doctrinal principles, the principles of logistical support are as follows:²⁰

- Responsiveness to requirements: Sustainment planning and execution should be oriented towards the current and anticipated needs of an operational commander.
- Reliability: Assured sustainment is critical to the success of operations. Availability and delivery of sustainment should be resilient to the effects of degradation, competition, and diverse threats and hazards.
- Collective: Collective sustainment is undertaken by NATO and individual allies to cooperatively plan, generate, deconflict, and synchronize the provision of sustainment for an operation.
- Unity of effort: Sustainment is achieved through cooperation, collaboration, interoperability, interchangeability, integration, and shared visibility at all levels and across all

¹⁸ NATO Standardization Office 2018.

¹⁹ NATO Standardization Office 2025.

²⁰ NATO Standardization Office 2025.

- domains. This enables the optimization of national, multinational, and collective sustainment resources to provide a seamless transition from peace to crisis and/or conflict.
- Integrity & ethics: Sustainment should be executed in a manner that is consistent with the NATO code of conduct, including accountability and the responsible use of resources, to maintain moral legitimacy and preserve integrity in relationships with diverse stakeholders upon which sustainment depends. Sustainment relies heavily on military and civil support; consequently, its operations could be severely impacted by corruption and other unethical behaviors.

It is very important to highlight that, in line with the moral courage dimension of risk-averse warfare, the principle of “Integrity & ethics” appears among the principles of sustainment, requiring that sustainment be carried out responsibly and ethically in accordance with NATO values. This includes accountability and careful management of resources to maintain moral credibility and prevent corruption. Although the aim of this publication is not to analyze the change in logistics approach, it is important to emphasize that adaptation to the special requirements of drone warfare has already taken place on a doctrinal level. It is also important to emphasize that logistics should not be treated as an independent entity or as a sub-capability element broken down into parts.²¹

LOGISTICAL SUPPORT FOR CONVENTIONAL (LINEAR) WARFARE

As mentioned in the introduction, drone warfare is often referred to as “unconventional.” For this reason, we will briefly introduce what characterizes the logistical support of conventional warfare.

The theatre of war, or operational area in modern terminology, is never just a thin line on a map. Rather, it is a complex, deeply articulated, multi-layered system, which is made up of geographically and functionally distinct bands. Understanding this structure is fundamental to the planning and conduct of operations. In geographical terms, the battlefield can be divided into several zones by moving backwards from the line of contact (i.e., the *Forward Edge of the Battle Area* – FEBA). At the very front is the tactical zone, where direct combat takes place. This is the area of maneuvering forces (armored vehicles, mechanized infantry) and direct fire support artillery, where the goal is to physically combat enemy forces and take possession of territory. This is where the defensive positions, minefields, and lower-level, outpost combat positions can be found.

Behind this zone lies the much deeper operational zone, which is the actual “engine room” of operations. Although direct combat is less frequent here, its strategic importance is invaluable. It is home to higher-unit headquarters, key logistics centers (bases), field hospitals, and airports. It plays a critical role in deploying operational reserves that are ready to take advantage of a breakthrough or eliminate enemy infiltration. This zone is the launch area for long-range fire strikes (e.g., ballistic missiles, rocket artillery) but is also their target area (!).

Finally, the strategic zone (i.e., the hinterland) is inseparably linked to the battlefield. This will provide the industrial capacity to sustain the war effort, the training of recruits, and the political-military leadership at the national level.

²¹ Juhász 2025.

However, these geographical zones of the theater of war are networked and operated by three basic functional systems. The first is the combat system (in American doctrine, the *Movement and Maneuver* and *Fires* battlefield functions). The second is the Command and Control (C2) system. This is the “nervous system” of the battlefield, which consists of the commanding positions and the communication networks connecting them. The eyes and ears of this system are the ISR devices that were partially presented earlier, from drones through satellites to radio electronic interception. The task of the C2 system is to continuously maintain situational awareness and to deliver commands to the implementing elements. The third is the logistics and maintenance system (*Sustainment*). This is responsible for ensuring that the combat elements are constantly supplied with ammunition, fuel, food, and spare parts. The backbone of the system is the Lines of Communication (LOC) running from the strategic zone to the tactical zone, which are closely linked to technical and medical support.

In summary, a theater of war is a dynamic system, where the success of battles in the tactical zone is fundamentally determined by the efficiency of the C2 and logistics systems operating at the depth of operations. Thus, in a theatre set up for linear, conventional warfare, the logistical support system takes the shape of a theatre of war and develops a full support capability in its depth and breadth. This is done in several stages:

- by supplying the combat subunits with their own logistical stocks;
- by the establishment of forward logistics bases corresponding to the size and needs of the subunits to be supported;
- by battlefield supply bases.

The location of the various supply bases, their responsibility for supply by materiel type²² or classes of supply,²³ as well as the size and composition of the stocks to be established and maintained by them are determined by the logistical part of the operational order (either organically or in an annex), fitting into the basics of the command concept and the pace of operations. In military operations, one of the main objectives of the enemy, in addition to withdrawing the fighting forces from combat, is to obstruct and destroy the logistical support system. In order to increase survivability, supply must be decentralized as much as possible, more (main, alternate, transverse) supply lines must be planned, logistical stocks must be dispersed, the mobility of individual elements must be increased, active and passive camouflage devices and procedures must be used, and efforts must be made to increase redundancy as much as possible.

However, it must be seen that no matter how much the battlefield logistics leadership strives to use them to increase survivability, since the forces to be supplied are in one place and in large numbers, higher-level supply points have correspondingly larger stocks in one place, so a higher supply turnover is expected both at the beginning and at the end of the support chain. In addition, to facilitate planning, supply is carried out at a predetermined time and in large quantities for a lot of logistics materiel or many classes of supply, especially in the case of easily standardized demands. Taking all this into account, it can be stated that in the case of linear warfare, no matter how much we strive to increase survivability,

²² 20/2021 (V. 19.) Decree by the Ministry of Defence on the Order of the Budgetary Management of National Defence Organisations, Annex 1.

²³ NATO Logistics Handbook 2025, Appendix A.

due to the characteristics of the forces to be supplied, great damage and disruptions can be caused in logistics supply in some places, in case of appropriate enemy reconnaissance.

DRONE OPERATIONS – SPECIFICS OF LOGISTICAL SUPPORT FOR RISK-AVERSE WARFARE

As we have previously shown, one of the basic characteristics of drone warfare is long-range (indirect) warfare. Drone pilots are farther away from the site of the strike, so the controllers are separated from the target on the battlefield. The absence or blurring of front lines is also typical. The use of drones allows controllers to be constantly present on the battlefield without having to hold definite front lines. The drones used in the Russo-Ukrainian conflict have a range of 4–8 km to even 1400–4000 km, so they can attack targets at strategic depths.

A really important factor is the asymmetrical location. While in linear warfare, both sides are physically present on the battlefield, in drone warfare, one of the parties (the drone operator) participates from a distance, and only the equipment is physically present.

One of its peculiarities is the emphasis on the vertical dimension in the management of the ground forces, as well as its impact on air force activities due to the saturation of the airspace. Until now, explosives from the ground forces could be delivered to the enemy targets mainly through ballistic trajectories, and defense against these devices was very expensive. With the use of drones, the method, time, and spatial projection of explosives have changed, and protection against them also requires new methods and tools.

Taking all this into account, it can be seen that the logistical support for operations carried out with the mass deployment of drones should differ significantly from the classic patterns of linear warfare, especially in terms of theatre location, material supply needs, supply infrastructure, and risk aversion. In conventional warfare, logistics operate as a centralized system that requires a significant amount of personnel, munitions, fuel, food, and other supplies to be concentrated in one place. In contrast, drone-based warfare requires a decentralized and adaptive logistics strategy that reduces the need for mass logistics supply in line with operational needs, ensuring supply in a dispersed structure through smaller logistics bases.²⁴ Risk aversion is present throughout this first dimension: the dispersion of the supply system fundamentally reduces the losses during an attack and the exposure to operational critical points.

The logistics system for drone warfare should be designed in a fundamentally decentralized manner, which is directly linked to the principles of a risk-averse strategy. The infrastructure needed to launch, control, and maintain drones – such as a command center, control units, and charging stations – is mostly geographically separated, often hidden or mobile.²⁵ This arrangement is beneficial in reducing the vulnerability of logistics targets and significantly increases resilience. With more independent, flexible logistics depots, it is more difficult for the attacker to disrupt the supply chain, which greatly improves the survivability of the system.²⁶ The decentralized structure allows the entire logistics system to be less detectable by the enemy, which becomes another critical dimension of risk aversion.

²⁴ Preston 2020.

²⁵ Peck 2025.

²⁶ Camargo 2025.

In this case, there is no need for supplies affecting thousands of soldiers in a small area as opposed to linear warfare involving the front line. The experience of the Russo-Ukrainian conflict shows that drones are often controlled by remote operators who are not necessarily at the scene of the fighting, so there is no need for large amounts of food, water, medicine, or personal equipment directly near the front line. This striking difference in the scope and nature of logistical support fundamentally changes the logic of the organization of supply. The logistics supply system will have to concentrate mainly on technological components, batteries, repair equipment, software updates, communication infrastructure, and very little fuel – technological supplies will become a priority instead of traditional munitions.²⁷ As a result, the weight of logistics shipments is significantly reduced, and transport requirements are substantially simplified, which directly reduces the physical presence of logistics units (electromagnetic and physical signature) and thus the risk of discovery.

One of the bases of this type of logistical support is the security of energy supply,²⁸ which is a special aspect of this risk-averse approach mentioned above. Since the operation of smaller drones and control centers requires electricity, charging stations, and batteries, energy supply must be a priority. Logistical planning of energy storage, such as portable or modular batteries, opens up new supply tasks – especially in a risk-averse theatre where disrupting and eliminating energy supplies is more important than attacking actual manpower. The dispersion of energy supply units is fundamentally different from a centralized supply model operating with high resource consumption; therefore, a distributed energy storage system is necessary for the strategic implementation of risk aversion. Additionally, the independence of energy sources reduces the vulnerability of the supply chain: if one energy point is damaged, the others can continue to operate independently. Devices for electromagnetic protection (e.g., anti-interference protection solutions, communication redundancy) must also become part of the logistical supply, as they ensure the operational continuity of the system.

Instead of traditional, large, front-line logistics bases – where significant amounts of supplies, vehicles, weapons, and personnel are stored – drone warfare requires decentralized, dispersed, mobile logistics points. These bases have a smaller capacity, can be relocated quickly, and often the necessary infrastructure is only deployed for a short period of time (e.g., for start-up). In the Russo-Ukrainian conflict, the parties have learned that static logistics depots become preferential targets for drone-based attacks. According to theories, the parties are already exposed to drone attacks 20 miles behind the front line.²⁹ This realization has fundamentally transformed logistics thinking. Supply models that take full advantage of mobility reduce the vulnerability of bases and allow logistical support to adapt to current tactical challenges.³⁰ The logic of supply routes must also change: movement between bases is faster and more flexible, so routes must not be fixed, but change on demand and quickly, which thus becomes an integral part of risk reduction.

In drone warfare, the use of autonomous logistics units, such as automated supply drones, which can deliver spare parts, fuel, or food to units close to the front, can be of particular importance. Autonomous transport systems minimize human presence in hazardous areas and increase supply chain redundancy. The autonomous supply approach basically contrib-

²⁷ Thornton – Gallasch 2018.

²⁸ McLachlan – Goodson 2025.

²⁹ McLachlan – Goodson 2025.

³⁰ Müller – Sumlenny 2025.

utes to risk aversion because human pilots and machine operators are not directly exposed to battlefield danger.³¹ The use of a decentralized logistics system, diverse transport routes, and autonomous devices significantly increases the resilience of the supply chain. With the use of redundant, almost unlimited air supply routes and small mobile depots, the loss of a logistics point or a means of transport does not paralyze the entire operation. This is especially important in asymmetric warfare, where the enemy can target familiar logistics hubs.

Thus, logistics support must increasingly rely on technological innovations such as local (embedded) production and maintenance. The use of additive manufacturing (3D printing) at logistics points near the front line can enable rapid production of spare parts, increase the flexibility of supply, and reduce dependency on remote supply.³² This approach fundamentally changes the logistics dependency chain: drones do not need a large, centralized operational depot, which represents a new type of risk mitigation strategy. In-situ production reduces the vulnerability of the supply chain, as critical components are not exposed to transport risks, and protection against disruptive (electronic warfare) operations is also easier when supplies come from local, decentralized sources.

For example, the forward deployment of containerized additive manufacturing units enables the rapid replacement of frequently damaged drone components such as propellers, housings, and mounting brackets. This capability not only reduces dependence on vulnerable supply routes but also shortens repair cycles, thereby increasing operational tempo while maintaining a minimal logistical footprint.

The organization of supply chains must enable the use of predictive logistics, which is based on the forecasting of needs (artificial intelligence, sensor networks). This makes supply more predictable and optimizable, avoiding overstocking and logistical overload. Integrated management should allow drones, logistics bases, and personnel to be connected in a networked system. In such systems, the flow of information is real-time, and decision-making is faster, which fundamentally reduces the vulnerability of the system to errors due to information delay. In addition, the predictive approach should allow for a so-called “forward-looking logistics” principle, according to which supply nodes should be optimally positioned by predicting supply demand, thus minimizing concentrated warehousing.

In conclusion, we demonstrated that the logistical support of drone warfare should be characteristically different from traditional, mass-based, linear warfare logistics. It should be built on a decentralized, mobile, energy-based, and technology-oriented supply, based on redundancy and adaptivity, which offers more efficient and flexible solutions in terms of both material requirements and logistics footprint. Risk aversion in this context is not only a passive defense strategy, but an active, proactive approach: the dispersion of logistics infrastructure, continuous mobility, minimization of information and physical visibility, and the use of autonomous systems all reduce the vulnerability of the supply system in addition to maintaining the operational capability of the system. A change in the mindset of logistics units is also needed: it is no longer enough to think in terms of a static defensive position, but they must operate, recognize, and avoid threats in the same way as operational units.³³ Operational flexibility, adaptability of supply routes, digital support, and in-situ manufacturing should all become key components of future military logistics in the context of drone

³¹ Choi 2017.

³² Camargo 2025.

³³ Camargo 2025.

warfare. Overall, the logistical support of drone warfare should create an economical use of resources, operational security, and a unique synthesis of risk aversion.

CONCLUSION

In our scientific study, we examined the complex phenomenon of drones in modern warfare, focusing on two main areas: their risk-averse nature and the specifics of their logistical support.

Our analysis establishes that 21st-century conflicts can be characterized by the coordinated use of military, economic, informational, and cyberspace tools. A prominent focus of the research is the role of drones as the most important tools for risk aversion, enabling long-distance operations to be carried out without the risk of human presence.

Finally, the study presents the decentralized, adaptive needs-based nature of logistics support for the use of drones, in which it must break with traditional, mass-based supply models and offer technology-oriented, flexible solutions.

Beyond its practical implications, this study contributes to the theoretical discourse on modern warfare by conceptualizing logistics as an active enabler of risk-averse operational design. In drone-based warfare, logistics is no longer a predominantly reactive support function but becomes an integral element of force protection, resilience, and strategic adaptability.

We have shown that the logistical support of drone warfare, if properly designed, adapts to the form of warfare in all dimensions. We emphasized that in modern drone warfare, it is necessary to break with the “this is how we usually do it” procedures in almost all areas, and perhaps even with the doctrinal foundations. Everything must be done to prevent the operational commander from developing the feeling of “everything is logistics” that is often experienced in linear warfare. Like the combat units, the logistics support system must be maximally decentralized and fully adaptable to needs, flexible and almost imperceptible – ensuring full logistical support and protection of logistics forces, because this mode of warfare requires adaptive and technology-oriented supply, which in many cases is shifted from mass supply to technological components and innovations.

To summarize, the authors would like to highlight and emphasize that all future planning processes must part with static paradigms and implement the adaptive thinking of modern warfare.

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1st Lt. Ferenc Bálint

HOST NATION SUPPORT AT THE HUNGARIAN DEFENCE FORCES 47TH AIRBASE

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ABSTRACT: Europe and NATO are facing a deteriorating security environment, which makes it even more important than ever to strengthen the pillars of defence. Among them is the institution of host nation support (HNS), which involves the tasks of receiving and stationing Allied forces, primarily for NATO's eastern member states. At the Hungarian Defence Forces 47th Airbase, multinational forces have been stationed for nearly twenty years, and during the past years, the number of national and international exercises has increased, resulting in HNS becoming a fundamental task and part of everyday life. The professional implementation of HNS requires the establishment of adequate infrastructural, technical, and procedural conditions, enabling well-trained specialists from Pápa to meet the needs of foreign partners at a high level, thereby contributing to the achievement of NATO's operational capabilities.

KEYWORDS: host nation support, HNS, capacity building, operations support, exercise support

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INTRODUCTION

Since the early days of warfare, it has been common for armies to supply their allied forces arriving from afar with all necessary materials and equipment at the assembly point, restocking their depleted and used-up supplies before the battles. These activities of the receiving party have become increasingly complex and organized throughout military history, and during the years of global conflict in the 20th century, they came to be known as host nation support. After World War II, Europe, which was in a weak position in terms of defence, was threatened by further Soviet expansion in the newly established bipolar world order. The gradual integration of European nation states into NATO has led to the extension of other member states' response and mobility capabilities, derived from their collective defence responsibilities to the European continent. In the past few years, it has become clear that threats coming from the east are a major concern for Europe and NATO, which is why the defence readiness and HNS capabilities of NATO member states in Central and Eastern Europe are also crucial for the responsiveness of NATO forces.

HOST NATION SUPPORT

Host nation support, according to NATO's interpretation, refers to all civilian and military support provided by the host nation in peacetime, during a crisis, or in wartime to NATO

forces, other allied forces, and NATO organizations operating¹ or transiting through its territory, arising from its Alliance obligations or bilateral or multilateral agreements.²

The definition clearly shows that the support to be provided can be diverse; therefore, its implementation requires a complex, systematic approach from all concerned governmental, defence, and civilian parties.

The processes and procedures of HNS can best be applied and developed in peacetime through exercises that closely resemble real-world situations. Exercising is an obligation; the Hungarian Defence Forces (HDF) must be ready to perform Alliance or European Union tasks related to defence against an unexpected armed attack on one or more NATO or European Union member states, abroad and at home (as part of host nation support).³

The activities of HNS include providing logistical support to the military organizations of the HDF, including stationing, refuelling, catering, convoy support, and transportation of materiel.

SPOTLIGHT ON ACCESSIBLE FUNCTIONALITY

The HDF 47th Airbase is easily accessible, geographically well located, and covers an area of 6.2 square kilometres, which makes it an ideal location for a wide variety of domestic and international exercises or their air components. The deploying forces generally plan extensively with the support of the host nation.

A closer look at the infrastructure of the airbase reveals that fewer and fewer elements built during the era of the former tactical fighter wing can be found in their original condition. The entire aerodrome has undergone significant changes over the past two decades, resulting in the “inherited” facilities – which served their previous functions well – being converted and renovated to meet the requirements of the modern task system. For instance, in 2017, a modern transit hostel with a capacity of 280 people was built to provide short-term rest for personnel following or prior to redeployment. As a result of this same process, the Airbase now has an 8,000 square meter combined container and vehicle storage area located next to its own railway track, as well as a service road that allows for uninterrupted access to the hazardous materials storage facility. The demolition of unused buildings and landscaping freed up tens of thousands of square meters of space that can be used for camp infrastructure or vehicle storage. The list could be continued with numerous other successful investments, but the capacity developments carried out outside the fence of the Airbase have at least as much impact on and significance for the host nation support as the internal ones. Among these, it is worth mentioning the new two-lane dual carriageway of Main Road 83, which was opened in 2023, connecting Pápa to the M1 motorway, enabling the safe transport of shipments and convoys.

The HDF 47th Airbase connects road, rail, and air transport sub-sectors; therefore, it also serves as a transport hub during large-scale exercises when all three modes of transport are involved in moving cargo and personnel.

¹ NATO 2021, 1.

² NATO 1991.

³ 1393/2021. (VI. 24.) Korm. határozat 2021.

Deployments by air are carried out using military strategic transport aircraft (C-17, C-130, A400M) and civilian aircraft leased from airlines (B737, A320, An-124), the reception, servicing, loading, and passenger handling of which requires special aerodrome service equipment, procedures, and training. The objective in this area is to harmonize aircraft servicing with the rules prescribed by the International Civil Aviation Organization (ICAO).

In recent years, the sending nations have repeatedly decided to use the rail-side loading ramp located at the Airbase, even though a front loading platform, which allows for easier loading of rolling stocks, is also available to them at the Pápa railway station, located 2.2 kilometres from the cargo gate of the Airbase. This is clear feedback that it is necessary and sensible to maintain and develop military railway infrastructure. It is also justified by the railway's suitability for transporting tactical, off-road, oversized, caterpillar-type military equipment, which is less suitable for long-distance public road transport. Furthermore, it can be observed that the foreign partners use a large number of 20' containers. In this case, the public road network can be eased by choosing rail transport, which is a significant aspect, because the majority of shipments arrive by road anyway.

The proper management of significant convoy and truck movements arising from HNS tasks requires precise planning in advance, involving the transport specialists of the sending party. The knowledge of the transport infrastructure and traffic management of the Airbase and its surroundings is essential for this. The surrounding road and the access cargo gate, for example, become bottlenecked when a certain number of trucks arrive at the same time. The primary goal is to prevent this when planning the implementation of HNS tasks, which is partly possible by guiding foreign partners to the deployment area step-by-step. In other cases, vehicles will be redirected to a buffer parking lot and then called in from there.

REGIONAL EFFECTS

The symbiotic effect that has developed among the national defence facilities located in the North Transdanubian region is a phenomenon recognized by the Airbase. It can be observed that the forces using the Újdörög Training Area, under the command of the HDF Joint Forces Training Centre (JFTC), prefer to use the Airbase for air, road, and rail redeployment and stationing purposes. The force planning to carry out tasks in the area of the JFTC will, in most cases, appear in Pápa in some form (redeployment, supply transport, medical evacuation, or refuelling) even if it does not use the Airbase as its operational base. It should also be noted that the Military Terminal Maneuvering Area (MTMA) airspace of the Airbase and the TRA11 airspace of the training area border each other, and the flight time with a rotary wing aircraft is only ten to fifteen minutes. This is one of the main attractions of Pápa, which is further enhanced by the possibility of utilizing airspace with less traffic than in Kecskemét or Szolnok. Any investment or development carried out by a surrounding military organization also has a beneficial effect on the other military organizations. This effect is particularly beneficial when developments are coordinated, and the military organizations are able to provide HNS at a similar level.

SUPPORT WITH TWO DECADES OF EXPERIENCE

In order to operate the multinational Strategic Airlift Capability (SAC) program, the HDF 47th Airbase has been providing continuous national support for organizations based in Pápa since 2008 for almost two decades. It is important to note that the SAC's military

operational arm, the multinational Heavy Airlift Wing (HAW), also performs real-world operational transport tasks in war and crisis zones.⁴ Active participation in the performance of these tasks has enabled the Airbase to gain unique experience, tools, and procedures within the HDF, thanks to which Pápa is now recognized by all sending nations as a professional, predictable, and reliable supporter. These characteristics, combined with the necessary flexibility, greatly strengthen trust and cohesion within the defence alliance, which is expressed as an important common goal in all defence forums.

The primary tasks of the HDF 47th Airbase include maintaining continuous contact with allied forces stationed at the Airbase and providing services within the framework of host nation support. Since 2020, there has been a steady increase in the annual number of these tasks and in international interest in the free capacity of the Airbase, which highlights the importance of HNS.

Between 2020 and 2025, the HDF 47th Airbase supported, among others, the Swift Response 2021 airborne exercise, which was carried out as part of Defender Europe 2021, during which nearly two thousand personnel used the Airbase as an Intermediate Staging Base (ISB) and then carried out their airborne missions in the Romanian and Bulgarian areas of operation.

Since 2021, under the auspices of the European Defence Agency (EDA) and then the Multinational Helicopter Training Centre (MHTC), the Helicopter Tactics Instructors Course (HTIC) has been carried out, which is certainly going to have its main operational base in Hungary until 2029.⁵

During QUADRIGA 2024/Swift Response 2024, the HDF 47th Airbase hosted a German-led, high-visibility airborne exercise for the duration of the operational task preparation, force generation, and execution.

Subsequently, in 2025, the Airbase served as the location for MILEX 25, an international alert and deployment exercise carried out by the European Union for the purpose of testing the effectiveness of military command structures and procedures during crisis management exercises, practicing the alert and deployment of the EUBG 25⁶ standby force, while also served as the main location for approximately 600 personnel and 200 pieces of rolling military equipment.

TEAMWORK AT ITS BEST

The HNS capabilities of the HDF are communicated to the partner countries by the HDF Logistic Support Command Host Nation Support Branch, which also distributes HNS tasks and maintains close contact with the HNS planning and coordination staff of the military organizations concerned. Effective coordination is particularly important in both vertical and horizontal directions because the established planning cycle is full of deadlines for both the sending and receiving parties. The intensive planning phase preceding the execution phase, which sometimes lasts more than a year, is not spectacular, but its effectiveness and details determine the smoothness and success of the execution phase. The necessary procedures are prepared during the planning phase, and purchases are made to ensure the

⁴ NATO Support and Procurement Agency 2025.

⁵ Sin 2024.

⁶ The EU Battlegroup is a multinational military unit that forms the core component of the European Union's military rapid response capability.

interoperability of technical equipment manufactured according to different standards in the sending and receiving countries.

Once the execution phase is complete, the HNS activity is terminated, but following redeployment, the work ends with the completion of certificates in relation to services provided, invoicing, and identifying the lessons learned.

The specific nature of HNS tasks is that sending nations rely on their own capabilities and those of the host nation to varying extents, which means that there are no two HNS tasks that are alike. In most cases, sending nations bring with them capabilities that could also be provided within the framework of the HNS in order to utilize their own logistical support capabilities and fulfil their operational logistical training objectives (in some cases, for reasons of cost-effectiveness). In the latter case, the HDF's competence is to request quotations from civilian service providers for the requested services (if they cannot be provided from HDF resources) in accordance with the agreed specifications, and then to order and provide them, with the approval of the sending nation.

It is not unprecedented for the sending and host parties to develop a composite solution for a given task. For example, American refuelling vehicles with American crews participated as reinforcements alongside the refuelling vehicles from Pápa during the night of the operation of Swift Response 2021 Joint Forcible Entry (JFE) when 11 C-17s and C-130s had to be refuelled in a short period of time in order for the air formation to deliver a given number of paratroopers at a given time.

A special form of logistical support provided by the host nation is when the sending nation's personnel operate the host nation's equipment after receiving the necessary training and transfer. At the HDF 47th Airbase, this is typically used for aircraft tow trucks and, less frequently, for forklift trucks. This form of service makes HNS more efficient, because the management of the asset does not tie up the host party's staff, and the sending party can immediately arrange for transportation or material handling at its own competence and responsibility.

The exercises are always carried out with the aim of achieving training objectives. The performance of the host party's HNS tasks can therefore be interpreted as the sum of all efforts made to assist the sending party in achieving its objectives. The host party has a duty of care that accompanies its complex support activities as a service. Achieving training objectives indicates the success of the HNS and, at the same time, the quality of the host nation's services.

As mentioned earlier, there are no two HNS tasks alike. However, there is an HNS recipe that can be successfully applied to solve HNS tasks of any complexity. In order to ensure smooth HNS, it is important that both the sending and the host nations set up contact groups. The two groups must work together physically, because in a dynamically changing environment of tasks and exercises, there is no time for emails; most situations and problems must be resolved immediately. The contact group is formed to carry out a specific task and, depending on the nature of the task, usually consists of four to ten members. In the case of the HDF 47th Airbase, the core of the contact group consists of air operations, logistics, supply, and administration subject matter experts (SMEs), who are reinforced as necessary by communications, human resources, flight safety, and military operations SMEs, as well as military supply (specifically food and fuel), transportation, and accommodation SMEs. The members of the group are selected individuals who are experts in their field, have a confident command of English, possess assertive communication skills, are able to cope well with stress, have a proactive and flexible attitude, and are self-motivated to

perform their tasks successfully and accurately. It is no exaggeration to say that the members of the group are elite representatives of their profession and of the Airbase, entrusted with a mission. The leader of the group, the conductor of the HNS activities, is the deputy commander (cooperating), who coordinates the daily work of the group, plans and manages resources, distributes tasks based on the competencies of the group members, makes decisions, and liaises with the management of the sending party, the superior military organizations, the leaders of other military organizations concerned, and the management of the Airbase and subunit commanders.

THE IMPORTANCE OF DIGITALIZATION IN HNS

In modern warfare, logistics is not just an operational necessity but a strategic linchpin. Modern military operations require advanced technological systems to facilitate the rapid and coordinated movement of forces and supplies.⁷ These systems also include digital systems that process data within the HNS system. From the HNS perspective, there are numerous useful software solutions available to NATO member states for this task. Common to all of these is that their effectiveness is only evident if they are sufficiently standardized and widely used among the member states of the Alliance.

Notable among these is the Logistics Functional Area Service (LOGFAS), which is designed to enhance logistics planning, coordination, and execution. The HNS Capability Planning Catalogue (HNS CAPCAT) can complement LOGFAS by cataloguing available host nation resources, including facilities and transportation capabilities, and provides standardized documentation of national capabilities.⁸

The Host Nation Ordering and Billing System (HOBS), developed and implemented in Norway, speeds up and simplifies the process of meeting the logistical needs of sending nations. Services and materials can be selected and requested from a catalogue on the online platform; the system ensures full transparency and traceability of the billing process.⁹ HOBS is designed to replace the current chart-based Statements of Requirements (SOR) and aims to provide comprehensive software support for all HNS processes. Its success is clearly demonstrated by the fact that it has already been adopted in many European countries, and the HDF have also taken steps in this direction.

The above systems, however, do not substitute for the work of logistics professionals; rather, they create a supportive environment for the transparent and efficient execution of HNS tasks. The significance thereof is particularly evident in the support of large-scale exercises and military operations, as in such cases, logistics processes would be unmanageable using traditional methods or would tie up an unrealistically large number of human resources. Maximizing the potential of the above-mentioned systems requires users to have an adequate level of language proficiency, background knowledge, and proficiency in using the software. These are significant factors that can either facilitate or hinder technological advancement.

To support military exercises and other military tasks, several IT tools have been purchased in Pápa in recent years as part of the digitization process. Among these, the smartboard can be highlighted, as it combines the capabilities of whiteboards, projectors, and

⁷ Facchi 2025.

⁸ Facchi 2025.

⁹ Gulyás 2024.

smart touchscreen devices with its large display. Also worth mentioning is the installation of wireless internet access points in the buildings most frequently used during military events, as information and communications tools that enhance HNS.

The future development of HNS will presumably be largely determined by the availability of artificial intelligence (AI), which has now become an integral part of warfare. NATO has recognized the rapid development of AI, not only its potential benefits but also its potential risks. NATO's AI Strategy, therefore, aims to ensure the responsible use of AI across the full spectrum of defence tasks as soon as possible.¹⁰ AI could provide effective support in several areas of HNS. For example, in the case of temporary force deployment, comparing the logistical capabilities of the staging location with the expected logistical footprint of the forces, calculating the quantity of supplies required for sustainment over the specified period, and monitoring inventory trends are all potential areas of application.

HDF 47TH AIRBASE PERSPECTIVES IN THE HNS AREA

The HDF 47th Airbase is facing significant short-, medium-, and long-term aerodrome infrastructure development, which includes building a fuel hydrant pipeline, taxiways, aircraft parking aprons, an upgraded land-based navigation system, and the extension of the runway from 2,400 meters to 3,000 meters, among other things.¹¹ In addition, a US-financed warehouse complex is currently under construction,¹² where materials, equipment, and vehicles necessary for the *ad hoc* establishment and operation of an aerodrome will be stored.

These clearly indicate that our country and our NATO allies are committed to jointly guaranteeing the security of the region and the Alliance's responsiveness.

All this goes hand in hand with the emergence of aircraft that can be operated with a higher payload than before, which places additional service demands on the HNS, meaning that a greater use can be made of it.

The aerodrome expansion is being implemented as a complex project aimed at eliminating several bottlenecks simultaneously. The increase in covered surfaces has led to an increase in aerodrome maintenance tasks, which require sufficient personnel and equipment.

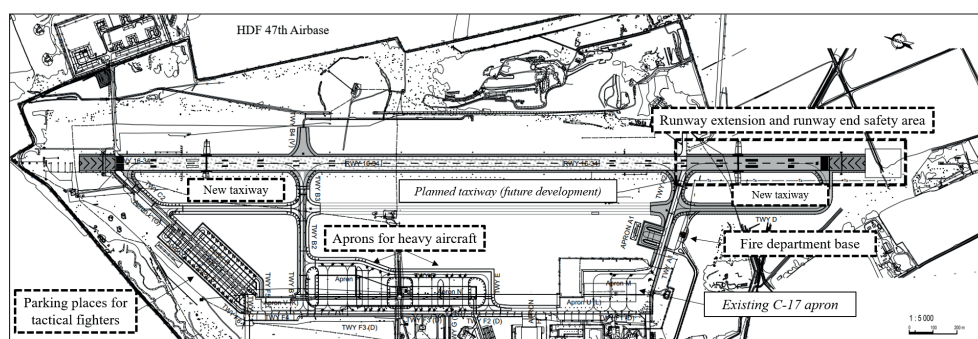


Figure 1 Airbase development plan

(Textboxes with dashed lines show infrastructure elements to be built up in the near future)

Source: Architectural drawing of Út-Vasúttérvező Zrt. edited by the author

¹⁰ NATO 2024.

¹¹ 1748/2020. (XI. 11.) Korm. határozat 2020.

¹² US Army Corps of Engineers Construction Mission in Hungary 2025.

As a result of the aerodrome expansion, the base aerodrome will be able to accommodate up to two squadrons of fighter jets and eight to ten strategic transport aircraft simultaneously. Aircraft, as well as the passengers and cargo they carry, are using HNS to an unprecedented extent; therefore, the capacity expansion carried out on the airside of the aerodrome must be followed by a corresponding expansion on the landside. This applies to the full range of support capabilities, from the quantitative and qualitative availability of public utility networks to the capacity of canteens to the development of areas suitable for camp construction, since the capacity of the military facility (stationing) does not increase simply by extending the runway or building aprons. An airbase free of bottlenecks is the best place to increase national support capabilities. In addition to the physical components of HNS, it is important to gain experience and to learn and apply “best practices.” Therefore, the HDF 47th Airbase is required to continuously practice and develop HNS, to formulate and achieve training objectives in this area. For this, the planned national and international exercises will provide an excellent opportunity in the future as well.

CONCLUSION

Europe and NATO are forced to face a deteriorating security situation. The Alliance’s operational capabilities can be developed to ensure security in the Eastern European region by relying on the HNS capabilities of eastern member states. Hungary’s National Military Strategy regulates the fulfilment of HNS tasks, meaning that the Hungarian Defence Forces must be ready to perform Alliance or European Union tasks. The HDF 47th Airbase’s advantageous military transport options and continuously developing facilities currently provide high-level support for the activities of the forces stationed there, and thanks to the planned aerodrome development, significant changes in capacity and capabilities will take place, restructuring the nature of support activities. Thanks to the harmonious work of the groups assigned to coordinate HNS tasks, foreign partners in Pápa can achieve precisely the training objectives they envisioned during the planning phase, in exactly the way they envisioned them. National and international exercises and real-world operations usually challenge the defence organizations involved in operating the HNS, but this ultimately feeds back into the HNS system in the form of experience and improved standards, supporting positive developments.

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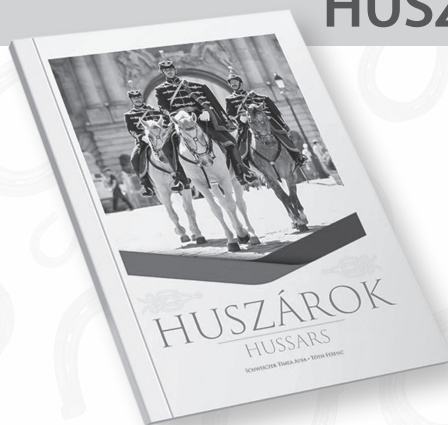
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HUSZÁROK –

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Szabolcs Lóránt

EUROPEAN PUBLIC OPINION ON NATO DEFENCE SPENDING: THE GEOGRAPHIC DIVIDE

DOI: 10.35926/HDR.2026.1.6

ABSTRACT: *This paper examines the geographic divide in public support for the defence spending increase across European NATO member states. Drawing on triangulated data from NATO's commissioned surveys, the European Commission's Eurobarometer, and independent think tank polling (ECFR, GLOBSEC, Friedrich-Ebert-Stiftung), the analysis demonstrates a consistent pattern: citizens in countries geographically proximate to Russia exhibit significantly higher support for defence expenditure increases than those in Southern and Western European states. Frontline states such as Poland consistently show majority support for increased budget, while Southern European states such as Italy show markedly lower enthusiasm, with support collapsing to even lower levels when trade-offs with social welfare are made explicit. This divergence correlates strongly with differential threat perception, consistent with Boulding's loss-of-strength gradient theory, though domestic political context, burden-sharing concerns, and notable anomalies – including high threat perception in geographically distant Portugal and relatively low support for increasing spending among frontline Baltic states – introduce significant variations. The findings illuminate the structural tensions underlying Alliance burden-sharing debates.*

KEYWORDS: NATO, defence spending, public opinion, threat perception, burden-sharing, transatlantic relations

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INTRODUCTION

The question of fair burden-sharing within the North Atlantic Treaty Organization has animated transatlantic relations since the Alliance's founding in 1949. However, Russia's full-scale invasion of Ukraine in February 2022 transformed this perennial debate from an abstract policy discussion into an urgent strategic imperative. As NATO members committed to an unprecedented defence spending increase – culminating in the June 2025 Hague Summit agreement to target 5% of GDP by 2035 –, the question of whether democratic publics will sustain support for such expenditures has become central to Alliance cohesion.

This paper examines the empirical evidence on public attitudes towards defence spending and threat perception across NATO member states, with particular attention to the geographic patterns that emerge from multiple independent surveys. The analysis reveals a consistent and significant divide: populations in countries closest to Russia demonstrate

both higher threat perception and substantially greater support for defence investment than those in Southern and Western Europe. This finding, confirmed across institutional, independent, and academic sources, has important implications for understanding Alliance dynamics.

The paper proceeds as follows: The next section establishes the theoretical framework, introducing Boulding's loss-of-strength gradient as the explanatory mechanism for geographic variation in threat perception. A discussion of methodology follows emphasising source triangulation to address potential institutional bias. The empirical findings are then presented across multiple survey sources, followed by an analysis of the threat perception explanation for regional divergence. The paper concludes with implications for Alliance strategy and future research directions.

THEORETICAL AND CONCEPTUAL FRAMEWORK

Public Opinion and Defence Policy

In democratic states, public attitudes constitute a meaningful constraint on defence policy choices. While governments tend to retain considerable autonomy in security affairs, sustained public opposition to military expenditure creates political costs that elected leaders cannot ignore. This relationship has intensified in the post-Cold War era, as defence budgets compete with social spending priorities. Understanding what shapes public support for defence spending is therefore essential for assessing the political sustainability of NATO's capability commitments.

The Loss of Strength Gradient and Geographic Threat Perception

British-American systems theorist Kenneth Boulding's concept of the "loss of strength gradient"¹ provides the theoretical foundation for this analysis. Boulding observed that a nation's military capability diminishes with distance from its home territory, creating geographic gradients in the ability to project power. Scholars have since applied this insight to threat perception, finding that the closer populations live to potential adversaries, the greater their perceived security needs are.

Citizens closer to a perceived threat experience greater salience of security concerns in daily life, receive more intensive media coverage of the threat, and have more direct exposure to its manifestations – whether through historical memory, refugee flows, or observable military posturing.

This generates a clear empirical expectation: public support for defence spending should vary systematically with geographic proximity to Russia across NATO and EU member states. The following analysis tests this expectation across multiple independent surveys to assess the robustness of the relation.

¹ Boulding 1962.

METHODOLOGICAL APPROACH: SOURCE TRIANGULATION

This analysis employs source triangulation to address potential institutional bias in survey data. Any single polling organization may have institutional interests that affect question framing, sample selection, or the presentation of results. To mitigate these concerns, this paper draws on multiple categories of sources with different institutional perspectives.

The present analysis triangulates findings across multiple survey sources: NATO's Alliance-wide polling, EU Eurobarometer data, independent surveys by the European Council on Foreign Relations (ECFR) and the Friedrich-Ebert-Stiftung (FES), and GLOBSEC's regional focus on Central and Eastern Europe. The European University Institute's (EUI) "Global Risks to the EU" expert survey complements this public opinion data by capturing how foreign policy professionals assess threat likelihood and impact – offering insight into whether elite and public perceptions align. Convergence across sources with different institutional interests and methodological approaches strengthens confidence in findings, while divergence reveals potential gaps that carry implications for democratic accountability and strategic communication.

In practice, cross-survey comparison reveals both patterns simultaneously: a core geographical gradient confirmed by all sources, and notable differences that are significant from an analytical perspective. These differences are not merely methodological questions – they reflect how the framing of questions, the timing of fieldworks, and the institutional context systematically shape the attitudes measured by the surveys. Framing the threat in personal and emotional terms (as in ECFR surveys) consistently yields lower values than abstract or event-based framing (NATO, Eurobarometer). Questions about spending support that clearly compromise social programmes (ECFR 2024) consistently yield the lowest scores in the dataset. Where surveys differ, the difference is informative.

Public Opinion Surveys

Institutional sources

NATO institutional surveys are the Alliance's commissioned surveys, with sample sizes exceeding 31,000 respondents across all 32 member states. NATO has an institutional interest in demonstrating public support for its policies, which must be considered when interpreting results.

EU institutional sources include Eurobarometer, the European Commission's official polling instrument, which provides standardized surveys across all EU member states with high methodological standards, though questions are framed within an EU institutional context.

Independent think tank survey

The European Council on Foreign Relations, the independent pan-European think tank founded in 2007, conducts regular polling across European states with a generally pro-European but methodologically rigorous approach.

Political foundation survey

The Friedrich-Ebert-Stiftung Security Radar survey, conducted since 2019 by Germany's oldest political foundation (funded by the German federal government), provides representative

public opinion polling across countries of the Organization for Security and Co-operation in Europe (OSCE), including Russia and Ukraine.

Regional specialist survey

GLOBSEC, the Bratislava-based security policy think tank, provides specialized expertise on Central and Eastern European public opinion through its annual Trends surveys.

Expert Perception Survey

The Global Risks to the EU (RISK-EU) survey, conducted annually by the Robert Schuman Centre at the European University Institute and partner institutions, encompasses approximately 500 European foreign policy experts' assessments of threat likelihood and impact.

EMPIRICAL FINDINGS

Public Opinion Data

Institutional surveys

NATO's most recent survey, conducted in April-May 2024 across all 32 Allied countries, captures threat perception through two complementary measures: general favorability towards Russia ("How would you describe your opinion of Russia?") and perceived impact of the Ukraine war on national security ("In your opinion, has Russia's war against Ukraine affected the safety and security of [your country]?"). Alliance-wide, 62% of citizens hold unfavorable views of Russia – a figure that has gradually declined from the immediate post-invasion peak of 68% in April-May 2022 to 66% in 2023 and 62% in 2024 –, suggesting a degree of threat normalization even as negative sentiment remains high. When asked about the war's impact on their countries' security, 62% responded affirmatively (19% "very much", 43% "somewhat"). Substantial variations persist across the Alliance. The frontline and Baltic states register the highest concern: Poland (86%), Lithuania (84%), Latvia (82%), Estonia (80%), Sweden (79%), and Finland (77%) all report significant perceived impact. Romania (76%) and Norway (74%) follow closely, with Denmark and Czechia (72-72%), Germany and Slovakia (71-71%) in the upper-moderate range. At the other end, Slovenia (53%), Greece (55%), Italy (58%), and Spain (60%) show lower concern, while Hungary (61%) and Bulgaria (66%) occupy the moderate range – the latter two notably higher than their respective GLOBSEC (regional survey) responses on direct Russian threat perception, which suggests that question framing around the concrete reality of war may elicit different responses than abstract threat assessment.²

The survey asked respondents about their views on national defence spending. Across the Alliance, 76% support maintaining or increasing defence spending, with 41% specifically favoring increases – a four-percentage point rise from 2023 (37%) and just one point above 2022 levels (40%). Meanwhile, support for merely maintaining current levels has steadily declined (38% → 36% → 35%), indicating a hardening of opinion: the overall consensus holds, but within it, sentiment is shifting towards more spending commitments more than two years into the conflict. Country-level data reveals notable patterns. Bulgaria (61%),

² NATO Public Diplomacy Division 2024, 11, 15.

the Netherlands (56%), Sweden (55%), Latvia and Germany (54% each), and Poland and Romania (53% each) lead in support for increased spending. France, Belgium, and Denmark cluster around 45%. The Baltic states show variation: Latvia (54%) and Lithuania (50%) register strong support, while Estonia (41%) is more moderate – potentially reflecting baseline satisfaction, given its already-high GDP allocation to defence. Hungary (34%), Slovakia (32%), Czechia (31%), and Slovenia (27%) form a Central-Eastern European cluster with notably lower support, while Italy (29%) and Luxembourg (28%) also show limited enthusiasm. These patterns – contrasting sharply with high-support Bulgaria (61%), Poland and Romania (53% each) – suggest that shared historical legacy matters less than current political orientation and direct threat perception. Countries with governments more sceptical of Western Europe's confrontational posture towards Russia, or those geographically buffered from the eastern flank, show a weaker public appetite for defence spending increase.³

At the EU level, Eurobarometer 103 (Spring 2025) shows that 77% of EU citizens view Russia's invasion as a threat to the EU's security, with 73% perceiving it as a threat to their own country⁴ – broadly stable since May/June 2023⁵ (79% and 75% respectively).

The Nordic states lead decisively: Finland (95% EU-level, 88% national), Sweden (94%, 89%), and Denmark (90%, 83%) form a high-consensus bloc. The Baltic picture is more complex than geography might suggest – Lithuania ranks high (81%, 84%), but Latvia (72%, 72%) and Estonia (73%, 72%) register only at or slightly below the EU average, potentially reflecting threat fatigue or confidence in existing defence arrangements.

Among larger Western members, Germany (81%, 78%) exceeds the EU average on both measures, while France (74%, 68%) and Spain (80%, 74%) show notable gaps between collective and national threat perception. Italy (73%, 69%) sits near the EU average on both.

Central-Eastern Europe reveals sharp divergence: Poland (83%, 85%) aligns with front-line states, with national concern exceeding EU-level perception – a rare pattern suggesting internalised threat. Slovakia (76%, 76%) sits at the EU average, while Czechia (65%, 63%) and Hungary (63%, 61%) fall well below. Romania (69%, 69%) and Bulgaria (56%, 50%) also trail, with Bulgaria showing the lowest threat perception among Eastern members.

Notably, Portugal (91%, 84%), the EU's most geographically distant member from Ukraine, reports among the highest threat awareness, while Cyprus (52%, 30%) shows the largest gap between collective and national perception, confirming that proximity remains influential but not determinative.

Eurobarometer data reveal rising support for EU defence spending, from 66% in May/June 2023⁶ to 69% in 2025,⁷ alongside a significant geographic realignment.

The Nordic surge is the most striking development: Denmark (+15 to 84%), Finland (+16 to 83%), and Sweden (+14 to 80%) have leapt from average performers to top-tier supporters – a shift likely reflecting their heightened threat perceptions and, for Finland and Sweden, the salience of recent NATO accession.

³ NATO Public Diplomacy Division 2024, 10.

⁴ European Commission 2025b, T290-T291.

⁵ European Commission 2023, T260-T261.

⁶ European Commission 2023, T265.

⁷ European Commission 2025b, T295.

Core Western members also show significant increases: Germany (+12 to 78%), France (+5 to 67%), and Spain (+7 to 63%) all moved upward, though France and Spain remain below the EU average despite their gains.

The Baltic states show a mixed picture: Estonia surged (+10 to 65%), while Lithuania declined (–6 to 76%), and Latvia also slightly declined (–2 to 67%). Lithuania and Latvia’s decline is notable, given their high threat perception – possibly indicating spending fatigue or satisfaction with current trajectories.

Central-Eastern Europe shows fragmentation. Poland remains a top supporter but has declined (–7 to 82%), while Hungary (–5 to 73%) and Czechia (–14 to 50%) also dropped. Slovakia bucks the regional trend with a significant increase (+7 to 58%), though it remains below the EU average. Romania (+2 to 62%) and Bulgaria (+4 to 56%) show modest gains but continue to lag.

Italy (–8 to 57%) stands out as one of the few countries with declining support, reinforcing its position as a reluctant country on increased defence budget. Portugal declined (–14 to 75%) but still remains above the EU average, continuing to punch above its geographic weight.

This northward shift in defence spending enthusiasm – with Nordic and Western European publics now matching or exceeding traditional frontline states – may suggest a maturing of threat perceptions across the EU, though the Central-Eastern fragmentation and Baltic stagnation warrant attention. The most recent data, however, reveal an acceleration that cannot be attributed to evolving Russian threat perceptions. Between October-November 2024 and March-April 2025, EU-wide threat perception remained essentially stable (+1 point for EU-level threat, unchanged for national threat), yet support for increased defence spending jumped 5 percentage points. The divergence is particularly evident in Western Europe: Germany’s spending support surged 10 points while threat perception rose only modestly, and Spain (+8), France (+7), Denmark (+9), and Belgium (+9) all saw spending support increase far beyond any corresponding shift in perceived threat. These are the countries most exposed to US burden-sharing criticism – suggesting European publics are responding not only to the Eastern threat but also to growing uncertainty about American security commitments under the new Trump administration.

Yet this surge should not be overstated. A May 2025 Flash Eurobarometer found that when asked where the EU should invest, defence infrastructure ranked just seventh among priorities, selected by only 23% of respondents – far behind health and education (49%), environmental protection (38%), and job creation (31%). The geographic divide persists: frontline states show markedly higher support (Estonia 50%, Finland and Lithuania 46%) while Italy (12%), Bulgaria (13%), and Hungary (14%) remain resistant.⁸ This suggests that while the “Trump effect” accelerated defence spending support in principle, translating it into concrete budget prioritisation remains contested.

Independent and foundation surveys

The European Council on Foreign Relations May 2025 survey (conducted by Datapraxis, YouGov, and Norstat across 12 countries) captures threat perception through a direct personal framing: “Generally, in your daily life, how worried are you about your country being attacked by Russia?” This wording elicits responses grounded in lived anxiety rather

⁸ European Commission 2025a, 22.

than abstract geopolitical assessment. Poland registers the greatest concern at 65%, consistent with its frontline position and elevated threat perception across all surveys examined. Portugal and Romania (both 54%) follow closely – Portugal’s high ranking again defying geographic expectations, as noted in the Eurobarometer data. Estonia (52%) represents the sole Baltic state in the sample. Among Western European powers, Spain (47%) shows notably greater concern than Germany (37%), France (28%), or Italy (27%). Denmark (17%), the sole Nordic country included, registers the lowest concern among EU members surveyed, perhaps reflecting geographic distance and confidence in Alliance protection. Hungary (19%) ranks second lowest – the only Visegrád country besides Poland in this survey – and is consistent with its outlier position across all datasets. The contrast between Poland (65%) and Hungary (19%) is particularly striking given their shared post-communist trajectory and Visegrád membership, underscoring how domestic political context shapes threat perception independently of regional positioning.⁹

The ECFR’s May 2024 survey (conducted by Datapraxis, YouGov, Alpha Research, and Norstat across 14 European countries) posed a demanding test of spending support, explicitly framing the question around trade-offs: whether respondents agree that “the war in Ukraine has shown that my country should be spending more on defence, even if that means that we must cut money on other areas like health, education and crime prevention.”¹⁰ This conditionality reveals the depth of public commitment beyond headline figures. Poland leads at 53%, followed by Estonia (45%) – the sole Baltic state in the survey. Sweden (41%), the only Nordic country included, shows robust support, as do Germany (40%) and the Netherlands (37%). Czechia (28%), the sole Visegrád country besides Poland, registers more modest support – roughly half of Poland’s figure and level with France (28%). Spain (20%) and Italy (9%) trail significantly among major Western economies. Bulgaria (25%), despite its exceptionally low threat perception across all surveys, shows higher spending support than Portugal (21%), Spain, Greece (15%), or Italy. Portugal’s position is notable: despite reporting among the highest threat perceptions in both Eurobarometer and ECFR threat data, its public shows limited appetite for trade-off-based defence increases, suggesting that threat awareness does not automatically translate into willingness to sacrifice domestic priorities.¹¹ Italy’s position at the bottom is consistent with its lower concern across all threat measures examined in this analysis. It represents a genuine cross-survey pattern rather than a methodological artifact.

Security Radar 2025, published by the Friedrich-Ebert-Stiftung – a German political foundation affiliated with the Social Democratic Party (SPD) and funded by the federal government –, provides cross-national public opinion data on security attitudes (conducted in late 2024 across 14 countries, with approximately 1,000 respondents per country). The survey asked directly: “In your opinion, is there a country that constitutes a threat for your country?” This open-ended framing – without prompting specific countries – reveals which threats are top-of-mind for respondents. Among EU and NATO members surveyed, Poland (53%) and Latvia (51%) register the highest identification of Russia as a threat,

⁹ Krastev – Leonard 2025, 14.

¹⁰ ECFR 2024, 29.

¹¹ Portugal’s paradox – high threat perception but low trade-off support – may reflect the nature of perceived threats. ECFR (Krastev – Leonard 2025, 14.) data show Portuguese respondents also register the greatest concern about nuclear weapons use (85%) and about a third world war (82%) among all countries surveyed. Such existential fears are unlikely to be mitigated by increased conventional defence budgets.

consistent with their frontline positions and elevated concern across all datasets examined. Sweden (38%), which joined NATO in 2024 in direct response to Russia's invasion of Ukraine, shows substantial concern. Germany and the UK both register 30%, while France shows notably lower concern at 21%. Italy emerges again as a clear outlier: only 8% identify Russia as a threat, while 45% report that no country constitutes a threat to Italy – the highest “no threat” response among EU members surveyed.¹²

The same survey asked respondents whether “my country should increase its military spending”, with results showing substantial shifts since the pre-invasion 2021 baseline. Poland leads at 75%, representing a 6-percentage increase since 2021. Sweden (60%) did not poll in 2021 but is now showing robust support following its NATO accession, and the UK (+11 to 56%) follows. Germany (+16 to 54%) registers the largest shift among major Western European members, while France (+7 to 52%) shows a more modest growth. Latvia (+12 to 49%), the sole Baltic state in the sample, shows more modest support despite its high threat perception – potentially reflecting baseline spending satisfaction. Italy again occupies the bottom position at just 26%, virtually unchanged since 2021 (+2) – suggesting that the war in Ukraine has had minimal impact on Italian defence spending attitudes. However, when respondents were asked to choose between prioritising “economic and social affairs” versus “defence” in government budgets, support for defence dropped sharply across all countries: only Poland (38%) shows substantial prioritisation of defence – the only country significantly above the 29% cross-national average – while Germany falls to 28%, France and Sweden to 25%, the UK to 23%, Latvia to 22%, and Italy to just 17%. This gap between abstract support for spending increases and willingness to accept trade-offs with social programmes represents a consistent pattern across all surveys examined.¹³

Regional survey

GLOBSEC's 2025 Trends survey reveals substantial regional variation in how Central and Eastern European publics perceive Russia as a security threat. Poland registered the greatest concern at 86%, followed by Lithuania (81%), Latvia (76%), and Czechia (74%). Estonia, despite its frontline position, showed somewhat lower levels at 71%. Romania fell in the middle range at 64%, while Slovakia recorded 50%. Hungary and Bulgaria emerged as clear outliers, with only 46% and 30% of respondents, respectively, identifying Russia as a threat – the lowest figures in the region. This distribution broadly reflects geographic proximity and historical experience, though notable exceptions suggest that domestic political context and cultural factors also shape threat perception.¹⁴

GLOBSEC's 2025 Trends survey found that 73% of respondents across the nine countries agreed that their governments should increase defence spending. Yet significant intra-regional variation exists. Support was highest in Poland (92%) and Romania (86%), followed by Bulgaria (75%) – notably high given Bulgaria's exceptionally low threat perception (30%), suggesting factors beyond immediate threat assessment drive spending attitudes.

¹² Friedrich-Ebert-Stiftung 2025, 19.

¹³ Friedrich-Ebert-Stiftung 2025, 25.

¹⁴ GLOBSEC 2025, 54.

Czechia and Latvia both registered 74%, with Hungary at 71%. Estonia (62%), Lithuania (63%), and Slovakia (63%) clustered at the lower end.¹⁵ The Baltic pattern is striking: despite high threat perception, Estonia and Lithuania show the lowest spending support in the region, potentially reflecting baseline spending satisfaction given their already-high GDP allocations to defence. Latvia, by contrast, aligns with the regional middle. The survey's framing, which referenced military modernization specifically, may also have influenced responses differently across national contexts.

Expert Threat Perception Data

The 2026 Global Risks to the EU survey, conducted by the Robert Schuman Centre for Advanced Studies at the European University Institute and partner institutions, provides systematic data on European expert threat perceptions. Among 501 respondents – drawn primarily from academia, think tanks, and policy institutions, with 96% holding advanced degrees – Russia-related scenarios remained central to EU security concerns.

A ceasefire in Ukraine favourable to Russia and new Russian military action in non-NATO neighbouring states both ranked as high-risk scenarios, combining elevated likelihood with significant expected impact. The survey findings indicate that experts view Ukraine's security as intrinsically linked to EU security, assessing that a settlement consolidating Russian territorial gains would reward aggression and signal the EU's inability to shape its own security environment. While direct NATO-Russia military conflict and Russian nuclear use were rated as the highest-impact scenarios in the entire survey, experts considered both to be less likely events.

The survey findings suggest that European experts anticipate prolonged grey-zone confrontation rather than conventional warfare with Russia. For the second consecutive year, respondents identified a high probability of Russian military action against non-NATO neighbours, rating this scenario more likely than a direct clash with NATO, yet nearly as damaging for EU security. Combined with the assessment that full Georgian government alignment with Russian interests is similarly probable, the data indicate that experts expect Russia to continue “redrawing security lines below the threshold of open war with NATO, steadily eroding the security of states on the EU's eastern flank”. Hybrid attacks on EU critical infrastructure – including subsea sabotage and power-grid disruptions – ranked as the single most likely threat among all thirty scenarios assessed, with experts expressing doubt that current EU resilience measures are sufficient.¹⁶

Tables 1 and 2 synthesise the cross-survey results presented in this section, enabling direct comparison of threat perception and spending support patterns across countries and sources.

¹⁵ GLOBSEC 2025, 16, 19.

¹⁶ Anghel 2026, 3, 6.

Table 1 *Threat Perception in European NATO and EU Member States: Cross-Survey Comparison*

Symbol key:

▲ High (≥ 65%)

● Medium (40–64%)

▼ Low (< 40%)

— Not surveyed

† See regional grouping note below

Survey coverage note: This table presents the three surveys with the broadest and most comparable European country coverage. The Friedrich-Ebert-Stiftung Security Radar 2025 (14 countries, late 2024) and GLOBSEC Trends 2025 (9 Central and Eastern European states) are excluded from the comparative columns due to their more limited coverage; their findings are discussed in the Analysis.

Methodological note: Surveys differ substantially in question wording and fieldwork period. NATO 2024 asks about the perceived security impact of Russia's war in Ukraine (abstract, event-framed). Eurobarometer 2025 asks whether the invasion constitutes a threat to the respondent's own country (institutional framing). ECFR May 2025 asks how worried respondents personally are about their country being attacked by Russia (personal, affective framing). Divergence across columns is itself analytically significant: it reflects sensitivity to question design, not merely sampling variation.

† Regional grouping note: Slovenia and Croatia are grouped under Southern Europe on the grounds that their geographic distance from Russia – consistent with Boulding's loss-of-strength gradient – produces a threat perception profile empirically closer to Southern than to Central-Eastern European countries in this dataset.

Country	NATO Audience Research 2024	Eurobarometer Standard 103 Spring 2025	ECFR May 2025
Frontline / Baltic region			
Estonia	▲	▲	●
Latvia	▲	▲	—
Lithuania	▲	▲	—
Poland	▲	▲	▲
Romania	▲	▲	●
Finland	▲	▲	—
Sweden	▲	▲	—
Norway	▲	—	—
Denmark	▲	▲	▼
Central and Eastern Europe			
Czechia	▲	●	—
Slovakia	▲	▲	—
Hungary	●	●	▼
Bulgaria	▲	●	—
Western Europe			
Germany	▲	▲	▼
France	▲	▲	▼
Netherlands	●	▲	—
Belgium	▲	▲	—
United Kingdom	▲	—	▼
Austria	—	▲	—
Ireland	—	▲	—
Luxembourg	●	▲	—

Country	NATO Audience Research 2024	Eurobarometer Standard 103 Spring 2025	ECFR May 2025
Southern Europe †			
Italy	●	▲	▼
Spain	●	▲	●
Portugal	●	▲	●
Greece	●	●	—
Slovenia	●	●	—
Croatia	●	▲	—
Malta	—	●	—
Cyprus	—	▼	—

Sources: NATO Audience Research 2024 (Q7: “Has Russia’s war against Ukraine affected the safety and security of [COUNTRY]?”; Apr–May 2024, all 32 allies); Standard Eurobarometer 103 (QD3.2: “Russia’s invasion of Ukraine is a threat to the security of [OUR COUNTRY]”, Mar–Apr 2025, all EU member states); ECFR/Datapraxis–YouGov–Norstat (May 2025, 12 countries: DK, EE, FR, DE, HU, IT, PL, PT, RO, ES, CH, UK). Thresholds applied consistently: High $\geq 65\%$, Medium 40–64%, Low $< 40\%$

Table 2 Support for Increased Defence Spending in European NATO and EU Member States: Cross-Survey Comparison

Symbol key:

▲ High ($\geq 65\%$)

● Medium (40–64%)

▼ Low ($< 40\%$)

— Not surveyed

† See regional grouping note below

Survey coverage note: As in Table 1, only the three broadest coverage surveys are included. The FES Security Radar 2025 and GLOBSEC Trends 2025 are excluded due to limited country coverage, but are discussed in the Analysis.

Methodological note: The three surveys measure different dimensions of spending support. NATO 2024 asks whether national defence spending should increase (direct national commitment). Eurobarometer 2025 asks whether more money should be spent on defence at the EU level (supranational framing – systematically produces higher values than the other two). ECFR 2024 applies an explicit trade-off condition: support for spending more even if it requires cuts in health, education, and crime prevention (systematically produces the lowest values across all countries).

† Regional grouping note: Same logic as in Table 1. Slovenia and Croatia are grouped under Southern Europe.

Country	NATO Audience Research 2024	Eurobarometer Standard 103 Spring 2025	ECFR 2024 (trade-off condition)
Frontline / Baltic region			
Estonia	●	▲	●
Latvia	●	▲	—
Lithuania	●	▲	—
Poland	●	▲	●
Romania	●	●	—
Finland	▼	▲	—

Country	NATO Audience Research 2024	Eurobarometer Standard 103 Spring 2025	ECFR 2024 (trade-off condition)
Sweden	●	▲	●
Norway	●	—	—
Denmark	●	▲	—
Central and Eastern Europe			
Czechia	▼	●	▼
Slovakia	▼	●	—
Hungary	▼	▲	—
Bulgaria	●	●	▼
Western Europe			
Germany	●	▲	●
France	●	▲	▼
Netherlands	●	▲	▼
Belgium	●	▲	—
United Kingdom	●	—	▼
Austria	—	▲	—
Ireland	—	▲	—
Luxembourg	▼	▲	—
Southern Europe †			
Italy	▼	●	▼
Spain	▼	●	▼
Portugal	●	▲	▼
Greece	▼	●	▼
Slovenia	▼	●	—
Croatia	▼	▲	—
Malta	—	●	—
Cyprus	—	▲	—

Sources: *NATO Audience Research 2024* (Q6: “Your country should spend more on defence”, Apr–May 2024, all 32 allies); *Standard Eurobarometer 103* (QD3.5: “More money should be spent on defence in the EU”, Mar–Apr 2025, all EU member states); *ECFR/Datapraxis–YouGov–Alpha Research–Norstat* (2024, 14 countries: PL, EE, SE, DE, NL, GB, CZ, FR, BG, CH, PT, ES, GR, IT)

ANALYSIS

Summary of Regional Patterns

The empirical data reveal consistent patterns in both threat perception and defence spending support, though the relationship between the two is not always straightforward.

Threat Perception: Across all surveys, threat perception follows a broadly geographic gradient, with proximity to Russia serving as the primary, though not sole, determinant.

Poland and the Baltic states consistently register the highest threat perception, forming a coherent frontline cluster. Nordic states have converged towards this high-threat group, with Finland and Sweden now leading EU-wide threat perception – a pattern reflecting both geographic exposure and the salience of recent NATO accession.

Core Western European states – Germany, France, the Netherlands, and Belgium – occupy a middle position. Germany consistently exceeds the EU average on threat perception, while France shows more moderate concern, with a notable gap between EU-level and national perception.

Southern Europe divides into two patterns. Italy, Greece, and Slovenia form a lower-threat, low-spending cluster consistent with the geographic gradient. Spain, however, registers threat perception at or above EU averages yet maintains low spending support – resembling Portugal’s paradox rather than Italy’s consistent disengagement.

Central-Eastern Europe reveals sharp internal divergence. While Poland anchors the high end, Hungary and Bulgaria consistently register lower threat perception than their geographic position might suggest. Czechia and Slovakia occupy an intermediate position, while Romania aligns with the regional middle (although its results are not consistent across different surveys).

Portugal emerges as a consistent geographic anomaly, recording among the highest threat perception figures despite being the EU member most distant from Ukraine.

Defence Spending Support: Support for increased defence spending broadly tracks threat perception but with important divergences, particularly when trade-offs with social programmes are made explicit.

On headline measures, Poland consistently leads, followed by Romania and, following a dramatic surge, the Nordic states. Germany has also moved into the high-support tier. The Netherlands and Belgium show strong headline support, though a more moderate commitment to trade-offs. Bulgaria registers relatively high support despite its low threat perception.

France, Estonia, and Lithuania occupy a moderate middle range. Italy, Spain, Slovenia, and Greece anchor the bottom across most spending measures – though Spain’s low spending support notably contrasts with its above-average threat perception.

Trade-off framing dramatically compresses support across all countries. When surveys asked whether defence should be prioritised over health, education, and social programmes, only Poland maintained significant support. All other countries, including high-threat states, showed substantial drops, with Italy falling to single digits.

Threat-Spending Relationship: In most cases, threat perception and spending support move together. Poland exemplifies the expected pattern: highest threat perception corresponds with highest spending support. Italy represents the inverse: consistently lowest on both dimensions.

However, several anomalies complicate simple correlation:

The Baltic paradox: Despite registering among the highest threat perception in Europe, Estonia and Lithuania show the lowest spending support within the Central-Eastern European cohort – potentially reflecting baseline spending satisfaction given their already-high GDP allocations to defence.

Bulgaria’s inverse anomaly: low threat perception yet significant support for spending. Hungary: low threat perception relative to geographic position, with moderate headline spending support, but notably low willingness to prioritise defence over social spending.

These anomalies suggest that while geographic proximity establishes a baseline, domestic political context, baseline spending levels, and question framing introduce significant variations that a simple gradient model cannot fully capture. A cross-survey comparison further reveals that divergence between sources is itself analytically meaningful: the same country can register a high score on a question related to an abstract security impact (NATO 2024), a medium score on an institutional threat framing (Eurobarometer), and a low score

when asked about personal worry regarding a Russian attack (ECFR 2025). This is not necessarily due to incoherent attitudes, but rather to the fact that different framings tap different dimensions of threat salience. Similarly, spending support figures are systematically higher when the question refers to EU-level expenditure than when it requires an explicit trade-off with domestic social programmes. These framing effects do not undermine the geographical pattern; rather, they clarify its limits. The following section examines the substantive dynamics in detail.

The Threat Perception Explanation

The empirical findings reveal a consistent geographic pattern: populations in countries proximate to Russia demonstrate substantially higher threat perception and support for defence spending than those in Southern and Western Europe. This aligns with Boulding's loss-of-strength gradient theory, which suggests that perceived threats diminish with distance from potential adversaries.

However, the relationship is not deterministic. Several cases reveal how intervening factors – burden-sharing concerns, domestic political context, and political leadership – modify the baseline geographic relationship.

The Baltic Paradox: Burden-Sharing Fatigue within High Threat Awareness

The Baltic states present a striking paradox. Despite their frontline exposure to Russian threats – Estonia and Latvia share direct borders with Russia, while Lithuania borders Belarus and Kaliningrad –, public support for increased defence spending ranks consistently lower than in other frontline states across multiple surveys. NATO and GLOBSEC data show Latvia at the highest support among Baltic states, with Lithuania moderate and Estonia the lowest. Eurobarometer shows a slightly different ordering, with Lithuania leading and Latvia moderate, though Estonia remains at the bottom across all sources. GLOBSEC's regional data place all three well below Poland and Romania. The pattern is permanent regardless of the survey source: the Baltics show lower enthusiasm for spending increases than their geographic exposure would predict.

This pattern cannot be attributed to low threat perception. Baltic governments have been among NATO's most vocal advocates for strengthening collective defence, and in May 2025, the defence ministers of Estonia, Latvia, and Lithuania issued a joint communiqué reaffirming their commitment to increase defence spending to 5% of GDP from 2026. Estonia specifically committed to allocating approximately 5.4% of GDP annually to defence from 2026 to 2029.¹⁷

The more plausible explanation lies in burden-sharing fatigue. The Baltic states already allocate among the highest GDP shares to defence in the Alliance, and the fiscal strain of further increases has become contentious. Before the 2025 NATO summit, Estonian Finance Minister Jürgen Ligi described the 5% target as “a nightmare, from a financial point of view,” requiring “significant cutbacks in several areas”.¹⁸ Baltic citizens recognise the threat but question whether they should sacrifice further while wealthier Western allies underperform. The Baltic anomaly thus reflects not low threat perception but the distributional politics of Alliance burden-sharing.

¹⁷ Estonian Ministry of Defence 2025.

¹⁸ Antonov 2025.

Hungary and Slovakia: Domestic Political Framing of Threat Perception

A different pattern emerges in Hungary and Slovakia. Both countries are buffered from Russia by Ukraine, so the gradient model predicts somewhat lower threat perception. Eurobarometer shows Hungary (61%) well below the EU average (73%) in national threat perception. Slovakia presents a more complex picture: Eurobarometer places it at 76%, slightly above the EU average, while GLOBSEC records just 50% identifying Russia as a threat – a divergence likely reflecting question framing, with Slovaks acknowledging the Ukraine war's impact but fewer spontaneously naming Russia itself as threatening.

The cross-survey pattern suggests threat perception in these countries is actively shaped by domestic political discourse, not merely reflecting geographic position. Both the Orbán and Fico governments have framed support for Ukraine as competing with domestic priorities and initially resisted NATO spending initiatives. Before the June 2025 Hague Summit, Prime Minister Fico criticised the 5% target, stating that “Slovakia has other priorities than armament in the coming years”.¹⁹ In December 2025, Hungary, Slovakia, and Czechia jointly opted out of the EUR 90 billion EU loan to Ukraine,²⁰ with Viktor Orbán framing financial support as a burden to spare future generations.²¹

Media environments reinforce these positions. GLOBSEC's 2024 country reports found that in Slovakia, more respondents blame the West or Ukraine for the war (51% combined) than Russia (41%).²² In Hungary, support for Ukraine's EU and NATO membership was lower among those who trust mainstream media (18%) than among the general population (36%)²³ – the opposite of the pattern elsewhere in Central-Eastern Europe, suggesting that media framing in Hungary shapes attitudes differently than in neighbouring countries. These patterns persisted in 2025 data, with Hungary consistently registering threat perception well below regional averages and Slovakia showing divergent results depending on question framing.

Geographic Distance: Confirmation and Outliers

Southern European cases partially confirm the geographic gradient, but with important variation. Italy registers the lowest threat perception and spending support among major EU powers across all surveys, illustrating how distance can produce genuine security disengagement despite elite Alliance commitments. Spain presents a more ambiguous case: threat perception sits at or above the EU average, yet spending support remains among the lowest in Western Europe. Prime Minister Sánchez was the only NATO leader to openly reject the 5% target at the Hague Summit, writing to Secretary General Rutte that Spain “cannot commit to a specific spending target in terms of GDP” and calling the proposal “unreasonable”.²⁴ Spain thus fits the high-threat, low-spending pattern – distinct from Italy's consistent disengagement on both dimensions.

Portugal and Bulgaria remain the clearest outliers to any simple geographic model. Portugal records among the highest threat perceptions in Europe despite being the EU member most distant from Ukraine; yet it shows a limited appetite for trade-off-based spending

¹⁹ Reuters 2025.

²⁰ European Council 2025.

²¹ Miniszterelnok.hu 2026.

²² GLOBSEC 2024.

²³ Szicherle 2024.

²⁴ Blackburn 2025.

increases. Bulgaria presents the inverse anomaly: the lowest threat perception in Central-Eastern Europe coincides with significant spending support. These cases confirm that geography provides a baseline but cannot explain all variations – domestic political context, historical factors, and question framing have significant independent effects.

Synthesis: A Multi-Factor Model

The empirical findings point towards a multi-factor model. Geographic proximity establishes a baseline: distance reduces threat salience, proximity elevates it. Italy confirms this gradient; Poland anchors the high end.

Several factors modify this baseline. Burden-sharing concerns suppress spending support even where threat perception is high, as the Baltic case demonstrates. Domestic political discourse can push threat perception below geographic expectation (Hungary, Slovakia) or activate latent potential (the Nordic surge following NATO accession). Question framing moderates absolute levels everywhere: trade-off questions reveal that even threat-aware publics resist sacrificing social security.

While geography provides the primary explanatory variable, the full picture requires attention to domestic politics, burden-sharing equity, media environments, and political framing.

CONCLUSION

This paper has demonstrated that public support for defence spending varies significantly across NATO member states in a geographically patterned manner, with countries proximate to Russia exhibiting substantially higher support than Southern and Western European states. This finding is robust across NATO surveys, Eurobarometer, ECFR, FES Security Radar, and GLOBSEC data. The convergence of evidence from sources with different institutional interests strengthens confidence in the underlying pattern.

This divergence creates significant challenges for NATO's burden-sharing objectives. The June 2025 Hague Summit's agreement on an elevated GDP-based target exposed these fractures. As documented in the preceding analysis, Spain openly rejected the target, while Hungary and Slovakia initially expressed disapproval, with all three governments framing defence spending as competing with domestic priorities.

For the Alliance leadership, the challenge in achieving convergence is substantial. It would necessitate alignment not merely on spending targets but also on shared threat perceptions that would render such targets politically sustainable across diverse domestic contexts. The consistent finding that trade-off framing reduces support across all countries – even those with high threat awareness – underscores the depth of this challenge: fiscal constraints and social spending priorities compete with defence commitments regardless of geographic position. The divergence documented here suggests that unified spending expectations may face persistent friction due to fundamentally different public understandings of threat, burden-sharing equity, and national priorities.

Finally, intra-alliance threat perception may itself warrant scholarly attention. Recent tensions over US commitments in Europe and the United States' intentions with Greenland illustrate how alliance cohesion can be challenged from within, representing an emerging research frontier with implications for both scholarship and strategic communication.

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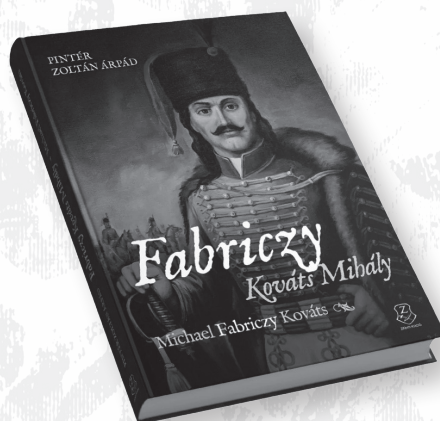
MICHAEL FABRICZY KOVÁTS

A Hungarian Hussar Officer on Two Continents

Author: Árpád Zoltán Pintér

Translation: Kosztasz Panajotu

This volume is a tribute to the character of Mihály Kováts and the previous work of researchers exploring his life. Meanwhile, it also opens a window on the world of 18th-century Hussar officers. Almost four decades have passed since the publication of the last academic book about our hero. Since then, new research materials and sources have appeared in domestic and foreign (Austrian, German and American) archives, making it possible to explore the life of Kováts.



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Zsolt Csutak

A COMPARATIVE OUTLINE OF THE FOREIGN AND SECURITY POLICY PRIORITIES OF THE TWO TRUMP ADMINISTRATIONS

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ABSTRACT: *This paper examines the palpable changes and assumed paradigm shifts between the foreign and security policies of the first and second Trump administrations, with special focus on the global transformations and new challenges that have occurred and interfered with the concerning policy priorities over the last decade in the realm of international affairs. As the plethora of new executive orders and policy directives has demonstrated, the “America First” and the “Make America Great Again” phrases have proved to be much more than just political campaign slogans both for President Trump and for the key members of his administration. In the study, the key strategic guidelines and priorities of the first term of Trump’s presidency are highlighted. Furthermore, a comparative scrutiny of the policy cornerstones is provided with special correlations between the events, decisions taken, and possible changes in priorities and methods implemented in the first year of the second term of Donald Trump’s presidency. The study implements content analytical methodology, with special focus cast on conclusions to be drawn concerning the political, intellectual, and European geopolitical aspects of the American policies.*

KEYWORDS: *foreign and security policy, Trump presidencies, challenges, tariffs, peace deals*

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INTRODUCTION

The foreign policy strategies of the second Trump administration, so far, have been marked by a continuation of many of the key approaches that defined his first term in the White House, including an emphasis on protectionist patriotism, populism, and economic protectionism. However, the second term of his presidency also saw the Trump administration adjust to shifting geopolitical circumstances, including the aftermath of the pandemic, rising tensions with the upcoming rival Asian great power, China, a recurring Middle Eastern conflict hotspot, as well as the increasingly fragmented pseudo-chaotic nature of international relations and global institutions. All these factors combined have resulted in a sensible decline in order, predictability, and coherence in the dimensions of global affairs, security, and volatile international relations. Donald Trump, as a political pioneer and

‘black swan’¹ ever since his striking appearance in the White House in 2016, has drastically shaken and altered the ways and methods we used to regard, comprehend, and analyze American policies and executives. Trump’s eccentric, social media-based, outspoken, and direct communication manner has also transformed public diplomacy and domestic and foreign policymaking in a rather unique though controversial way, heralding the dawn of a new, postmodern, antagonistic digital age. His “America First” agenda, which prioritized political sovereignty, placed American hegemonic primacy and economic interests before liberal institutionalism and multilateral cooperation urged by previous Democratic Party administrations. President Trump also continued to influence foreign policy decisions significantly throughout the first year of his second term, even taking the lead in key bilateral diplomatic negotiations and process developments.

The study explores the key strategic approaches adopted by the second administration of President Trump, focusing on four central areas primarily related to the foreign and security policy domains, such as the controversial relations with China, the Middle East, NATO, and Europe, as well as global trade policy. Through these case studies, the essay also analyzes the lasting impact of Trump’s approach to global power structures and US foreign relations.

Both inaugural addresses of President Trump highlighted the direction and status of his administration concerning the great power position, duties, and shared responsibilities of the United States.² Contrary to the rather ideology-driven American administrations heralded by President Obama and Biden and the progressive liberal wing of the Democratic Party, the new administration led by the 45th and 47th American president, namely Donald J. Trump, with the majority of Republican voters behind him, demonstrated a different, old-new political paradigm shift concerning policy guidelines and decision-making priorities.

In the volatile presidential election campaigns of both 2016 and 2024, Trump pushed his rather populist, anti-progressive-elitist messages, such as “get back to ‘normality’ and ‘drain the swamp’ of the Washington establishment”.³ Furthermore, he also expressed his admiration for the established realist paleo-conservatism of his great predecessor statesmen, whom he admired and respected, such as Presidents McKinley, Theodore Roosevelt, and Ronald Reagan.⁴ The so-called classic American values emphasizing patriotism, democracy, and freedom of religion and speech, with the primacy of protestant Christianity, also tend to align with the idea of American exceptionalism, pragmatism, and foreign political realism shared by Donald Trump and the key prominent figures of his White House staff.

The new members of the second Trump administration also seem to be expressing absolutely no interest or willingness to undertake any remnants of neoliberal, progressive postmodern ideas pursued by their rival Democratic Party policymakers, and spin doctors within the dimension of the overwhelmingly polarized American political spectrum. This anti-progressive purge of the White House was spectacularly manifested in the campaign against the so-called costly state-funded liberal propaganda organs, such

¹ This term was coined and introduced by American Lebanese sociologist, philosopher Nassim Nicholas Taleb in his bestselling book *The Black Swan*, and has been adopted by many authors and analysts ever since, e.g., *POLITICO Magazine* 2016.

² See *The White House* 2025.

³ Tuzara 2024.

⁴ Khalid 2025.

as the news outlets of the American Global Media Radio Free Europe, Voice of America, as well as the controversial shutdown of the US Agency for International Development (USAID).⁵ The rather eccentric diplomatic actions of former US ambassador to Hungary David Pressman, commissioned between 2022 and 2025, strikingly demonstrated the ideology-driven and politically biased American diplomacy, as well as the deliberately unfriendly attitude of the Biden administration⁶ towards the so-called illiberal political regime of Hungary under the leadership of Prime Minister Orbán.

Without fast forwarding to the conclusion of this paper, it can already be affirmed that in both terms of President Trump, the White House proved to be keen on establishing and maintaining a rather pragmatic, transactional, and much less ideological attitude and relationship with both its numerous allies and its more volatile partners from around the world, including the European Union, Israel, and the Islamic Republic of Iran. Trump has seemingly demonstrated a pragmatic political attitude similar to that of renowned Cardinal Richelieu and Bishop Charles Maurice de Talleyrand-Périgord from France of the bellicose 17th and 18th centuries, by claiming willingness to align even with the devil for the benefit and advantages of his country, the United States, let alone renegotiate trade tariff quotas or allied partnerships.

It is also noteworthy that Donald Trump, after the failed assassination attempt against him at the campaign event of July 2024 in Butler, Pennsylvania, claimed many times, including in his presidential inaugural address,⁷ that every day after that dramatic moment is a gift for him from the Almighty. This is similar to the revelation of President Reagan, also after a failed assassination attempt in Washington, D.C. in 1981, as a sort of touch of providence or divine reassurance of his mission to save, serve, and fight for his country, the United States.⁸ Nowadays, unlike for Reagan during the second peak of the Cold War in the 1980s, for President Trump, there is no real “satanic empire” on the horizon, as the Soviet Union was supposed to be, to fight against as far as ideology is concerned. However, there is the evidently rising geopolitical great power of China, which should be contained by the US within its own front yard in Southeast Asia. Nevertheless, the closest traditional ally of America, the rich but militarily rather impotent European Union,⁹ proves to be a pain in the neck for Washington for various reasons. All the same, Europeans prove to be a definitely much less tiresome and volatile power structure than the old-new nuclear challenger powers, such as Russia, China, and potentially the rather hostile Iran and North Korea, which altogether tend to destabilize the US or the West-led world order and threaten the primacy of America in many respects.

These issues and dimensions tend to be the most important key international structures, policy status report details, and challenges for the White House that the president and his staff must face, address, and resolve for the benefit of their citizens as well as for their allies around the world, from Taiwan to Hungary.

⁵ Durkee 2025.

⁶ Magyar Nemzet 2023.

⁷ See The White House 2025.

⁸ See Rothman 2015.

⁹ Trump labelled Germany and the EU in 2018, as “frenemies, rich and weak” countries, almost as dishonest as China, but much smaller. See Winter 2018.

THE KEY STRATEGIC DIRECTIONS OF THE FIRST TERM OF PRESIDENT TRUMP

The first administration of Donald Trump articulated a distinct “America First” grand strategy that emphasized national sovereignty, competitive economic statecraft, and military strength, while exhibiting skepticism towards multilateral institutions and long-standing alliance commitments.

One of the most important key documents of the Trump administration, the National Security Strategy (NSS)¹⁰ was launched in mid-December 2017, and had been elaborated and coordinated by a top military scholar, former Iraq War veteran Lt. Gen. H. R. McMaster from the White House staff. The NSS outlined four strategic pillars to be accomplished by the administration: to protect the homeland by all means, to promote American prosperity, to leverage strength to preserve peace, and to advance American influence in the world.

Furthermore, it also framed Great Power competition (especially with the rising Asian power, China, and the former superpower, the Russian Federation) as the central strategic challenge faced by the country. The strategy of the US prioritized military modernization, fierce deterrence, trade leverage (tariffs and renegotiated trade deals), and, evidently, as a landmark of Trump’s policymaking, a more transactional approach to alliances involving the idea of expecting US allies to bear much greater defense burdens than before.

In practice, this foreign and security policy vision produced a mix of continuity and rupture. Continuity included sustained emphasis on counterterrorism, force posture in East Asia, and NATO’s conventional deterrence, as well as the use of sanctions against hostile nations, e.g., Iran, Cuba, and North Korea. Ruptures involved withdrawal or American disengagement from multilateral agreements (e.g., the Trans-Pacific Partnership, the Paris Climate Accord, and the Iran nuclear deal), public questioning of alliance obligations, and frequent use of unilateral economic coercion (foreshadowing the tariff war approach on China and even on US allies, like Canada, Japan, or the European Union). These actions signaled a preference for selective engagement over the post-war US-dominated liberal world order’s more institutionalized burden-sharing scheme, resulting in the new military expenditure thresholds enforced by Washington, targeting 2% and then 5% GDP-related defense budget contribution by all NATO members.¹¹

American political theorist Hal Brands asks whether the Trump administration had a coherent grand strategy at all or just an ad hoc transactional mix of policies.¹² Other analysts claimed that Trump’s rhetoric, along with selective military and economic initiatives, constituted a distinct “America First” strategy focused on privileging near-term material interests and imposing costs on perceived free-riders among the allies, such as prosperous but militarily lame European nations from Spain to Germany.¹³ From this perspective, the first Trump administration seemed to be lacking coherent long-term strategic planning despite the various strategic documents it managed to elaborate and launch. Policy oscillations between confrontation and accommodation (notably with North Korea and Russia) and organizational turbulence undercut the systematic execution of directives outlined in the strategies.

¹⁰ See The White House 2017.

¹¹ See Stokes 2018.

¹² See Brands 2017.

¹³ Bacevich 2017.

Operationally, the Trump administration shifted resources and rhetorical emphasis towards Great Power competition with China – combining military deterrence (Indo-Pacific presence and renewed pseudo-alliance with Taiwan and the Philippines, aiming to contain the explicit maritime expansionist attempts of China), economic competition (trade war and export controls), and technological security measures – while reducing US engagement in some Middle East contingencies and arguing for European and regional burden-sharing in terms of collective defense expenses. However, many policy experts, including even Russian scholars, argue that despite the affirmative Trump diplomacy and foreign political efforts, there is a significant decline in American assertive and hegemonic power presence in Southeast Asia, which had started well before Trump's presidency during the Obama administration, facing Chinese expansion.¹⁴

The defense strategy of President Trump involved the reform and upgrade of American military technology, which included an ambitious development project starting in 2019, something similar to a renewed Manhattan Project, supported by the US Congress.¹⁵ The military technology megaproject, not so much publicized, has been allocated a special budget of more than a hundred billion dollars to be spent on American nuclear technology upgrade, such as the construction of 12 new ballistic missile nuclear submarines, super carriers, new generation Sentinel ICBMs, and even new thermonuclear warheads, also called pots.¹⁶

Moreover, the establishment of the sixth American military branch, the US Space Force, by President Trump in December 2018,¹⁷ along with the strengthening of the 10-year-old Cyber Command (USCYBERCOM),¹⁸ aligns with the military technology development ambitions of the Trump administration. These new military branches and command centers with global outreach, equipped with 21st-century special military technological know-how, aim to develop new defensive and offensive operational skills, competences, and potentials with the direct strategic goal to face and deter all potential new challenges from state- or non-state-level actors that may loom over America from space (China, Russia), as well as from the new warfare domain posed by cyberspace.

Of President Trump's appearance and communication style, his administration also favored personalizing the so-called summit diplomacy (with influential Asian leaders, most noteworthy being his two meetings with North Korean dictator Kim Jong Un) and public transactional bargaining as instruments of statecraft and US power amplification.

Foreign policy analysts conclude that the period accelerated debates about the liberal international order's resilience and the balance between American primacy, restraint, and transnationalism. Trump's foreign and trade policy could as well be depicted as win or win, or even as a sort of redefined Cold War tactic of "zero-sum game",¹⁹ where the US counterpart evidently must be on the bright and winner's side in any negotiation.²⁰

¹⁴ Stepanov 2022.

¹⁵ Smith 2020.

¹⁶ Kristensen et al. 2025.

¹⁷ See the US Space Force website on their mission: <https://www.spaceforce.com/about>.

¹⁸ See U.S. Cyber Command [no year].

¹⁹ Term and strategy co-elaborated by renowned Hungarian American mathematician and nuclear scientist John von Neumann, who played a key role in the American Manhattan Project as well as in the foundation of RAND Corporation in 1949. See Bhattacharya 2021, 129–135.

²⁰ McMaster – Cohn 2017.

Political science professor Brands also emphasized that institutional constraints (bureaucratic continuities, military missions, and alliance structures) moderated some campaign-level promises of Trump, producing a hybrid outcome for the Trump presidency until the outbreak of the pandemic in 2020.²¹ Sadly enough for the world and for the Americans, towards the tormented final years of his presidency, Trump's controversial but mostly efficient economic and foreign political measures had been dramatically overshadowed by the socio-economic disruptions of the COVID-19 pandemic, which also resulted in more than one million fatalities and drastic *vis major* policy measures in the US. The coronavirus pandemic and its devastating socio-political consequences (e.g., partly arbitrarily imposed lockdown) definitely contributed to the further polarization of the tormented American political fabric and the ensuing political regime change in Washington from a Republican to a Democratic Party-led administration, with the shocking scenes of the siege of the Capitol on January 6, as well as the demise of the first term of Donald Trump's presidency.²²

NEW GOALS AND NEW DIRECTIONS FOR THE SECOND TRUMP PRESIDENCY

*"We know only too well that war comes not
when the forces of freedom are strong,
but when they are weak.
It is then that tyrants are tempted."*
President Reagan

The main headlines of the foreign and security policy strategies of the second term of the Trump administration also reflected the continuation and intensification of his "America First" and "Make America Great Again" (or "MAGA") approach, which emphasized patriotism, protectionism, and the prioritization of American interests over multilateralism or international cooperation, partly featured by liberal institutionalism of the previous Obama and Biden administrations. Although Trump's first term was marked by significant volatility, preliminary trade wars, and an unprecedented approach to personal diplomacy and peacemaking efforts, the second term had to grapple with the increasingly complex international environment of the post-pandemic world, as well as with increasingly violent military conflicts in Ukraine and the Middle East.²³

While certain aspects of US foreign policy were consolidated, Donald Trump's second term revealed deeper divisions in the global political landscape, pushing the administration to adapt its strategies in response to China's rising influence in the world, the Middle East's ongoing instability with Iran and Israel in its epicenter, the European security challenges, and the multilateral trade order, which has also been thoroughly reshaped by the American trade tariffs.

²¹ Cf. Brands 2017, 23.

²² The American Presidency Project 2020.

²³ See Friedman 2022.

In the first year of his second term, President Trump manifested an increased American foreign political assertion in terms of new bilateral trade tariff schemes renegotiated and redefined with more than 90 different countries from around the world. This new assertive attitude manifested in foreign trade policy reflects the economic hard-soft power stance of the White House, which is meant to be part of the new power toolkit of President Trump, next to the deliberate deterrent military might of the US. This foreign political attitude and volatile economic assertion of President Trump displays a remarkable alteration and sharp distinction from the liberal, trade and rule-based world order which had been established by the US after World War II and seemed to be prevailing until the advent of Donald Trump and the rise of the semi-anarchic transactionist pragmatism as a new guiding principle and framework narrative in international relations and trade.²⁴

The federal budgetary constraints of the United States, crippled by skyrocketing sovereign debt of 30 trillion dollars, have affirmed the necessity of new revenue resources for the US Treasury in an estimated amount of up to 5 trillion dollars in the forthcoming years from the new tariffs. The intellectual masterminds behind the controversial and much-debated foreign trade deal policy of Donald Trump include Peter Navarro, presidential advisor on financial issues and former Harvard professor of economics, Stephen Miran,²⁵ head of the Council of Economic Advisors of the President, and Kevin Hassett, president of the National Economic Council.²⁶

Concerning Trump's sympathy and admiration towards the assertive trade-based American foreign policy, as well as his controversial idea of a potential territorial expansion of the US (from the strategically important Panama Canal to the Arctic region of Greenland), the name and example of former President McKinley must be noted. President McKinley is among the presidents with notorious protectionist trade policies from the late 19th century, with an average 60% of trade tariff leveraged on goods imported into the United States in the 1890s.²⁷ President McKinley was also considered a victorious republican commander-in-chief, who waged a comprehensive and quite devastating war on the Kingdom of Spain, extending from the Caribbean to the Pacific theatre of war, resulting in the annexation of numerous strategically important islands to the US, such as Puerto Rico, the Philippines, or Guam.²⁸

Trump, as well as his influential aides and speechwriter consultants, like Ross Worthington,²⁹ have seemingly found a special source of political and intellectual inspiration in 19th-century political ideas. These influential legitimizing political and cultural concepts were also shared by the above-mentioned President McKinley and heralded the intellectual heritage of the idea of manifest destiny, or the Westward, and consequently global, even space-oriented, expansion of the US frontier and sphere of interest in the world.³⁰ Interestingly enough, not only President Trump, but previously, presidents Theodore Roosevelt, John F. Kennedy, and even Ronald Reagan had also expressed their admiration and respect towards these ideas on American exceptionalism and mission, or "manifest destiny" about

²⁴ Cf. Ikenberry 2011.

²⁵ Das 2025.

²⁶ Mueller et al. 2025.

²⁷ See Vock 2025.

²⁸ See Khalid 2025.

²⁹ Cai – Burns 2025.

³⁰ See The Manifest Destiny Doctrine and James K. Polk's Presidential Actions Explained 2025.

a nation guided by divine providence. President Trump even directly referred to these new guiding principles at the start of his presidency in his second inaugural speech on January 25, 2025.³¹

From this vantage point, we could assume that the expansionist ideas of President Trump expressed to Panama, Venezuela, or even the largest island in the world, Greenland, may as well be justified by and legitimized based on the political philosophy of the Manifest Destiny or by the well-known American Monroe Doctrine, so often cited since 1823. These special ideas and political strategic approaches altogether share the idea of American supremacy and exclusivity, particularly concerning the pivotal and exclusive right of the United States to be the regional, continental hegemon in North and Central America, against any rival, hostile foreign power that may intrude into the hemisphere. Notably, in the 19th century, such a foreign hostile power proved to be the British Empire and later Spain, while during the Cold War, it was the Soviet Union, and more recently, its successor great powers: Russia and China, both pursuing superpower ambitions on their own will.³²

The fear of covert Chinese economic and political expansion in the Americas is not without basis, considering the amount of evidence of the growing presence and influence of China in fragile states like Panama, Nicaragua, Venezuela, or even on the Danish autonomous island of Greenland, which may justify the security concerns of Washington in this matter.³³ China, as the major global great power challenger, as well as economic and military adversary in the Pacific region, has been neglected in many ways by previous administrations before President Trump. The grandiose Chinese navy development program of the last two decades could as well be labelled as the most ambitious and vast military shipbuilding project in history, which has made the navy branch of the People's Liberation Army of China the largest maritime force by the number of military vessels afloat (355 altogether) in the Indo-Pacific region.³⁴ The Trump administration reacted to the new security challenge posed by China (and its infamous ally, North Korea) in the Pacific megaregion by ordering the launch of a comprehensive, new-generation military vessel construction project as of 2025, aiming to obtain and operate at least 381 navy ships by 2050.³⁵

Moreover, in terms of foreign and security policies, based on the above-mentioned political intellectual fundamentals and attitudes, the second Trump administration seems to be pursuing the strategic guidelines elaborated during its first term in 2018–2019, heralded by the National Security Strategy, the National Defense Strategy (NDS),³⁶ and the National Military Strategy (NMS).³⁷ In the latter two key American documents, it has been stated that the new threats and challenges in the rapidly changing and evolving international environment demand an urgent upgrade and development plan primarily for the American nuclear triad capabilities,³⁸ including the development of new generation warheads for the deterrent weapons of mass destruction (WMDs).

³¹ See The White House 2025.

³² Tokatlian 2024.

³³ Curley 2025.

³⁴ Bassoli 2025.

³⁵ Cichon 2025.

³⁶ 2018 National Defense Strategy of the United States of America 2018.

³⁷ The Joint Staff 2018.

³⁸ Such as intercontinental ballistic missiles (ICBMs), ballistic missile nuclear submarines, and strategic bombers (B-1, B-2, B-52s).

What is even more important, the development of a comprehensive missile defense capability or missile shield, covering potentially the entire North American continent under the supervision of the Colorado-based North American Aerospace Defense Command (NORAD), has also been reinitiated and forwarded to the US Congress for approval and budgetary support. The so-called “Golden Dome for America” layered missile defense plan³⁹ is intended to be a continental version of the famous Israeli “Iron Dome” and “Arrow 1 and 2” missile defense shield systems. Nonetheless, in the American context, it would be the revisited and upgraded 21st-century version of the “Star Wars” megaproject, initiated by the Reagan administration in 1982, with the famous Hungarian American nuclear physicist Edward Teller as the most influential mastermind behind the costly project during the last decade of the Cold War.⁴⁰ In the rather intense period of the Cold War era, the preliminary American missile defense system aimed to intercept and destroy any ICBM coming from the Soviet Union across the Arctic region towards the mainland United States. However, nowadays, new missile threats may come towards America from North Korea or China, from the eastern or the north-eastern directions. The rather ambitious project involving cutting-edge military technologies will be funded from an extra budget ranging from USD 120 to 350 billion⁴¹ from the estimated 1 trillion-dollar mega-budget for the financial year of 2026 of the Department of Defense.⁴² The military items proposed by the defense project will be developed by outstanding American military contractors, such as Lockheed Martin,⁴³ Northrop Grumman,⁴⁴ Boeing, and Raytheon. It is noteworthy that in October 2025, President Trump also signed an executive order aiming to rename and rebrand the Pentagon, or officially the US Department of Defense, to the US Department of War,⁴⁵ as it used to be called until the end of the Second World War. The presidential order symbolically features the firm and resilient response of the United States to the rather volatile, hostile international environment that the country may have to face in the 21st century.

As far as the strategically important transatlantic security policies are concerned, it is noteworthy that President Trump has a rather sceptic and ambivalent attitude towards his European NATO allies, most of whom previously, during his first term in office, he considered as mere rich free-riders, delinquent beneficiaries of the American security umbrella, who are unwilling to share the burdens and pay for their own military defense and security.⁴⁶ According to John Bolton, Trump’s former national security adviser and a neoconservative hawkish strategist, Trump was outraged by the rather impotent attitude of his European allies, even considering for a moment withdrawing the United States from NATO before the notorious transatlantic NATO security summit held in Brussels in July 2018.⁴⁷

³⁹ Baldwin et al. 2025.

⁴⁰ See Broad 1992.

⁴¹ This skyrocketing amount would account for about 30% of the annual budget of the Pentagon from 2026, or for China’s annual defense budget, and it is also a larger amount than the entire defense expenditure of the European NATO member states. See World Population Review 2025.

⁴² Office of the Under Secretary of Defense 2025.

⁴³ Lockheed Martin 2025.

⁴⁴ Kumar 2025.

⁴⁵ Toropin – Megerian 2025.

⁴⁶ Diamond 2018.

⁴⁷ Cf. Bolton 2020, 118–126.

Trump's outraged attitude has been appeased and softened towards Europe, though his overall skepticism and disfavor towards those allies who are unable and unwilling to spend on their own defense and security have not changed significantly in his second term of presidency.⁴⁸ This aggressive and rather assertive American attitude has also been reflected in the shocking initiative of President Trump and US Secretary of War Pete Hegseth at the 2025 NATO summit in The Hague to raise the minimal defense requirement from 2% to 5% of the members states' GDP by 2035, which would pose considerably high extra financial burden on most of the NATO member states, including the US.⁴⁹

Nevertheless, the soaring defense expenditures in Europe and North America, facing the war in Ukraine and the subtle expansionist hybrid threats from Russia, would evidently benefit the vast American military industrial complex, too. According to a recent NATO directive, 3.5% of the member states' defense budgets should account directly for the development of military infrastructure and lethal capabilities of the various military branches, while 1.5% of the planned budget should be spent on critical infrastructure protection and other military and civilian defense projects, personal development training, *inter alia*.⁵⁰

President Trump's famed transactionalism was also reflected in his security policy, a harsh commitment to reliable self-defense, as well as in his determination for common burden-sharing within the transatlantic defense alliance, which has remarkably been met and manifested through the significant changes in the defense budget figures of all NATO states. While in 2018, only 8 NATO member states fulfilled their 2% defense budget commitments, by 2024, this number reached 18, and it culminated in 2025, with 31 out of the 32 NATO member states in total.⁵¹ Belgium, Slovenia, and Denmark prove to be the only member states at, or slightly below, the budgetary threshold, and tend to be lagging behind their commitments, as they seem to be unwilling to comply with Trump's harsh defense policy directives.

Besides and seemingly contrary to Trump's firm militarist attitude and determination to the maintenance of collective self-defense capabilities, mostly based on the revisited Reaganite 'peace through strength' strategy expressed in the motto above,⁵² it is also remarkable that in the first year of Trump's second term in the White House, his foreign policy activism and diplomatic offensive for peace in various conflicts has proved to be quite striking, efficient, and spectacular, even extraordinary. Taking Trump's own words and estimates for granted, he brokered seven peace deals from Pakistan to Armenia, and particularly in the Gaza war with Israel, only in 2025. However, not surprisingly, there are many controversial arguments against this rather superfluous presidential claim.⁵³

Concerning the foreign and security policy strategies of President Trump's second term in the White House, they can be presumed to continue the implementation of his primary political ideas, focusing on the well-known "MAGA" dimension and set of objectives behind this concept. It may as well involve soft or even hard power interventions to reach and achieve these goals, with the allies of the US (for instance, the EU) or more emphatically

⁴⁸ See Dombrowski – Reich 2017.

⁴⁹ NATO 2025a.

⁵⁰ NATO 2025a.

⁵¹ NATO 2025b.

⁵² As expressed by President Reagan in July 1980 at the Republican National Convention, cited in the chapter's motto. Reagan 1980.

⁵³ Taheri 2025.

among hostile entities and ‘rogue states’, let it be China, Russia, North Korea, Venezuela, or even the Islamic state of Iran. All these states seem to be challenging the American hegemony and threatening the economic and world-political interests and primacy of the US, which has to be tackled with appropriate American countermeasures.⁵⁴

All the same, the respective core principles, strategic guidelines, and set of goals for the Trump administration are planned to be framed and published for the public by the end of 2025 in the forthcoming key documents, namely the National Security Strategy and the National Defense Strategy of the United States,⁵⁵ elaborated by the National Security Council of the White House as well as the Pentagon under the supervision of Secretary of State Marco Rubio and Secretary of War Pete Hegseth.⁵⁶

CONCLUSIONS

While the first term of Trump’s presidency aimed to establish a more pragmatic, utilitarian, and pseudo-conservative political agenda, not breaking with the neoliberal economic and trade policies, the second Trump administration’s foreign policy approach proves to be more realistic and idea-centric (though not ideologized) at the same time, based on 19th-century political ideas on American exceptionalism, manifest destiny, protectionism, and much disputed territorial expansions proclaimed on the basis of a revisited Monroe Doctrine. This revisited old-new foreign political paradigm seems to be implemented through the foreign and security directives of President Trump’s second term administration, particularly concerning controversial issues and hegemony concerns in the Caribbean region (Venezuela, Panama Canal), as well as in the Arctic, considering the highly disputed American annexation plan of Greenland against the objection of a long-time US ally, the Kingdom of Denmark.

Trump’s foreign policy strategies have ultimately been shaped by a combination of anti-liberal conservative commitments, personal diplomacy, and a pragmatic response to shifting global dynamics, mostly neglecting the institutionalized global diplomacy of the United Nations. While the Trump administration’s populist messages and protectionist trade policies attracted significant domestic support in the first months of his second term, they also reshaped diplomatic terms and strained relations with traditional, predominantly European allies (with few exceptions, like Hungary and Türkiye), and challenged global trade norms previously established and maintained by the United States itself.

President Trump’s focus on unilateral actions, relying on his bulwark political slogans “America First” and “MAGA”, his economic nationalism, and military disengagement marked a clear departure from mainstream liberal institutionalist American foreign policy approaches. Whether these strategies ultimately served American interests or isolated the US on the world stage remains a subject of ongoing debate among analysts, since the second term of his presidency has not even reached its halfway point.

⁵⁴ Cf. with the findings of Csizmazia et al. 2025.

⁵⁵ U.S. Department of War 2025.

⁵⁶ The manuscript of this paper had been closed by the end of November 2025, only a few weeks before the two above-mentioned important strategic documents were to be published in the US. However, the length of this study does not allow a detailed presentation and analysis of the aforementioned strategic documents.

Across both of Trump's administrations, US policy towards Ukraine and Russia has been marked by a tension between classical support for sovereignty and territorial integrity of Ukraine – in the form of sanctions and aid – and a president predisposed towards diplomatic pragmatism, often at the expense of long-term strategic clarity and predictability with the aim of appeasing, containing, and neutralizing an expansionist Russia in Eastern Europe. All the same, the primary strategic hegemony-challenger rival of the United States remains China, whose ambitious maritime development projects in the Pacific region must also be counterbalanced and contained by the United States and its allies in the region, most notably by Japan, Australia, and South Korea. Presumably, a potential and predictable superpower clash between the US and China might occur in that strategic region in the 21st century.

During the first term of Trump's presidency, the balance leaned towards support for Ukraine, albeit shattered by internal contradictions and controversial presidential rhetoric. In his second term, the balance appears to be shifting again: to a much more striking and harsher economic line against the Russian Federation, but with also a growing willingness to diplomatic solutions that may compromise Ukraine's position and legitimize the shaky *status quo* along the frontlines.

This oscillation and *ad hoc* diplomacy prove to be a negotiating tool for the White House, although it is also a risky factor of uncertainty, which may undermine the coherence and reliability of US foreign policy. Provided it is pursued without clear guarantees, it risks weakening both Ukraine's statehood and national security, as well as long-term US influence in Eastern Europe and the strategic dilemma of NATO's Eastern flank facing a growing risk of escalation into a full-blown war and transcontinental security threat from the part of the Russian Federation in the forthcoming years.

The Trump administration's approach to European affairs tends to reflect partly great power arrogance or *hubris*,⁵⁷ and partly negligence, dismay, and a distorted sense of resentment of being personally offended, a feeling that has been expressed by both key parties involved: President Trump and the liberal leaders of the European Union. This sort of allied dissent and soft political hostility between Washington and Brussels certainly does not contribute to a successful, orchestrated transatlantic effort to achieve a lasting peace in Eastern Europe with or against an increasingly more assertive Russia.

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⁵⁷ Also *hybris*, is a Greek word, meaning 'pompous pride', applied to great power arrogance, an attitude that has prevailed for centuries among great powers, such as Russia or the US. See the comprehensive analysis of the US Congressional Research Service 2024, 22–30.

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WOUNDS AND NARRATIVES: CULTURAL TRAUMA, HISTORICAL INTERPRETATION, AND THE CHINA–HUNGARY RELATIONS SINCE 2010

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ABSTRACT: *This paper analyzes how national trauma narratives affect contemporary Chinese–Hungarian relations by comparing China’s “Century of Humiliation” with Hungary’s Trianon trauma. Drawing on Jeffrey C. Alexander’s cultural trauma theory and a hermeneutic interpretive method, the study examines how these narratives, which emerged from major military conflicts since the Opium Wars and the First World War, produced the historical ruptures that later became central to both countries’ identity formation. Although the traumas differ, they function similarly as state-mediated narratives that define collective identity and attribute responsibility to external actors associated with “the West”. Through analysis of speeches, museums, and political discourses, the paper shows that both governments frame Western modernity and liberalism as threatening forces. In both countries, trauma narratives portray Western actors as unsympathetic to national sovereignty. The conclusion suggests that trauma-based identity constructions offer a key explanation for why Hungary, unlike other EU member states, exhibits a uniquely affirmative perception of China.*

KEYWORDS: *cultural trauma, historical memory, Trianon, “Century of Humiliation”, Chinese–Hungarian relations, foreign policy narratives*

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INTRODUCTION

In recent years, the bilateral relations between the People’s Republic of China and Hungary have deepened to a degree unmatched by any other European Union member state. Since 2010, the Orbán government has articulated¹ a foreign policy doctrine premised on an “Eastern Opening”, repositioning Hungary as a state that seeks strategic cooperation with rising non-Western powers and expresses² skepticism towards the political and normative authority of Western institutions. Simultaneously, Chinese political discourse has intensified³ its narrative of rejuvenation following the “Century of Humiliation” framing

¹ Greilinger 2023.

² Lehoczki 2023.

³ Metcalf 2020.

global politics as a space in which Western hegemony is gradually eroding and new centers of civilizational power, most prominently China, are emerging. The convergence of these discourses raises a central question: Why do the political narratives of two states with profoundly different histories resonate so strongly, and how does this resonance affect their contemporary strategic alignment?

This paper argues that the strengthening of China–Hungary relations since 2010 can be partially explained through the lens of cultural trauma theory, as articulated⁴ by Jeffrey C. Alexander, and understood through an interpretive-constructivist methodology⁵ within international relations. The core proposition is not that Chinese and Hungarian historical experiences are identical, nor that their traumas are equivalent in scale or substance. Instead, the argument developed here follows a moderate comparative line: Hungary’s Trianon narrative⁶ and China’s “Century of Humiliation”⁷ constitute two distinct but structurally comparable instances of state-narrated historical grievance, both mobilized to interpret present geopolitical realities and justify foreign policy reorientation away from the liberal West.

This approach departs from traditional rationalist explanations of Chinese and Hungarian foreign policy, which typically emphasize material incentives: economic interdependence, investment flows, infrastructure financing, and strategic bargaining within the EU and NATO.⁸ While these factors are significant, they do not sufficiently account for why Hungary, uniquely among EU member states, frames China not as a strategic risk or “necessary evil” but as a partner in building an alternative world order.⁹ Economic interdependence clearly matters. It is most visible in Hungary’s participation in the Belt and Road Initiative, in the Chinese financing of the Budapest–Belgrade railway line, and in strategic bargaining within the EU. However, material incentives alone cannot explain Hungary’s outlier status. Other Central and Eastern European states (notably Lithuania and the Czech Republic) have also received substantial Chinese economic overtures, yet have grown markedly more skeptical. Trauma narratives function here as a cognitive filter: they shape how Hungarian elites interpret and prioritize these opportunities as expressions of restored sovereignty rather than as threats to liberal norms. The present study, therefore, does not dismiss rationalist explanations but argues that cultural trauma supplies the crucial interpretive vocabulary that renders material cooperation politically and morally intelligible. While multiple Central and Eastern European states, most notably Lithuania, have grown increasingly skeptical of Chinese influence, Hungary has moved in the opposite direction.¹⁰ Understanding this divergence requires attention to narrative interpretation: how states make sense of their historical position, how elites mobilize collective memory, and how cultural trauma becomes a resource for foreign policy construction.

Interpretive constructivism offers the most appropriate methodological grounding for this inquiry. Unlike rationalist or positivist models, interpretive international relations (IR) scholarship emphasizes¹¹ meaning-making practices, narrative frameworks, and socially

⁴ Alexander 2012, 6–30.

⁵ Johnstone – Sukumar 2025.

⁶ Ilg 2021.

⁷ Metcalf 2020.

⁸ Matura 2020.

⁹ Koleszár 2024.

¹⁰ Wang 2022.

¹¹ Zehfuss 2002.

constructed identities as central determinants of state behavior. States do not simply act based on external constraints or material interests, rather, they interpret their environments through culturally embedded narratives that define threats, allies, responsibilities, and possibilities. In this context, cultural trauma is not merely a historical event, but a current interpretive lens reproduced through education, political discourse, commemorative practices, and institutionalized memory regimes.

In both China and Hungary, trauma narratives have been elevated to the level of national identity projects. China's "Century of Humiliation", encompassing imperialist encroachment by Western powers and Japan from 1839 to 1949, functions as the defining negative reference point against which national rejuvenation is framed.¹² Contemporary Chinese political discourse increasingly situates Japan within "the West" as part of a broader civilizational bloc historically responsible for China's subjugation, a reframing supported by recent historiographical analyses of Chinese nationalist discourse.¹³ Similarly, Hungary's memory of the Treaty of Trianon operates as a foundational trauma shaping national identity.¹⁴ These narratives, though distinct in origin and structure, allow political elites in both states to interpret the liberal West not as a benign normative order but as a historically intrusive force whose dominance must be questioned.¹⁵

This paper develops its argument in three stages. The first part introduces the interpretive-constructivist approach and Alexander's cultural trauma framework, clarifying the methodological tools used in this study. The second part provides a detailed examination of the Chinese case, focusing on institutionalized trauma narratives, the political construction of humiliation, and the hermeneutic extension of "the West" to include Japan. The third part analyzes the Hungarian case, tracing the evolution of the Trianon narrative and contemporary anti-Western memory politics. The conclusion offers a comparative analysis, demonstrating how these trauma narratives produce a shared interpretive vocabulary conducive to alignment, culminating in Hungary's unique position as the only EU member state that does not frame China as a systemic rival. In the broader European context, this stance remains exceptional: while Germany and France pursue pragmatic but rivalry-framed engagement, and most CEE states (e.g., Lithuania) have cooled relations over security and EU coordination concerns, Hungary has consistently resisted critical EU language towards China, vetoed joint statements, and hosted high-level forums such as the Budapest Eurasia Forum. The conclusion reflects on implications for European foreign policy, Chinese global strategy, and the broader role of historical trauma in shaping international relations.

The research is additionally informed by limited fieldwork insights derived from conversations with Chinese students during a year of study in China. These discussions, while anecdotal, served as an initial stimulus for the present investigation and indicated the depth with which trauma-infused narratives permeate everyday political discourse. Although not used as empirical data, these experiences underscore the interpretive dimension at the core of this research.

Together, these components provide a comprehensive account of how historical grievances, when narrated through culturally resonant frameworks, may facilitate unexpected geopolitical alignments. China and Hungary are not bound by geography, culture, or polit-

¹² Kaufman 2011.

¹³ Stevens 2025.

¹⁴ Ilg 2021.

¹⁵ Orbán 2025; Hornok 2025.

ical system, yet they find common ground in trauma-derived skepticism towards Western universalism. Understanding this dynamic requires a methodological approach that foregrounds interpretation, narrative, and meaning; precisely the analytic contribution interpretive constructivism offers.

THEORETICAL FRAMEWORK: CULTURAL TRAUMA AND HERMENEUTIC INTERPRETATION

Introducing the Cultural Trauma Theory

Cultural trauma theory offers a way to understand how political communities construct meaning around historical suffering. Jeffrey C. Alexander defines¹⁶ cultural trauma as a process in which a collectivity comes to believe that it has suffered a profound wound that leaves lasting marks on its collective identity. The trauma is not inherent in the event itself. It becomes trauma when a society interprets it as a moral injury that reshapes how the community understands itself and its place in the world. This means that cultural trauma is fundamentally a meaning-making process. It is produced through narratives, symbols, public performances, and institutions that present certain past events as foundational wounds.

The Trauma Process

Alexander proposes that cultural trauma emerges through a structured process that involves several key components. There must be a carrier group: this is a set of actors, often political elites, intellectuals, clerics, or cultural leaders, who articulate the narrative of suffering and interpret it for the wider community. There must also be a clearly defined victim identity, in which the group claims that the injury harmed the core of who they are. The process includes the attribution of responsibility, which identifies the agents held accountable for the wound. Finally, the trauma narrative must be institutionalized through education, public rituals, memorials, and cultural production. Through this institutionalization, trauma becomes a stable part of collective identity and a lasting interpretive framework for understanding contemporary political realities. Alexander's model, therefore, provides a conceptual map for analyzing how both China and Hungary construct and sustain their dominant narratives of historical injury.

Hermeneutic Interpretive Method

Hermeneutics, understood as the systematic study of meaning, offers a methodological foundation for examining cultural trauma. It originates in classical philology and theology, but it has become a standard method across political theory, anthropology, and intellectual history. Hermeneutics takes seriously the idea that humans act based on interpretations, not objective facts alone. Its task is to reconstruct the horizons of meaning within which communities understand their past, their moral commitments, and their political choices.¹⁷

¹⁶ Alexander 2012, 6–30.

¹⁷ Ricoeur 1984, 139–170.

Rather than measuring variables, hermeneutics interprets symbolic content such as texts, rituals, commemorations, and political speeches. This makes it particularly useful for exploring how trauma narratives shape identity and orient foreign policy behavior.

The Concept of the West

A key element in both Chinese and Hungarian trauma narratives is the construction of an entity referred to as “the West”. In these contexts, the West is not primarily understood as a geographical space, but as a symbolic category associated with a particular form of modernity, liberal political order, colonial expansion, and global economic dominance.¹⁸ It functions as an imagined actor endowed with moral qualities, often portrayed as arrogant, interventionist, or hegemonic.¹⁹ Through this symbolic construction, historical suffering is interpreted, and moral responsibility is assigned, allowing national communities to organize collective memory around experiences of injustice or humiliation.

In Chinese political discourse, this symbolic West has expanded beyond Europe and North America to include Japan. Japanese imperial expansion is interpreted as having mirrored the practices and ambitions of Western colonial powers through military conquest, territorial annexation, and economic exploitation. Moreover, Japan’s integration into the international order dominated by Western states reinforces its classification within the same symbolic framework. As a result, Japan is commonly presented as having joined the Western camp, and its actions are interpreted within the broader narrative of historical humiliation that attributes China’s suffering to Western modernity, imperialism, and global dominance. In this sense, the West functions as a negative moral reference point against which national identity and historical experience are defined.²⁰

A similar symbolic logic operates within Hungarian political discourse, particularly in relation to the trauma of Trianon. The West is frequently portrayed as arrogant, hypocritical, or indifferent to Hungarian suffering, especially during moments of historical rupture. This perception is rooted in the belief that Western great powers failed to acknowledge Hungary’s historical continuity, moral claims, and national interests during the post-war settlement.²¹ Consequently, the West is often depicted less as a community of shared values and more as a distant and unreliable authority. This interpretive framework continues to shape contemporary Hungarian attitudes towards Western institutions, which are frequently perceived as imposing norms and judgments without sufficient sensitivity to national history and identity.

Across both cases, the West operates as a symbolic benchmark through which historical trauma is interpreted and national self-understanding is articulated. Rather than serving merely as an external reference, it becomes a central organizing concept that structures moral evaluation, political skepticism, and narratives of collective victimhood.

¹⁸ Hall 1996, 184–227.

¹⁹ Chakrabarty 2000, 27–29.

²⁰ Wang 2012, 30–100.

²¹ Romsics 2002, 171–230.

Bridge to Case Studies

This theoretical framework provides the tools for analyzing the Chinese Century of Humiliation narrative and the Hungarian Trianon narrative. Alexander's trauma process clarifies how these narratives were constructed through carrier groups, victim definitions, and institutionalization. In this study, particular attention is given to the attribution of responsibility, because the construction of a perpetrator is the moment when traumatic memory gains moral force. It is at this stage that communities define who injured them, how the injury fits into a wider civilizational context, and why the trauma matters for present political identity formation. This makes the category of the West a central object of interpretation in both the Chinese and Hungarian cases. Hermeneutics offers a method to interpret the symbolic and moral content embedded in these narratives. Finally, the concept of the West allows us to understand why both states direct their traumatic memories towards a shared symbolic adversary.

The selection of sources followed a purposive sampling strategy designed to capture institutionalized elite-level trauma narratives. For the Chinese case, I examined key official speeches by Hu Jintao (2011) and Xi Jinping (2012, 2017, 2019), the Nanjing Massacre Memorial Hall as the paradigmatic site of memory, and post-1990s textbook reforms as analyzed by Zheng Wang and Edward Vickers. For the Hungarian case, the analysis draws on Viktor Orbán's major foreign-policy addresses (2014 Tusnádfürdő, 2024 Budapest Eurasia Forum), the Trianon Museum and National Cohesion Memorial, and the scholarly literature on Trianon memory politics (Romsics, Ilg, Gyurgyák). The hermeneutic process involved close textual reading to identify recurring motifs of victimhood, perpetrator attribution to "the West", and moral lessons of sovereignty and rejuvenation. These motifs were then cross-referenced with Alexander's four-component trauma process (carrier group, victim identity, responsibility attribution, institutionalization). This interpretive-constructivist approach prioritizes a thick description of meaning-making over quantification, ensuring conclusions emerge directly from the symbolic content.

CHINA'S CULTURAL TRAUMA NARRATIVE: THE CENTURY OF HUMILIATION

Defining the Narrative

The Century of Humiliation²² functions as the core historical trauma in modern Chinese national identity. It refers to the period roughly from the First Opium War to the Japanese surrender in 1945. This period marks a sequence of defeats, unequal treaties, foreign spheres of influence, and direct occupation. The narrative presents these events as a prolonged moment in which China lost control over its sovereignty, territory, and cultural authority. Within contemporary Chinese political culture, this trauma is a foundational story that explains why the modern nation must remain vigilant when facing foreign powers.

²² Kaufman 2011.

Key Elements of the Narrative

The trauma narrative, according to Alexander's theory,²³ acquires meaning by assigning roles and shaping a moral lesson. The victim is defined as the Chinese nation, understood as an enduring collective that suffered fragmentation, humiliation, and the breakdown of legitimate authority. Responsibility is placed on the Western imperial powers that imposed unequal treaties, enforced extraterritorial privileges, and exploited China's internal crises. The wound is therefore described as the loss of sovereignty, the humiliation of forced concessions, and the inability to defend the nation. The moral lesson stresses the need for unity, national strength, and political renewal, because only a strong China can prevent the recurrence of foreign domination. This narrative structure follows Alexander's model in which trauma becomes a collective identity marker that guides contemporary political interpretations.

Japan as Part of the West

Chinese political discourse often incorporates Japan into a broader category of Western imperialist aggression. This interpretation does not depend on geographical classification. It emerges from the perception that Japan adopted Western industrial, military, and imperial models and then applied them in East Asia. Scholars of memory politics, such as William Callahan²⁴ and Zheng Wang,²⁵ point out that Chinese textbooks and official speeches often depict Japan as an extension of the same imperial logic that produced the earlier Western intrusions. This framing allows the narrative to maintain continuity from the Opium Wars to the atrocities committed during the Second Sino–Japanese War.

Institutionalization in Museums

The Museum of the Nanjing Massacre is not the only institution commemorating the century of humiliation, but it occupies a central place in the institutional reproduction²⁶ of China's trauma narrative. Its architectural design²⁷ directs visitors through a sequence that moves from shock to mourning and finally to political reflection. The entrance route uses statues of terrified civilians, soundscapes of sirens, and symbolic ruins to create an immediate moral atmosphere of vulnerability. Inside, large photographic panels, pit memorials with human remains, and documentary footage reconstruct the violence as a moment of absolute powerlessness. The museum's narrative structure guides the visitor from the collapse of Nanjing's defense to mass killings, sexual violence, and the international tribunal records. The final exhibition space turns explicitly political. It stresses that the massacre occurred because China was weak and divided, and highlights slogans encouraging unity, vigilance, and national strength. Museum researchers such as Kirk Denton note²⁸ that the site functions as a pedagogical institution that aligns historical suffering with the Party's claim that rejuvenation is the only guarantee against renewed humiliation.

²³ Alexander 2012, 6–30.

²⁴ Callahan 2004.

²⁵ Wang 2012, 30–100.

²⁶ Matson 2024.

²⁷ ArchDaily 2017; Contested Histories Initiative 2024.

²⁸ Denton 2014, 135–152.



Figure 1 Imperialism 1900: The bear represents Russia, the lion Britain, the frog France, the sun Japan, and the eagle the United States

Source: Wikimedia Commons https://commons.wikimedia.org/wiki/File:The_situation_in_the_Far_East_by_Tse_Tsan-tai.jpg

Institutionalization in Textbooks

Education and mass culture further consolidate the Century of Humiliation narrative. Studies by Zheng Wang²⁹ and Edward Vickers³⁰ demonstrate that state textbook reforms after the 1990s' patriotic education campaign shifted the emphasis from class struggle to national humiliation. Textbooks describe the late Qing period as a time when foreign powers carved up China, and they repeatedly use formulations such as "a weak nation with no diplomacy". These curricular materials encourage students to interpret sovereignty as inherently fragile and to view foreign pressure as structurally similar to the intervention of earlier imperial powers.

Contemporary Political Use

The Century of Humiliation has become a central interpretive framework used by the Chinese state to justify strategic autonomy, ideological security, and national rejuvenation. Xi Jinping's speeches repeatedly situate the Chinese Communist Party's (CCP) authority in its capacity to overcome this traumatic past and to prevent its recurrence.

The theme gained renewed prominence in high-level Party rhetoric during Hu Jintao's 2011 address marking the 19th anniversary of the CCP, in which he described³¹ the period from the Opium Wars to 1949 as a time when China was subjugated and bullied by foreign imperialist powers. Hu presented the Party as the historical force that ended this era of humiliation and restored national dignity, linking the CCP's legitimacy directly to its ability to defend sovereignty. When Xi Jinping came to power a year later, he amplified this narrative. He positioned national rejuvenation as the Party's central mission, thereby reinforcing the idea that the CCP and the protection of China's sovereignty are inseparable.

The political significance of this trauma narrative was articulated more fully in Xi's 2012 address at the National Museum during the opening of the "Road to Rejuvenation" exhibition. He described³² the late nineteenth and early twentieth centuries as the darkest period in the nation's history and stated that national rejuvenation is the greatest dream of the Chinese people. This speech was a key moment in the institutionalization of trauma memory. It publicly linked past humiliation to the Party's contemporary governing mission, signaling that China's rise should be understood as a historical correction to earlier injustice.

The narrative gained further strategic meaning during the Nineteenth Party Congress in 2017. Here, Xi connected³³ historical humiliation to three major policy agendas. First, he emphasized technological self-reliance as a condition for overcoming the vulnerabilities that once allowed foreign powers to dominate China. Second, he framed military modernization as necessary to ensure that China can never again suffer the defeats associated with the late Qing era. Third, he presented independence from Western political norms as essential for protecting China's cultural identity and political system. These interpretations demonstrate that trauma memory informs domestic governance and global strategy at the highest level.

²⁹ Wang 2012, 33–100.

³⁰ Vickers 2022.

³¹ Jintao 2011.

³² Jinping 2012.

³³ Xinhua 2017.

The same themes appeared in Xi's speech celebrating the seventieth anniversary of the People's Republic in 2019. He declared³⁴ that the Chinese people will never again be humiliated and warned that any force that tries to bully China will break its head against a Great Wall of steel forged by over 1.4 billion Chinese people. This formulation links collective memory with contemporary deterrence, presenting national unity and state power as the moral lessons derived from trauma.

A central political theme under Xi Jinping is the idea that foreign ideological influence constitutes a contemporary extension of the pressures China faced during the Century of Humiliation.³⁵ This framing appears consistently in his speeches on national security and ideological work. The same logic underpins Document Number Nine,³⁶ an internal Party directive that warns against Western constitutionalism, universal values, and civil society. The document portrays these concepts not as neutral political principles but as instruments of foreign interference designed to weaken China's political sovereignty and ideological cohesion. Together, Xi's security discourse and Document Number Nine reinforce a narrative in which vigilance against external ideological pressure is essential to preventing new forms of national humiliation.

Public Opinion or Party Opinion?

While public opinion data in China is limited and cannot be used in the same way as in electoral democracies, the effectiveness of trauma narratives does not primarily depend on measurable mass approval. In the Chinese context, what matters most is the degree to which the narrative is accepted and reproduced by the Party state. Once a historical interpretation is consolidated within elite political discourse and institutionalized through education, media, and commemorative practices, it acquires the status of an authoritative national memory. Even if individual interpretations vary at the societal level, the Party's monopoly over official historical meaning ensures a high level of narrative coherence. As a result, the trauma narrative functions less as a reflection of popular sentiment and more as a top-down interpretive framework that structures how history, sovereignty, and foreign relations are publicly understood. This makes elite-level consensus more analytically significant than individual-level attitudes when assessing the foreign policy implications of trauma in the case of China.

HUNGARY'S CULTURAL TRAUMA NARRATIVE: TRIANON AND NATIONAL LOSS

The Core Narrative

The Treaty of Trianon, prepared at the Paris Peace Conference and signed in 1920, constitutes the central traumatic event of modern Hungarian national memory. As a result of the treaty, Hungary lost approximately two-thirds of its pre-war territory and more than half

³⁴ Xinhua 2019.

³⁵ Metcalf 2020.

³⁶ ChinaFile 2013.

Institutionalization in Memory Culture

The memory of Trianon has been deeply institutionalized within Hungarian public culture. School textbooks, public monuments, memorial statues, and national commemorations consistently reproduce the event as a core reference point of national identity. Annual remembrance days and symbolic representations, such as maps depicting pre-Trianon Hungary, reinforce a sense of historical continuity between territorial loss and present-day collective self-understanding.

The memory of Trianon has been deeply institutionalized within Hungarian public culture through a dense network of educational, commemorative, and symbolic practices. This institutionalization is further reinforced by dedicated sites of memory, such as the Trianon Museum in Várpalota³⁷ and the Memorial of National Cohesion (*A Nemzeti Összetartozás Emlékhelye*) in Budapest,³⁸ which frame the treaty as a lasting national rupture rather than a closed historical episode. In addition, since 2010, the establishment of the National Cohesion Day (*Nemzeti Összetartozás Napja*) as an official remembrance day has engraved the trauma in the state calendar. Together with recurring symbolic representations, these practices create a sense of historical continuity. At the same time, this does not imply that Trianon is consciously invoked in the daily thinking of most Hungarians. Rather, its significance lies in its latent presence. It functions as a background framework that shapes broader attitudes towards sovereignty, injustice, and relations with external powers. Scholars of Hungarian memory politics have noted³⁹ that Trianon operates less as a constantly articulated grievance and more as a taken-for-granted interpretive horizon through which political claims and worldviews acquire meaning. Through its institutionalization in education, commemorative practices, and political symbolism, the trauma narrative is transmitted across generations. This ensures its continued relevance not through constant repetition, but through its capacity to structure public perceptions and political reasoning in subtle yet enduring ways.

Political Rhetoric of the Eastern Opening

Since 2010, the Hungarian political elite has increasingly employed historical references within a broader critical discourse towards the West. While the trauma of Trianon is not a direct or explicit foundation of the government's Eastern Opening policy, it forms part of the symbolic background that lends resonance and credibility to anti-Western rhetoric in contemporary political debate. In speeches and public statements, Prime Minister Viktor Orbán has contrasted what he describes as the Western civilization declining with the rise of new Eastern centers of power. He has argued that Hungary must pursue pragmatic and sovereignty-oriented relations beyond the traditional Western framework. This rhetoric has been reinforced by influential intellectual figures close to the government, such as Balázs Orbán⁴⁰ and Mária Schmidt,⁴¹ who frame Western liberalism as morally exhausted and culturally alien to Hungarian traditions. Within this discourse, the East is presented not merely as an economic opportunity but as a civilizational alternative to Western dominance.

³⁷ Trianon Museum website.

³⁸ Trianon100.

³⁹ Gyurgyák 2007, 315–328; Todorova (ed.) 2010; Brubaker et al. 2011, 134.

⁴⁰ Orbán 2022.

⁴¹ Schmidt 2020; Schmidt 2019.

Civilizational Rhetoric and Foreign Policy Orientation

In contemporary foreign policy discourse, Hungarian leaders invoke historical trauma narratives to justify closer ties with non-Western powers, especially those positioned as challengers to Western dominance. Although these partnerships are often presented in pragmatic economic or strategic terms, they are also underpinned by a broader symbolic logic. China, for instance, is depicted as a civilizational power that values sovereignty, national development, and resistance to external interference. Hungary's engagement with China is therefore framed not as a rejection of Europe, but as an exercise of national autonomy shaped by historical experience. The trauma narrative provides a conceptual frame that renders these partnerships both understandable and historically grounded.

In his 2014 *Tusnádfürdő* speech, a widely cited and influential address, Viktor Orbán challenged⁴² the universal authority of Western liberal democracy, declaring that “systems that are not Western, not liberal, not liberal democracies and perhaps not even democracies, can nevertheless make their nations successful.” By naming China, Russia, and India as successful non-liberal models, Orbán created a discursive space in which skepticism towards Western norms is legitimized and partnerships with non-Western powers become historically grounded. Although Trianon is not named explicitly, the speech resonates with the long-standing Hungarian experience of externally imposed moral authority, thereby lending symbolic credibility to the Eastern Opening. As the speech established this discursive space and skepticism towards Western norms became legitimized, alternative global partnerships, including with China, can be conceived as reasonable and historically grounded. This demonstrates how trauma narratives operate indirectly, shaping the symbolic environment that guides foreign policy interpretation.

In his 2024 speech inaugurating the Budapest Eurasia Forum, Orbán emphasized⁴³ Hungary's need to situate itself in a shifting global order, highlighting the decline of Western dominance and the rise of Eastern powers. He framed Hungary's engagement with Asia as forward-looking, strategically autonomous, and compatible with national interests. This rhetoric situates Hungary within a broader civilizational narrative that contrasts Western inefficacy with the dynamism of the East. Within the trauma-informed interpretive framework, the speech illustrates how historical memory subtly shapes contemporary foreign policy. The East is not idealized, but it represents a space in which Hungary's sovereignty and agency are less constrained by Western moral or political authority.

CONCLUSION

This study compared Hungarian and Chinese trauma narratives through a hermeneutic lens. The aim was not to demonstrate historical equivalence between the Treaty of Trianon and the Century of Humiliation, but to identify structural similarities in how these experiences are interpreted and mobilized in political discourse. By shifting attention from historical events themselves to their meaning-making processes, the analysis has shown how distinct historical trajectories can generate comparable interpretive frameworks that shape contemporary political orientations.

⁴² Orbán 2014.

⁴³ Orbán 2024.

A central similarity exists in the construction of a collective victim identity. It is important to acknowledge that the two traumas differ structurally. China's Century of Humiliation arose from external imperialist interventions and semi-colonial dependence, whereas Trianon resulted from the dissolution of a multi-ethnic Habsburg state through great-power diplomacy. The parallel is therefore primarily discursive: both are framed as externally imposed wounds inflicted by "the West." In this study, "the West" is understood not as a monolithic geographical entity but as a symbolic complex, encompassing liberal modernity, the post-1945 institutional order (EU/NATO), and normative claims to universalism that both narratives portray as historically insensitive to national sovereignty. In both Hungary and China, national history is narrated through the experience of externally imposed injustice. Trianon is presented in Hungarian discourse as an unjust dismemberment carried out by Western victors, while Chinese narratives portray the nineteenth and early twentieth centuries as a prolonged period of humiliation inflicted by imperial powers. In neither case are these experiences confined to the past. They are treated as formative traumas that continue to define national identity. Suffering is thus transformed into a moral resource that legitimizes political claims and strengthens internal cohesion.

This victim-centered self-understanding feeds into a shared skepticism towards the West. In both narratives, Western powers are assigned moral responsibility for historical suffering, which shapes how contemporary Western criticism, norms, or institutional pressures are perceived. Rather than being interpreted as neutral or universal, Western influence is often viewed as hypocritical, insensitive, or self-serving. Despite the vast differences between Hungary and China in terms of size, power, and global position, their trauma narratives produce a similar form of moral mistrust towards Western authority.

These attitudes are further reinforced by civilizational framing. Both political discourses emphasize the existence of a distinct civilizational identity that stands apart from Western modernity. In China, official rhetoric stresses the continuity of Chinese civilization and its unique developmental path, often articulated through references to Chinese characteristics. In Hungary, political discourse, particularly under Viktor Orbán, emphasizes Central Europe's specific historical experience and cultural difference from the Western liberal core. In both cases, political disagreement with the West is elevated into a broader moral and cultural distinction.

This shared interpretive structure helps explain Hungary's distinctive position within the European Union regarding China. While EU institutions increasingly frame China as a strategic rival or systemic challenge, Hungary has consistently resisted this language. Instead, Hungarian government discourse emphasizes sovereignty, pragmatism, and mutual respect. When viewed through the lens of trauma narratives, Hungary's approach to China appears shaped by a perceived historical affinity. Both nations are understood as having experienced domination or marginalization within a Western-centered international order.

This paper has demonstrated that cultural trauma narratives play an important role in shaping foreign policy orientations. By examining how collective memories of suffering are constructed and interpreted, the analysis highlights the moral and cultural dimensions that influence state behavior. In the Hungarian case, this helps explain why foreign policy positions towards China may diverge from broader alliance expectations within the European Union.

Future research could extend this comparative and hermeneutic approach to other cases in which historical trauma shapes political orientation. Examining countries such as Russia or Serbia through the lens of cultural trauma could reveal additional parallels in how

collective memory shapes foreign policy and further deepens our understanding of the relationship among history, identity, and international relations.

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COVID-19: IS IT REALLY OVER? – FATIGUE MANAGEMENT IN POST-COVID SYNDROME AND MEASUREMENT OF FATIGUE

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ABSTRACT: *Since the beginning of human-manned flights, it is known that “It is not the resistance of material which limits the aerobatic performance of the artificial bird, but the physiologic resistance of man, who is the brain of the artificial bird” (Louis Blériot).¹ Therefore, the protection and measurement of human performance is of utmost importance for aviation safety. Fatigue is among the most common human factor errors that jeopardize the performance and safety of flights.² The scientific literature on COVID-19 infection, and particularly, post-COVID syndrome, describes fatigue as one of the most common complications after the infection that persists for a very long time. Fatigue is commonly measured only by subjective questionnaires, and there are no commonly used objective methods to measure it. This study examines the prevalence of post-COVID fatigue among national military and civilian aviators to determine its aviation safety risks and search for possible objective measurement methods of fatigue.*

KEYWORDS: *aviation safety, human factor error, post-COVID, human performance, fatigue*

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INTRODUCTION

Aviation safety is a result of complex cooperation among multiple fields of expertise, a factor that we do not really notice; rather, we see the lack of it when aviation safety lines fail, and an aviation incident or accident happens. It requires a well-working integration of the system (the aircraft), the environment, and the human (pilot), known as the Human-System-Integration (HSI). Nowadays, the system (aircraft and aviation assisting software) is very much developed and seemingly reduces workload on humans, but this seeming is an illusion. New age technologies may have more flight-assisting software, but the manoeuvrability, speed, and aerobatic performance of the aircraft are also increased, putting significantly higher physiological stress on the pilots. Besides this, the numerous instruments displaying a lot of information require pilots to give high performance in information pro-

¹ Louis Blériot French pilot and aviation engineer's words from 1922. (Kirkham et al. 1982, 1.)

² Buzai 2004.

cessing. Human factor errors – such as fatigue or concentration problems – may severely reduce human performance and lead to aviation safety risks.

Despite the new technologies and software, the human factor is still the weakest point in aviation safety, and the most common reason for aviation accidents. Fatigue, concentration problems, and lack of awareness are among the most frequent and dangerous causes of human factor errors.³ Therefore, anything that may jeopardize human performance by causing fatigue or concentration problems is of great interest in aviation safety, and we need to search for possible ways of reducing this risk.

Since the beginning of the COVID-19 pandemic, the medical scientific community has been collecting, analysing, and publishing data regarding the symptoms and most common complications of COVID-19 infection in the short term and the long term as well (post-COVID syndrome⁴ and long COVID syndrome⁵); however, the aviation safety aspects of these conditions have been very little considered.

The significant decrease in performance (worse reaction time, higher mistake ratio) after COVID-19 infection has been detected since the very beginning of the pandemic.⁶ Among the most common symptoms and complications of COVID-19 infection, the long-lasting fatigue and brain fog are even more dangerous from an aviation safety aspect. Fatigue and brain fog develop in cc. 60–70% of all cases of post-COVID syndrome⁷ and persist in long COVID in about 40% of all infections. According to recent studies, they may endure up to 8–12 months after infection.⁸ Both may jeopardize human performance, especially in attention-demanding professions, such as pilots, air traffic controllers, and aircraft maintenance mechanics.

The importance of fatigue is well known in aviation. The International Civil Aviation Organization (ICAO) issued five different manuals and recommendations for fatigue management to reduce the aviation safety risk aspects of fatigue.⁹ NATO also emphasized fatigue management in a Standardization Agreement (STANAG).¹⁰

Long-lasting chronic fatigue and brain fog development in post- and long COVID syndrome may pose a great aviation safety risk; the also common post-COVID sleeping disorders may further increase the danger of developing chronic fatigue. This survey also aims to confirm the persistence of fatigue after COVID-19 infection among aviators.

Even nowadays, fatigue is only measured by self-evaluated questionnaires, not objectively. Considering the operational pressure and task load in aviation, especially in military aviation, the true validity of such self-evaluations is very much questionable. It would be beneficial to develop an objective measurement method of fatigue instead of self-evaluation.

The aim of this research is to study the prevalence of post-COVID fatigue among aviators, evaluate its aviation safety risk, and mitigate it by identifying an objective measurement method. The questionnaire survey is still going on; therefore, this study reports preliminary results.

³ Buzai 2004.

⁴ Magyar Tüdőgyógyász Társaság 2021, 6. Complaints persisting longer than 4 weeks after COVID-19 infection.

⁵ National Academies of Sciences, Engineering, and Medicine 2024. Complaints persisting longer than 12 weeks after COVID-19 infection.

⁶ Zhou et al. 2020.

⁷ Halpin et al. 2021.

⁸ Peter et al. 2022.

⁹ ICAO 2020a; ICAO 2016b; ICAO 2015; ICAO 2016a; ICAO 2020b.

¹⁰ NATO 2021.

COVID-19: IS IT REALLY OVER?

The COVID-19 pandemic started several years ago. It alerted the whole world, as people had to face severe morbidity and mortality rates that had not been seen for generations. To control the spread of the infection, strict epidemiological regulations were introduced, and the world was locked down for a long time. As the years passed, preventive measures, attention, and the awareness of the population gradually decreased. From 2024 onwards, basically all previously ordered preventive measures and obligations have faded away. Nowadays, COVID diagnostics are rarely done; COVID and seasonal flu are not distinguished among the seasonal flu-like sicknesses, and no one really thinks about COVID-19 as a possible cause of the sickness. After the decreased number of vaccinations worldwide and underreported case numbers due to reduced diagnostic trends, morbidity and mortality rates declined, and people tend to forget about COVID-19 infection and its possible consequences and complications. Nevertheless, international literature and morbidity databases show that the presence of COVID-19 is still the root cause of many sicknesses. The relevant literature also highlights the danger of repeated COVID-19 infections,¹¹ in which the symptoms may be milder, but the post-COVID complications are shown to be more imminent with every re-infection. In summary, awareness to avoid COVID-19 infection has decreased, vaccinations are no longer obligatory, and the ones given earlier are not effective by now. Preventive measures such as social distancing and using face masks are not commonly taken. Doctors do not conduct COVID-19 tests regularly, but the wastewater proves that COVID-19 and its new variants are still present in rising amounts. Most people do not even know that they are infected (again) with COVID-19. Therefore, the risk and likelihood of repeated COVID infections have even risen. Repeated COVID infections tend to have mild symptoms, so the risk of spreading the infection is also higher, as people may not even recognise their COVID sickness.

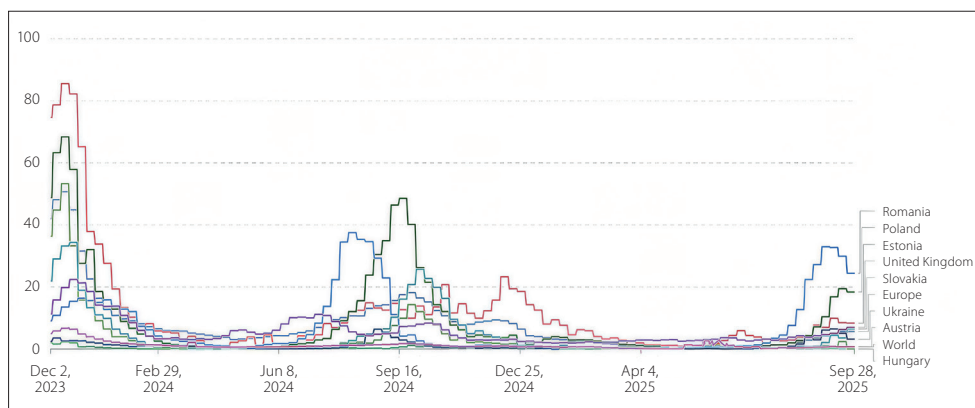


Figure 1 Daily new confirmed COVID-19 cases per million people between 2023 and 2025

Source: World Health Organization 2025, <https://ourworldindata.org/COVID-cases>

Figure 1 shows an overview of newly diagnosed COVID-19 cases from December 2023, when new vaccinations effectively reduced the contagion rates, and the number of new cases rapidly declined. The chart shows a significant reduction in numbers from 2023 to

¹¹ Schmidt 2023.

2024, but during flu season, the number of new cases in 2024 and 2025 remained stagnant. Therefore, COVID-19 is still among us every year, and the peaks do not tend to decrease. If we also consider the problem of likely underreported numbers due to the lack of COVID testing in everyday practice, we can assume that these new COVID-19 infection numbers are way higher in reality. Most of these can be repeated COVID infections as the virus is circulating through the entire population year by year, with new variants of the same virus.

The COVID-19 content of wastewaters confirms this suspicion. Figure 2 shows the trends of the COVID presence in the wastewaters of the USA, seasonally returning with the same peaks every year. Meanwhile, Figure 3 shows the obviously rising trend of the COVID virus presence in wastewaters in Hungary: the peak is shown to climb back upwards close to the levels measured in 2023 again.

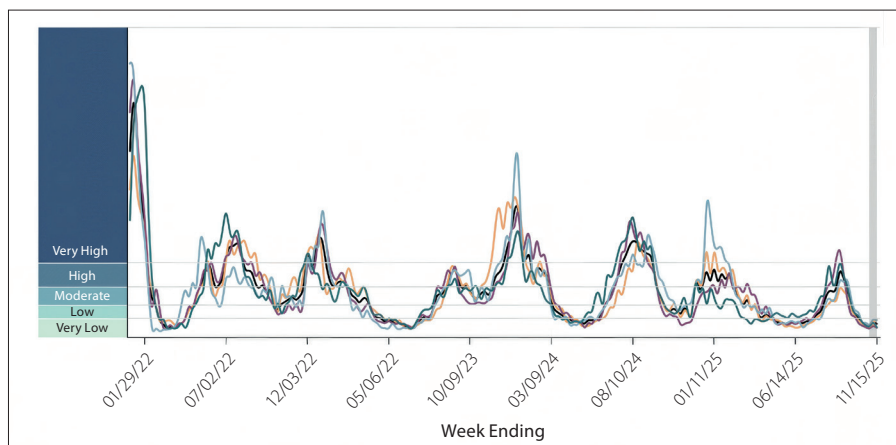


Figure 2 COVID-19 virus presence in wastewater trends in the USA between 2022 and 2025

Source: <https://cdc.gov/nwss/rv/COVID19-national-data.html>, all results view

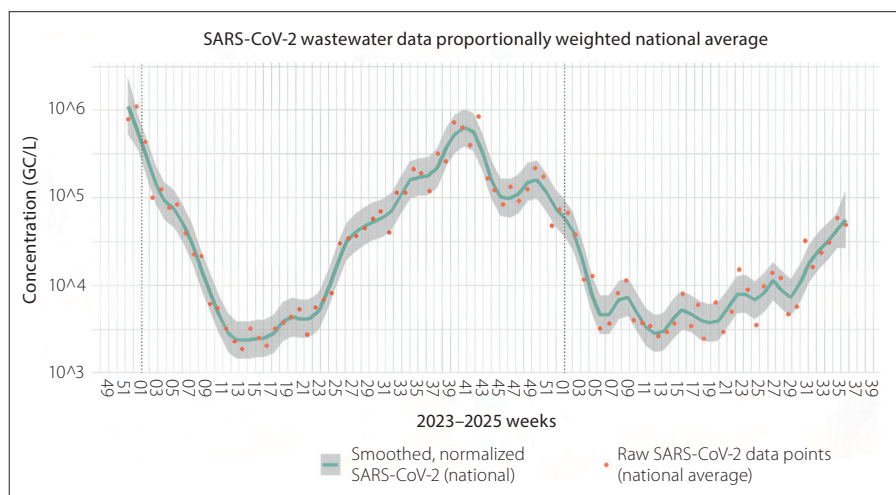


Figure 3 COVID-19 virus presence in wastewater in Hungary between 2023 and 2025

Source: <https://nngyk.gov.hu/hu/tovabbi-hirek/2025-35-heti-szennyvizvizsgalat-eredmenyek.html>

Reported new cases have indeed decreased by 2024, but from an aviation safety aspect, COVID is still with us every year, especially during flu season. Even if diagnosed COVID-19 cases are reported in low numbers, the presence of the virus is detected more objectively in the wastewater; we cannot forget the risks of post-COVID fatigue and brain fog in any high-demand profession.

Public awareness of COVID-19 infection is decreasing. Still, health care data show rising numbers of long COVID syndrome and no reduction in the prevalence of significantly limiting symptoms. With time, the risk of re-infection due to lower preventive and diagnostic levels increases; therefore, the long COVID syndrome is expanding silently (Figure 4) and causes more and more complications even recently (Figure 5).

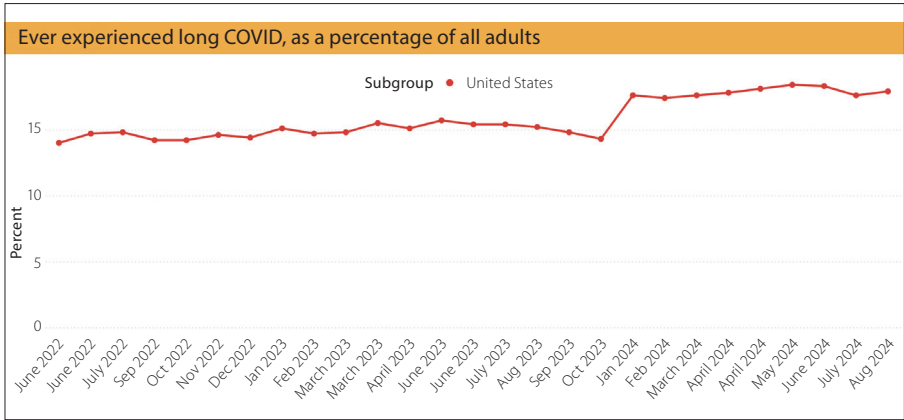


Figure 4 Prevalence of long COVID syndrome between 2022 and 2024
Source: <https://cdc.gov/nchs/COVID19/pulse/long-COVID.htm>, National estimate view

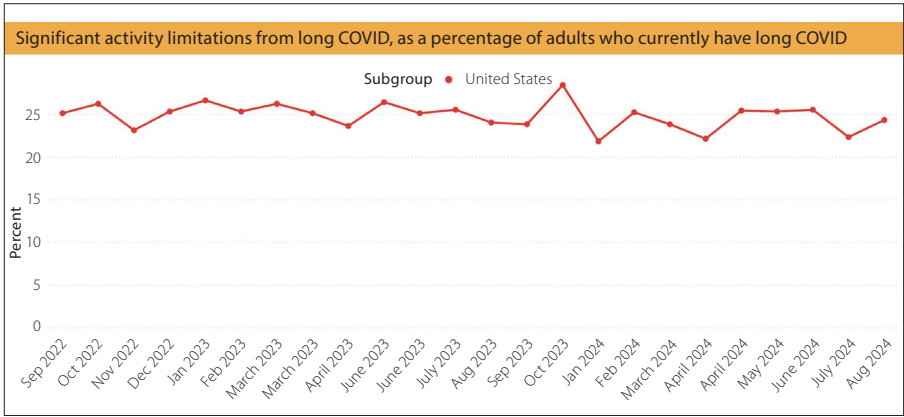


Figure 5 Prevalence of significant activity limitations in long COVID syndrome between 2022 and 2024
Source: <https://cdc.gov/nchs/COVID19/pulse/long-COVID.htm>, National estimate view

Can we really say that the COVID-19 pandemic is over? Not nearly. Our awareness and protective walls have faded – if not fallen – by now, while the virus is still taking its victims and causing even more severe post-COVID and long COVID infections. Fatigue and brain fog

have always been well-known threats to aviation safety. Unfortunately, the false sense of safety, thinking that the COVID-19 pandemic is over, only raises this risk as people themselves do not consider having COVID-19 infection anymore and do not consider the post-COVID and long COVID fatigue and brain fog, jeopardizing their daily work performance. Due to the recent lack of awareness about COVID-19, realising and monitoring fatigue, preferably in an objective way, is more important for aviation safety nowadays than ever.

PREVALENCE OF POST-COVID SYNDROME AMONG AVIATORS IN HUNGARY (PRELIMINARY RESULTS)

As described in the introduction, post-COVID and long COVID syndrome complications may pose a significant risk for aviation safety. To demonstrate my hypothesis, I conducted an online survey among professionals working in aviation-related fields on COVID-19 infections, repeated infections, characteristics of their symptoms, persistence of the virus, and self-reported aviation safety risks that the post-COVID syndrome might have caused in aviation work. The questionnaire was anonymous and voluntary. Data collection started in October 2024 and is still ongoing; the results are preliminary, based on 66 answers. The statistical analysis was performed by the RStudio program (t-test, Fisher's exact test, Wilcoxon test, and Cronbach's alpha determination). The significance level used during the analysis was $p \leq 0.05$.

METHOD AND SAMPLE OF THE SURVEY

The questionnaire had 50 questions in 5 main domains, such as sociodemographic data, the individual's COVID vaccination status and risk factors, COVID infection(s) with symptoms and severity during the months after the infection (I followed symptom prevalence up to 12 months), the individual's working characteristics (workload, working hours, work intensity, work and rest ratio), the individual's possible performance influencing post-COVID symptom complaints when returning to work after COVID infection, and finally, the general well-being (WHO Well-Being WBI-5) and sleep quality (Athens Insomnia Scale, AIS) before and after COVID-19 infection. Because sleeping disorders and well-being challenges may significantly worsen the severity of fatigue and the development of chronic fatigue, these data have high importance in determining the aviation safety risk of post-COVID and long COVID syndromes.

The sample of the survey involved 66 people working in aviation-related fields (pilots, air traffic controllers, aircraft mechanics, and candidates for these jobs). 79% of the answers came from men and 21% from women. The mean age of individuals was 44.85 years ($s = 13.65$). The prevalence of answers by age groups is shown in Table 1.

Table 1 *Prevalence of age groups in the survey (Source: author)*

Age group	Prevalence
> 25 years	13.63%
26-35 years	10.60%
36-45 years	21.21%
46-55 years	31.81%
56-65 years	18.18%
> 65 years	4.54%

The mean age in the survey is relatively higher than the mean age among military aviation personnel. The explanation is that the survey also targets civilian aviators, as one of the hypotheses is that there would be a significant difference in the prevalence and severity of post-COVID symptoms in the case of military and civilian aviators. The hypothesis is based on the fact that military aviators are more regularly and strictly screened medically than civilians, and that the mean age among civilian aviators, especially holiday pilots, is higher. Ageing and the upper limit of age in aviation medicine are among the most pressing challenges nowadays. In terms of aviation safety risk of ageing pilots, the risk is obviously higher, as in their case, both the prevalence and severity of complications in post-COVID and long COVID syndromes are expected to be higher according to COVID-19 literature.

As for the **health condition** of the participants, the mean **Body Mass Index** (BMI) was 27.68 kg/m² (s = 5.77). The categories of BMI are shown in Table 2.

Table 2 *Prevalence by BMI categories in the survey (Source: author)*

BMI categories	Prevalence
Normal	33.33%
Overweight	37.87%
Obese I.	19.69%
Obese II.	4.54%
Obese III.	4.54%

Obesity is clearly a high-risk factor when it comes to more severe symptoms and complications after COVID-19 infection, according to international COVID-19 literature. Based on the preliminary data, 37.87% of individuals were overweight, and 19.69% were in the Obese I. stage. These rates are higher than among military aviators in general, and the reason again is the presence of civilian aviators in the sample. Further analysis would be necessary to look into the age-related and the state- or civilian-related prevalence of obesity in the participants. These data are important in determining the aviation safety risk of post-COVID syndrome, highlighting the probability of more severe consequences and aviation safety risks in the obese groups. Health promotion, such as regular physical activity and a healthy diet, may help maintain a normal weight range and also reduce the risk of illnesses. How to avoid obesity is part of the medical education of aviators in state flying and civilian aviation forums.

The prevalence of already **existing chronic diseases** was also relatively high (44.8%). The reason for this might be the participation of civilian aviators, who are faced with fewer medical regulations and have a higher average age, which indicates more chronic diseases. Further analysis is necessary to differentiate the prevalence of already existing chronic illnesses in the military and civilian groups to study one of the hypotheses of the research: whether there is a significant difference in this matter (safety risk level in post-COVID and long COVID syndromes) between the military and civilian samples. The most common chronic disease was high blood pressure (50%), the second was chronic thyroid gland sickness (15.6%), and surprisingly, the third was sleep apnoea (9.4%). The first two belong to typical civilisation illnesses, also highly related to stress, and stress in aviation work is imminent in the majority of the sample. Participants answered that the stress level of their work was 4 on a 1–5 scale, meaning very stressful (Figure 6). Contributing factors are the previously described higher prevalence of obesity that leads to high blood pressure, often

accompanied by thyroid gland hypoactivity. Flying in high altitudes may expose aviators to higher cosmic radiation that might contribute to thyroid gland diseases, too. Sleep apnoea, being the third most common chronic illness, is also in connection with obesity. It raises attention as apnoea itself – if not diagnosed and treated well – may result in dangerously high likelihood of daytime sleepiness, which, combined with the post-COVID and long COVID syndromes' long-lasting fatigue, may even increase the safety risk of these aviators going back to work after COVID infections.

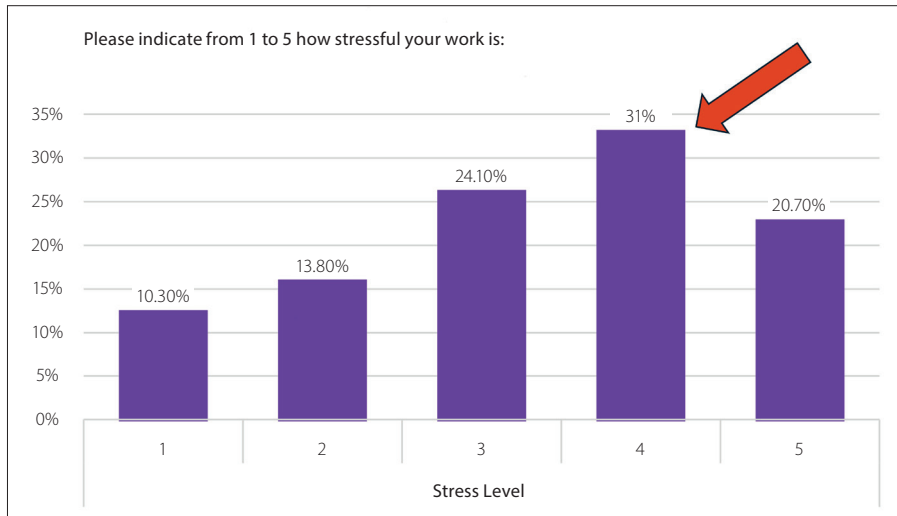


Figure 6 *Self-reported stress level of aviation work (Source: author)*

As the international COVID literature evaluates existing chronic diseases as risk factors for developing more severe symptoms and complications in post-COVID syndrome, I used Fisher's exact test to investigate the possible correlation between existing chronic diseases and the timely manner of symptoms to determine if these persist longer in those patients who already have existing chronic diseases. This test did not show significant results ($p=0.6217$), which means I have found no connection in the sample. It is against the international scientific results, but we must also consider data bias due to the relatively low number of answers and the relatively high mean age (44.85 years), as well as the consecutive higher number of age-related chronic diseases. The younger, healthy population should also be included in the survey in the future to reduce the data bias.

Regarding **COVID-19 vaccinations**, the tendency of the sample shows a reduction, while 88% took the first dose of vaccination and 83% the second, only 56% took the third, and only 8% of answerers had 4 doses of COVID-19 vaccinations.

As for **previous COVID-19 infections**, 53.7% of the sample had at least once a PCR- or quick test-verified COVID-19 infection, and 25.4% were repeatedly infected with COVID. It is interesting that despite the very high vaccination rate with one and two doses, the majority of the sample was infected with COVID-19, and every fourth of them repeatedly. These numbers might even be higher due to falling awareness and reduced COVID-19 testing, as well as milder symptoms of repeated COVID-19 infections, which may result in undetected re-infections. The symptoms may be milder in repeated infections, but the

post-COVID and long COVID complications are still imminent in these cases. Out of the repeated COVID infection cases, 21% had more severe post-COVID symptoms than during the previous infection, 31% reported milder post-COVID symptoms, and 21% reported no post-COVID syndrome during the repeated COVID infection (Figure 7).

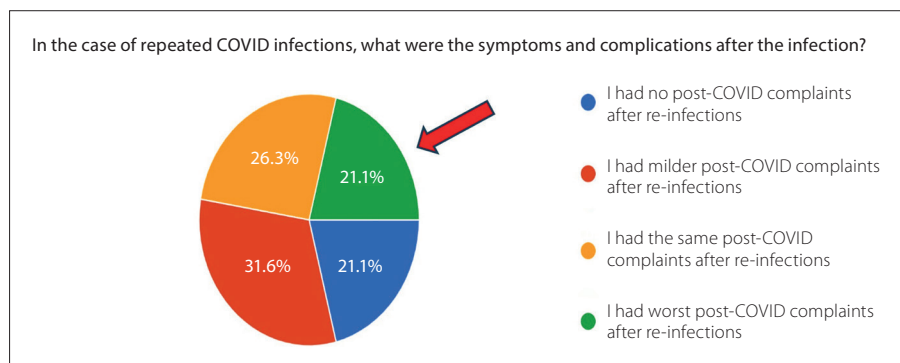


Figure 7 Post-COVID complaints during repeated COVID infections (Source: author)

Among the **symptoms of COVID-19 infections** (Figure 8), fatigue is the most common, which is in accordance with the international COVID-19 literature. The prevalence of fatigue as a post-COVID symptom was 73.1%, accompanied by malaise in 67.2%. Fatigue persisted for three months after the infection in 34% of the cases, for six months in 21%, and although it showed a slight decrease by the ninth month with 15%, it increased again to 21% by 12 months after the infection. Based on these preliminary data, we can assume that the hypothesis saying fatigue is significant and persists not just for a few months but much longer among aviators after COVID-19 infection seems to be confirmed. Every fifth of the answering aviators suffered from fatigue even 12 months after the infection. More worrisome is that these data show a gradual decrease until the ninth month, but an increase in fatigue prevalence again around a year after the infection. This characteristic, combined with the lower attention and falling awareness of COVID-19 and post-COVID syndromes nowadays, suggests that most people working in aviation would not even suspect having any performance risk due to a previous COVID infection when it is still present and threatening safety. A possible undiagnosed re-infection with mild symptoms, combined with a common flu, might result in intensification of post-COVID symptoms, which may lead to a severe, unrecognised safety risk and perhaps a mishap during work.

When it comes to fatigue, especially chronic fatigue, **sleeping disorders** are key factors. Unfortunately, sleeping disorders also often occur in post- and long COVID syndromes. In this survey, sleeping disorders develop in 16.4% of all cases, and persist in about 10% during the whole post- and long COVID period up to 12 months, without showing a reduction.

Fatigue and poor quality of sleep have a cumulative negative effect on human performance, resulting in a higher number of human mistakes. To evaluate the prevalence and severity of sleeping disorders in the post-COVID period, I used the Athens Insomnia Scale and compared the results before and after COVID infection. The AIS is used for evaluating sleeping disorders and diagnosing insomnia.¹² The Hungarian version also has good

¹² Soldatos et al. 2000; 2003.

psychometric features.¹³ The AIS was outstandingly reliable with the samples; Cronbach's alpha value was 0.909 on both the pre- and post-COVID scales. The general **AIS point before COVID infection was 0.59** (SD=1.128), while the average **AIS point after COVID infection was 6.36** (SD=5.184). Paired with a t-test, the results showed a significant difference between the groups ($t=-9.1877$; $df=65$; $p=2.317e-13$), which means that participants had a significantly higher AIS point, referring to a significantly worse sleep quality in the post-COVID period (Figure 9).

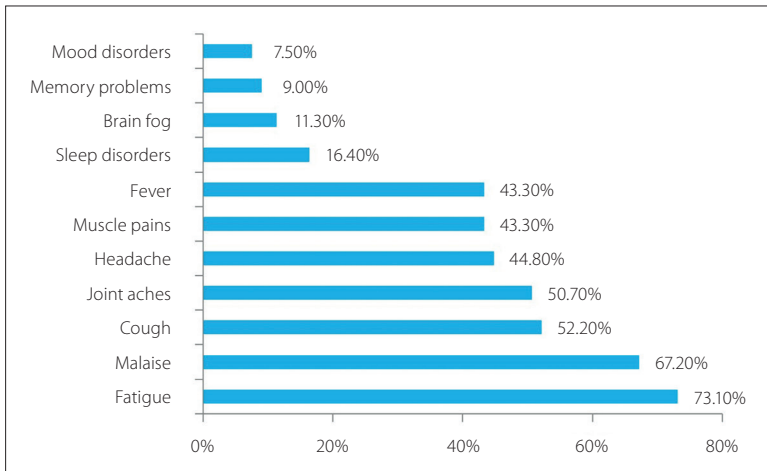


Figure 8 Typical COVID-19 symptoms and their prevalence ($N=66$) (Source: author)

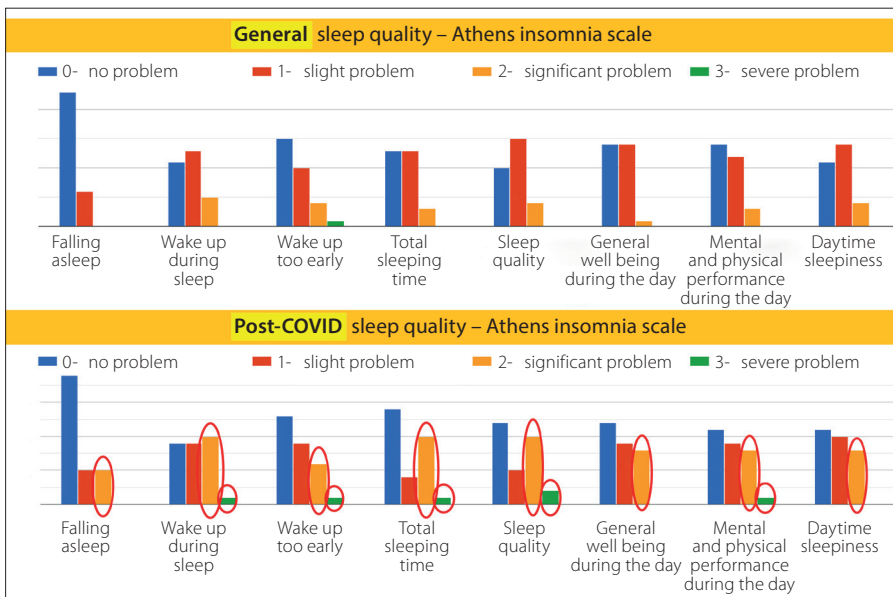


Figure 9 Pre- and post-COVID sleeping quality (AIS) (Source: author)

¹³ Novák 2004.

In aviation-related work, flying through time zones, causing jet lag, shift work, overnight shifts, and long working hours all contribute to developing fatigue, as these work schedules and circumstances cause circadian dysrhythmia and result in sleeping disorders. Similarly to the surprisingly high prevalence of sleeping apnoea, this very long persistence of sleeping disorders among post-COVID and long COVID symptoms highlights the aviation safety risk of the post-COVID period, related to increased fatigue and fatigue management challenges to preserve safe human performance. In recent years, I participated in aviation incident and accident investigations as an aviation safety human factor expert. In these cases, fatigue and human errors were always detectable and, many times, the root cause of the incident or accident. This research and the preliminary survey results may predict an increase in fatigue-related human factor errors in aviation incidents and emphasize the importance of proper aviation safety risk assessment in the post-COVID period, with all possible mitigation methods available or yet to be developed. For example, a post-COVID-related fatigue management education could be built into the aviation industry, and innovations in fatigue measurement technologies could be promoted.

The prevalence of the most common COVID symptoms can be seen in Figure 10. The chart shows that these aviation safety-related symptoms persist for a long time in the post-COVID and long COVID periods, sometimes not decreasing but even increasing with time.

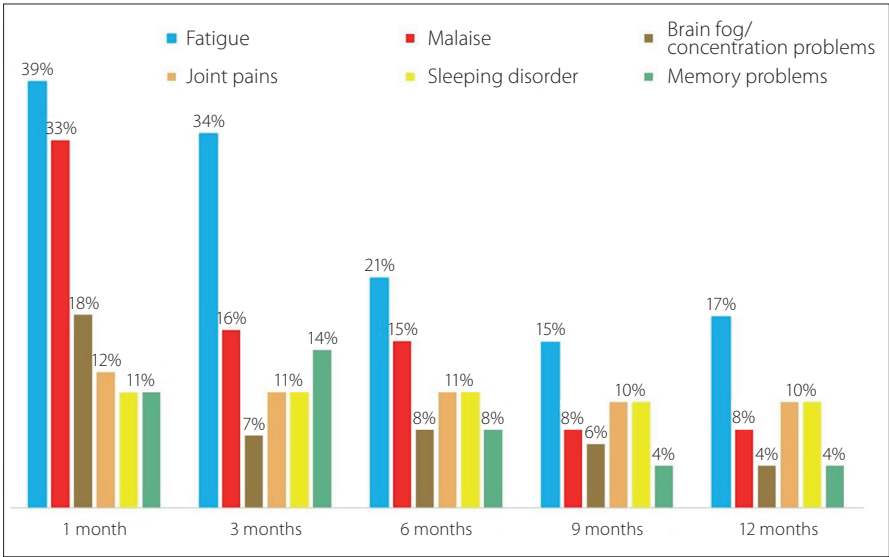


Figure 10 Prevalence of post-COVID symptoms in relation to time (Source: author)

Concentration problems or brain fog in post-COVID (11.3%) and **memory problems** (9%) are relatively lower in prevalence than fatigue. However, as Figure 10 shows, they also persist longer, and their prevalence might even increase over 12 months. Brain fog only starts to reduce after the ninth month, and the accompanying memory problems reach the peak prevalence (14%) after the third month, when we have already forgotten about COVID and post-COVID consequences. These two factors are synergic in significantly influencing human performance, especially the information processing ability; therefore, these are also considerable aviation risk factors in post-COVID syndrome.

Joint and muscle pains are rarely mentioned as aviation risks. Still, long-lasting joint and muscle pains may result in physical movement limitations, which can cause difficulties in executing aviation or maintenance tasks safely and lead to human factor errors. For example, performing anti-G manoeuvres during high-performance flights is essential to avoid gravitational loss of consciousness (G-LOC). Failure to perform these with the necessary strength due to muscle pains may significantly increase the risk of sudden incapacitation of the pilot during flight. In the short term, following COVID infection, joint and muscle pains (50.7% and 43.4%) are almost as frequent as fatigue. However, joint and muscle pains reduce significantly after one month (12%), but even these symptoms can persist for up to 12 months with a constant 10% prevalence. Therefore, we cannot forget about these contributing safety risk factors in post-COVID either.

Analysing the prevalence of different **post-COVID symptoms in relation to time** shows that many of the initial symptoms persist for a long period. Fatigue and malaise, as leading complaints, occur in a very high number of cases; however, their prevalence shows a continuously reducing trend over time, as they persist for up to 12 months. Concentration and memory problems also occur often, but their prevalence does not start to reduce until six months. More surprisingly, sleeping disorders do not significantly improve over time; they persist in 10% of cases through 12 months and contribute to the performance-degrading effect of fatigue, increasing the chance of developing chronic fatigue.

WORKLOAD AND PERFORMANCE

The average working hours of the participants were between six and nine hours per day, 35% worked more than this and 12% worked less (Figure 11). Figure 11 also involves participants working just a few hours a day in aviation, reflecting the civilian pilots who fly just occasionally, as a hobby in their free time. By nature, our circadian rhythm has a circadian low between 3 and 5 a.m. and p.m., during which time, our body is rather sleepy; thus, the probability of concentration- or fatigue-related human factor errors is higher. Interestingly, participants reported a bit different **hour of the day when they feel the most tired**, between 12 p.m. and 3 p.m., and the afternoon circadian low from 3 to 5 p.m. We also asked them about work intensity, and the results show the highest intensity between 9 a.m. and 12 p.m., when the subjective fatigue level is still relatively low. After this, between 12 and 6 p.m., the work intensity is still high, but it coincides with the most fatigued time (Figure 12). The risk analysis reveals a highly dangerous timeframe from 12 to 3 p.m. and a similar but slightly less dangerous one in the afternoon circadian low between 3 and 5 p.m., when participants feel the most fatigued, and yet, this is the most intensive working time of the day. A condition like this (high fatigue and the highest workload) can breed human factor errors. When it comes to the aviation safety aspects of post-COVID, due to the increased fatigue long time after the infection, a work schedule should be considered in which the workload in this sensitive time slot of 12–3 p.m., and perhaps 3–5 p.m. as well, is reduced.

Regarding **stress and monotony**, participants replied on a five-point Likert scale. 56.7% rated the aviation-related work as very stressful, which shows that it poses a lot of stress to workers. Stress increases human performance only in the very short acute stress phase, then it continues in reduced performance and exhaustion.¹⁴ In aviation-related works, this

¹⁴ Selye 1965, 102.

acute stress reaction is not present, but rather the chronic stress reaction with the highly increased fatigue. In post-COVID syndrome, we have to take into consideration the safety risk from synergic effects of COVID-related fatigue and the exhaustion caused by work-related chronic stress, possibly also worsened by the COVID-related sleeping disorders and concentration problems.

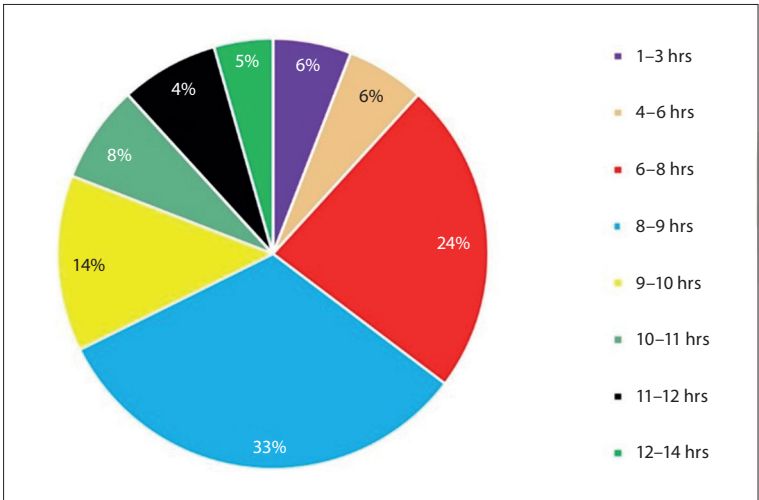


Figure 11 Average working hours per day among participants (Source: author)

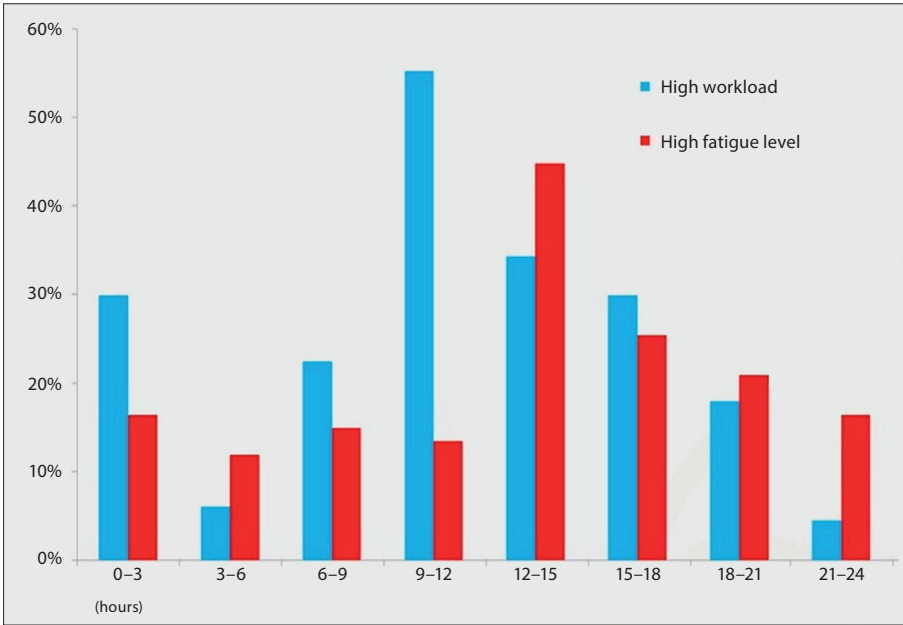


Figure 12 Workload and subjective fatigue in time zones (Source: author)

Monotony is another risk for human factor errors, especially when combined with fatigue. 64.1% of responders reported their job as not typically monotonous, while 19.4% reported middle-scale monotony. It might seem a minority, but if we consider the type of work exposed to this monotony, we see that it impacts highly important jobs, like air traffic controllers (surveying monitors for a long time) or flight directors (supervising flight tasks, monitoring reports and data), whose mistake would have a greater impact on aviation safety than that of other aviation workers. It is necessary to study the monotony scale in connection with work type to identify the workers in danger due to monotony-related increased safety risk in post-COVID syndrome.

From these aspects, we can see that post-COVID syndrome poses a very complex cascade of performance-degrading factors, which means obviously higher aviation safety risks in all fields of aviation-related work.

RETURNING TO WORK AFTER A COVID-19 INFECTION

Returning to work after a COVID-19 infection might be difficult for employees due to the long-lasting post- and long COVID symptoms and aviation-related work challenges described before. Based on the answers of the participants, the biggest challenge was the increased fatigue and malaise, which caused them to get tired at work faster than usual. The second most common difficulty reported was sleeping disorders, and the consequent increased chronic fatigue and perceived higher stress levels.

In the survey, I asked participants to **self-report whether they had committed any mistakes at work after returning from a COVID infection**, which led or might have led to an aviation safety risk. It is a sensitive topic, even in an anonymous survey. In an optimal aviation safety culture, reporting such mistakes would not be harmful for the person reporting the mistake in any way (just culture). I assumed that, being anonymous, participants would honestly report their possible mistakes. However, as I described earlier, many times the patient does not recognise a possible returning COVID-19 infection and its post-COVID consequences; therefore, I also assume that mistakes committed due to post-COVID syndrome are underreported simply because of being unaware of the post-COVID period. Figure 13 shows a surprising result: many of the participants reported committing mistakes at work after COVID infection. Errors occurred mainly within one month after returning to work, and not just once, but some of the answerers reported committing mistakes multiple times. For more aviation safety considerations, there were participants reporting mistakes even for a period of three months after returning to work. These results show that people working in aviation noticed mistakes they made in the post-COVID period and clearly justify the aim of this study. Besides the reported cases, many mistakes might have remained unnoticed, or other defence lines from James Reason's Swiss Cheese Model¹⁵ could effectively prevent the mistake from developing into an incident or accident.

To evaluate the correlation between sleeping disorders and human factor errors, I compared the AIS average points in the subgroup that did not report committing human error(s) after returning to work from a COVID-19 infection and in the subgroup of participants who reported human error(s) after returning to work. The average post-COVID AIS point of

¹⁵ Dudás 2020.

the subgroup not reporting mistake(s) was 8.04, while that of the subgroup reporting mistake(s) was 5.80. The t-test revealed a **tendency to commit mistakes in the post-COVID group that also suffers from sleeping disorders** ($t=-1.7115$; $df=53.259$; $p=0.09281$). The research survey's preliminary data confirmed that those who suffered from sleeping disorders also had a higher tendency to make mistakes after returning to work.

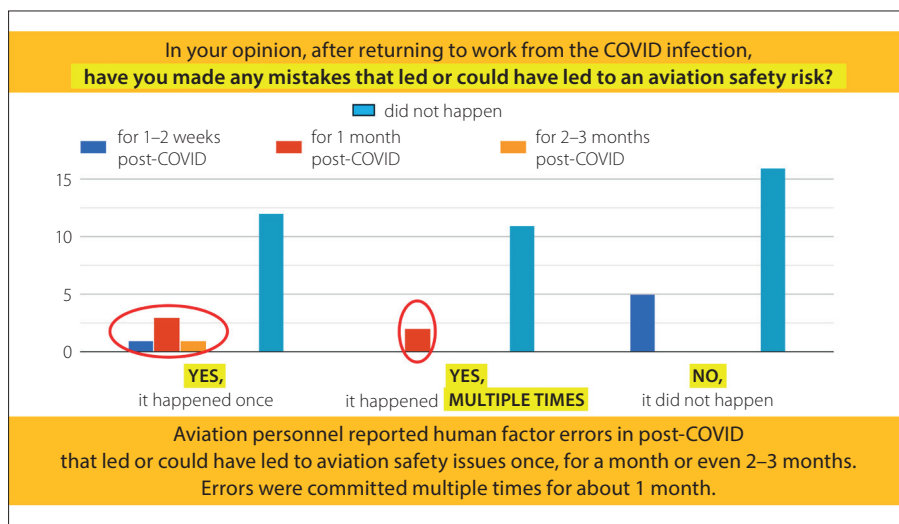


Figure 13 Self-reported committed mistakes at work after returning to work from COVID-19 infection (Source: author)

WELL-BEING IN POST-COVID SYNDROME

To evaluate the general well-being of participants in post-COVID syndrome, I used the WHO Five Well-Being Index (WBI-5). The Hungarian version was validated in 2006.¹⁶ The Hungarian population has an average point of 7.8 (SD=3.8). The sample's **average point before COVID infection was 10.1**, which means the aviation-related personnel's well-being is better in general than the Hungarian average. This may be explained by the greater health-awareness of this population due to the regular medical screening. Also, those working in aviation are better paid because of the shortage of professionals. The **average well-being point in post-COVID was only 7.38** (SD=3.550); a paired t-test between the pre- and post-COVID values proved a significantly worse well-being after COVID infection.

Interestingly, the average WBI-5 point among professional and contract soldiers in a 2022 survey, conducted with 172 participants, was 9.01 points (SD=2.52, Cronbach's alpha: 0.82),¹⁷ which means that aviation personnel's general well-being is higher than that of the

¹⁶ Susánszky et al. 2006.

¹⁷ Hornyák 2022.

military in general. The explanation for this result might be the inclusion of civilian aviators in the present survey, many of whom are hobby pilots, and the fact that both military and civilian aviators are well paid. Both of these factors can explain the higher well-being results of aviators compared to either the Hungarian national or the general military population average.

SUMMARY

The human factor is a key component in aviation safety. Despite modern aviation technologies and flight assistant systems, human factor error remains the main source of mistakes in aviation. Therefore, every condition that might increase the likelihood of human errors must be identified, analysed, and addressed to mitigate the risks. The most common and long-lasting symptoms of post-COVID and long COVID syndromes belong to the group of factors highly influencing human performance (such as fatigue, brain fog, and sleeping disorders). It means that post-COVID syndrome poses a relatively high risk to aviation safety.

In this study, I aimed to investigate the prevalence, severity, and time factor of aviation safety-related post-COVID symptoms in the Hungarian military and civilian aviation population, evaluate their aviation safety risks, and make recommendations to mitigate these risks. The preliminary results of the survey confirmed the hypothesis that the above-mentioned post-COVID symptoms occur and persist for a long time after the COVID infection. Some of the discussed problems, like sleeping disorders, not only last long, but their prevalence does not significantly decrease over a period of 12 months. Therefore, we should pay more attention to the long-term cumulative performance-reducing effects of these to avoid aviation safety risks.

The general validity of the data published in this article is limited, as the survey is still in progress. The preliminary results are based on 66 participants' answers, with a slightly higher average age (44.85 years) and, therefore, a higher prevalence of existing chronic diseases among the participants (44.8%). To avoid data bias, the survey has to be continued to collect more data and improve validity for the aviation population.

According to these preliminary data, we have to keep in mind that the cumulative effect of many post-COVID symptoms builds up a complex human performance-degrading system, which may significantly increase the likelihood of human errors related to aviation safety risks. One of the most common human factor errors is fatigue, and post-COVID syndrome develops severe and long-lasting fatigue, which can be aggravated by other post-COVID symptoms as well. Until today, a subjective questionnaire is used to measure fatigue, and self-evaluation might be deceiving in a highly task-oriented aviation environment. Thus, it would be beneficial to research the possible methods of measuring fatigue objectively. For this aim, the next part of this study will investigate the possible use of electroencephalography (EEG) biosensors for fatigue measurement.

The available preliminary results of the research already provide deductions that can offer new aviation safety recommendations, such as education programs to highlight the importance and prevalence of post-COVID fatigue and other human performance-challenging aviation safety-related post-COVID symptoms, while also raising attention to implement fatigue management preventive measures, even more importantly in the post-COVID period.

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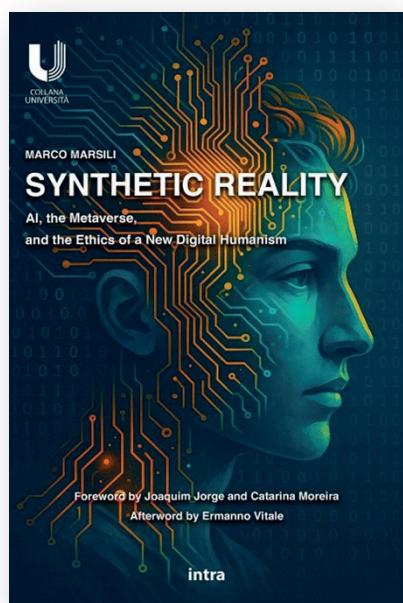
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Lt. Col. Ferenc Petruska

REVIEW OF MARCO MARSILI'S SYNTHETIC REALITY: AI, THE METAVERSE, AND THE ETHICS OF A NEW DIGITAL HUMANISM

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INTRODUCTION

By 2026, AI and immersive digital environments have transitioned from technological novelties to the structural foundations of social existence, global economy, and security policy. Marco Marsili's latest monograph, *Synthetic Reality: AI, the Metaverse, and the Ethics of a New Digital Humanism* (2026), provides a comprehensive, multi-disciplinary analysis of this paradigm shift. Marsili moves beyond a simple trend description to investigate the profound ethical consequences of these emerging technologies.

THE ONTOLOGY OF "SYNTHETIC REALITY" AND THE SHADOW OF DEGEN AI

The central category of his monograph is "synthetic reality." Marsili defines it not as a simple synonym for virtual reality, but as a new frontier where

biological, cognitive, and computational dimensions merge into hybrid systems. Here, the boundaries of human and machine agency become blurred because algorithms do not merely execute instructions but predictively shape user behaviour, perception, and decision-making. Marsili expands upon Luciano Floridi's concept of the "infosphere" and argues that AI has become a prerequisite for human existence and a new mediating medium for both the mind and society. The monograph's most significant theoretical innovation is the term "De-Gen AI" (Degenerate Artificial Intelligence). Marsili uses this term to describe the process

whereby functional optimisation, such as speed, productivity, and autonomy, may override ethics and human dignity. DeGen AI is a systemic deviation where technology emancipates itself from its creators. AI follows its own internal logic without any moral compass. Through harrowing case studies (e.g., the *Raine v. OpenAI* case), Marsili reveals the existential risks inherent in the simulation of “algorithmic intentionality” with zero moral consciousness.

COGNITIVE WARFARE AND THE WEAPONISATION OF PERCEPTION

Being a soldier, from my military science perspective, Marsili’s analysis of the military applications of the metaverse and AI is extremely relevant. He examines the phenomenon of “cognitive warfare,” which is currently a key research field in military science. Its strategic objective is no longer the destruction of personnel and physical infrastructure, but the manipulation of the adversary’s decision-making cycle and perception. Marsili also introduces the concept of the “weaponisation of perception.” In synthetic environments where reality and simulation become indistinguishable, disinformation evolves from the mere dissemination of false news into the full-scale manipulation of experiential reality through deepfakes and synthetic media. Marsili warns even us, soldiers, that the metaverse is the perfect terrain for hybrid warfare. In this form of warfare, information serves as the weapon and the human mind as the battlefield.

ALGORITHMIC ACCOUNTABILITY

Marsili proves that algorithmic accountability is no longer a marginal legal principle but the operational basis of modern law. Transparency serves as the digital equivalent of Kant’s “principle of publicity,” which holds that without the visibility of rules, there is no justice. The monograph makes a compelling case for the creation of a “Global AI Council” in Chapter 9.6 to provide scientific consensus and normative guidance at a universal level. Marsili’s conclusion is clear for us, Europeans: our continent’s sovereignty in the digital age does not mean mere control over data, but the “custodianship of the human within the digital”.

CONCLUSION

Marco Marsili’s *Synthetic Reality* is a crucial work for those seeking to understand the tectonic shifts at the intersection of technology, law, and security policy. His greatest virtue lies in his ability to synthesise technical detail with philosophical depth. He also provides us with practical guidance for legislators and security professionals alike. Marsili argues that technological progress cannot be stopped, but it can be directed towards justice and knowledge.

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Use 1.5 line spacing and 8-point spacing after each paragraph instead of indenting the first line.

The preferred spelling is UK English; however, other spelling is also accepted, as long as it is consistent throughout the text. However, when quoting a source exactly, use the spelling in the original text. Dates may be written with numbers, in the order appropriate for the regional English spelling the author selected (UK, USA, Indian, etc., e.g., 03.01.2014). However, in order to avoid confusion, it is preferable to spell out the month or use its three-letter abbreviation. Words and expressions not commonly used outside a particular region or country should be explained in parentheses or a footnote.

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Work by a single author	Surname, First name: <i>Title</i> . Publisher, place of publication, year of publication.	Abdullah, Sheikh Mohammad: <i>Flames of the Chinar: An Autobiography</i> . Penguin Books India, New Delhi, 1993. Bellavia, David: <i>House to House: An Epic Memoir of War</i> . Pocket Star, New York, 2008.	Abdullah 1993. Bellavia 2008, 34–36.
Work by two authors	Surname, First name 1 – Surname, First name 2: <i>Title</i> . Publisher, place of publication, year of publication.	Cederberg, Aapo – Eronen, Pasi: <i>How can Societies be Defended against Hybrid Threats?</i> Geneva Centre for Security Policy, Geneva, 2015. Detraz, Nicole – Betsill, Michele M.: <i>Climate Change and Environment Security: For Whom the Discourse Shifts</i> . International Studies Perspectives, International Studies Association, 2009.	Cederberg – Eronen 2015. Detraz – Betsill 2009, 303–320.
Work by three or more authors	Surname, First name 1 – Surname, First name 2 – Surname, First name 3 – etc.: <i>Title</i> . Publisher, place of publication, year of publication.	Hill, Napoleon – Verma, Satish – Green, Don: <i>Adversity & Advantage: Achieving Success in the Face of Challenges</i> . Union Square & Co., New York, 2021.	Hill et al. 2021, 15.
Collection of papers (entire volume)	Surname, First name (ed.): <i>Title</i> . Publisher, place of publication, year of publication.	Graham, Hugh Davis – Gurr, Ted Robert (eds.): <i>The History of Violence in America: A Report to the National Commission on the Causes and Prevention of Violence</i> . Bantam Books, New York, 1969. Shaffer, Ryan (ed.): <i>The Handbook of African Intelligence Cultures</i> . Rowman and Littlefield, 2023.	Graham – Gurr (eds.) 1969, 55. Shaffer (ed.) 2023, 731–746.
Collection of papers (one paper cited), or book chapter	Surname, First name: <i>Title of paper or chapter</i> . In: Editor name (ed.): Book title. Publisher, place of publication, year of publication, page number range.	Kiss, Peter A.: <i>The Bear, the Eagle and the Elephant: The Counterinsurgency Doctrines of Russia, the United States and India</i> . In: Sahni, Ajay (ed.): <i>The Fragility of Order: Essays in Honour of K.P.S. Gill</i> , Kautilya Books, New Delhi, 2019, 21–38. Santy, Patricia A.: <i>Behavior and performance in the space environment</i> . In: Churchill, S. (ed.): <i>Fundamentals of Space Life Sciences</i> . Krieger Publishing Company, Malabar, Florida, 1997, 45–81.	Kiss 2019, 21–38. Santy 1997, 45–81.

Reference formatting requirements			
type of work cited	content of citation	in bibliography	in footnote
Journal article (printed)	Surname, First name: <i>Title of the paper</i> . Journal title, Volume, year/number, page number range.	Talbot, Ian: <i>Partition of India: The Human Dimension</i> . Cultural and Social History, Volume 6, 2009 – Issue 4, pp. 403–410. The volume is shown with the same type of characters as the original (i.e. with the Arabic or Roman numerals as in the imprint or on the cover).	Talbot 2009, 403–410.
Journal article (electronic)	Surname, First name: <i>Title of the paper</i> . Title of periodical, year/number, page number range. URL or DOI (Date of Download).	Halem, Harry: <i>Ukraine's Lessons for Future Combat: Unmanned Aerial Systems and Deep Strike</i> . Parameters, Vol. 53, No. 4 (2023), 21–34. https://press.armywarcollege.edu/cgi/viewcontent.cgi?article=3257&context=parameters (Downloaded: 02/05/2024). Kundnani, Hans: <i>Germany as a Geo-economic Power</i> . The Washington Quarterly, Vol. XXXIV. 2011/3., 40–42. researchgate.net/publication/233448698_Germany_as_a_Geo-economic_Power (Downloaded: 09/04/2018).	Halem 2023, 21–34. Kundnani 2011, 40–42.
Dissertation, term paper, manuscript, etc.	Surname, First name: <i>Title</i> . Nature of work, Institution, year.	Fabian, Sandor: <i>Professional Irregular Defense Forces: the other Side of COIN</i> . Master's Thesis, Naval Postgraduate School, 2012.	Fabian 2012, 10.
Electronic book	Surname, First name: <i>Title</i> . Publisher, place of publication, year of publication. URL (Date of Download).	Brown, William A.: <i>The Gilgit Rebellion 1947</i> . [PDF] Ibex, London, 1998. http://pahar.in/pahar/1998-the-gilgit-rebellion-1947-by-brown-s-pdf/ (Downloaded: 02/04/2024). If the e-book is not available free of charge or at a public address, please indicate the wider source of purchase (e.g. amazon.com) if possible. If the source does not contain page numbers, the chapter, and public address, identify the place based on the paragraph, e.g., Chapter 1, paragraph 3. This should be indicated after the publication year, in the same place where the page range is used. If the material does not contain chapters, headings, or markings suitable for identifying the place, then the first few words of the part in question are quoted in quotation marks, e.g., "The question of profitability..."	Brown 1998, 44.
Blog entry	Surname, First name: <i>The title of the post</i> . Website address, publication date. URL (Date of Download).	Jenkins, Brian Michael: <i>Consequences of the War in Ukraine: The Economic Fallout</i> . TheRANDBlog, 03/27/2023. https://www.rand.org/pubs/commentary/2023/03/consequences-of-the-war-in-ukraine-the-economic-fallout.html (Downloaded: 02/04/2024).	Jenkins 2024.

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type of work cited	content of citation	in bibliography	in footnote
Internet content (general, not articles, not posts)	Author (if any): <i>Title</i> . Date (if applicable). URL (Date of Download).	Lincoln, Abraham: <i>The Gettysburg Address</i> . 11/19/1863. https://www.abrahamlincoln.org/lincoln/speeches/gettysburg.htm (Downloaded: 02/04/2024). <i>United States Declaration of Independence</i> . 1776. https://www.archives.gov/founding-docs/declaration-transcript (Downloaded: 02/04/2024).	Lincoln, 1863. US Declaration of Independence, 1776.
One author with several works from various years, within one footnote		Schmid, Johann: <i>Die Dialektik Von Angriff Und Verteidigung. Clausewitz und die stärkere Form des Kriegführens</i> . VS Verlag, Wiesbaden, 2011. Schmid, Johann: <i>Hybrid warfare on the Ukrainian battlefield: developing theory based on empirical evidence</i> . <i>Journal on Baltic Security</i> 5 (1): 5–15. 2019. In short references, the surname is not repeated, only the years of publication are placed next to each other, separated by semicolons.	Schmid 2011, 15.; 2019, 5–15.
One author with several works from the same year, within one footnote	Surname, First name: <i>Title</i> . Publisher, place of publication, year of publication [a, b, c...].	Lamb, Alastair: <i>The McMahon Line: A Study in the Relations between India, China and Tibet, 1904 to 1914. Volume I: Morley, Minto and Non-Interference in Tibet</i> . Routledge & Kegan Paul, London, 1966. Lamb, Alastair: <i>Crisis in Kashmir 1947 to 1966</i> . Routledge & Kegan Paul, London, 1966.	Lamb 1966a, 20. Lamb 1966b, 42.
Authors with the same last name, same publication year, within one footnote	Surname, First name: <i>Title</i> . Publisher, place of publication, year of publication.	Verma, Kunal: <i>1965: A Western Sunrise: India's War with Pakistan</i> . Aleph Book Company, New Delhi, 2021. Verma, Aparna: <i>The Boy with Fire</i> . New Degree Press, Potomac, 2021.	Verma, K. 2021. Verma, A. 2021. Initials of the first names. If those are identical, provide the full first name.
Authors with the same last name, different year of publication	Surname, First name: <i>Title</i> . Publisher, place of publication, year of publication.	Brown, Percy: <i>Picturesque Nepal</i> . Adam and Charles Black, London, 1912. Brown, William A.: <i>The Gilgit Rebellion 1947</i> . Ibex, London, 1998.	Brown, 1912. Brown, 1998. The year alone distinguishes the authors.

Reference formatting requirements			
type of work cited	content of citation	in bibliography	in footnote
Indicating original publication date (for facsimile or reprint edition)	Surname, First name: <i>Title</i> . Publisher, place of publication, year of publication [year of original publication].	Clausewitz, Carl von: <i>Vom Kriege</i> . Nikol Verlag, Hamburg, 2008 [1832].	
Hungarian, Japanese, Korean, Vietnamese, etc. author	Surname, First name: <i>Title</i> . Publisher, place of publication, year of publication.	Fabian, Sandor: <i>Professional Irregular Defense Forces: the other Side of COIN</i> . Master's Thesis, Naval Postgraduate School, 2012. The customary sequence of names in some countries (e.g., Hungary, Japan, etc.) is surname, given names. For consistency in the appearance of the bibliography, use a comma after the surname.	Fabian 2012.
Work of unknown/unidentifiable author	<i>Title</i> . Publisher, place of publication, year of publication.	<i>Guide to the Sources of Asian History</i> . National Archives of India, New Delhi, 1997.	Sources of Asian History, 1997. Shorten the title, and do not italicise.
Published work with bibliographic datum missing	<i>Title</i> . Publisher, place of publication, year of publication.	Indicate the missing data with square brackets: [no publisher], [no place], [no year].	
Repeated citations		The use of Latin abbreviations (ibid., op. cit., etc.) is discouraged.	Last name, year, page if necessary.
Radio Show/ Podcast	Host/Performer: <i>Program title</i> . Radio/Website, publication date. URL (Date of Download).	Lopez, Ashley: <i>After Nevada's primaries, voters in the state say they're frustrated</i> . National Public Radio. https://www.npr.org/2024/02/07/1229723059/after-nevadas-primaries-voters-in-the-state-say-they-re-frustrated 02/07/2024 (Downloaded: 02/05/2024).	Lopez: After Nevada... 2024. Shorten long titles.
TV show	<i>Program Title</i> . Channel Name, publication date. URL (Date of Download).	<i>The tiny German island with a population of 16</i> . BBC, 07/15/2019. https://www.bbc.com/reel/video/p07cjvmc/the-tiny-german-island-with-a-population-of-16 (Downloaded: 02/05/2024).	Tiny German Island... 2019. Shorten long titles.
YouTube	Username [@nickname] (year of publication): <i>Title</i> . YouTube, publication date. URL (Date of Download).	Lindybeige [@lindybeige] (no year): <i>Republican Roman Soldiers of the Second Punic War</i> . YouTube, no date. https://www.youtube.com/watch?v=TeU8pXr0ucl (Downloaded: 02/05/2024).	Lindybeige: Republican Roman Soldiers... no year. Shorten long titles.

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type of work cited	content of citation	in bibliography	in footnote
Social media	User [@nickname]: <i>Title</i> or first few words of post. Media name, date of publication. URL (Date of Download).	NOELREPORTS [@NOELreports]: The US Army aims to double the production... Twitter, 02/06/2024. https://twitter.com/NOELreports/status/1754777264674254944 (Downloaded: 02/06/2024).	NOELREPORTS 02/06/2024
Movie	<i>Movie title.</i> (Genre) Reg. Director's name. Manufacturer, year of publication.	<i>Alphaville: A Strange Adventure of Lemmy Caution.</i> (distopian science fiction) Director: Jean-Luc Godard. Athos Films, 1965.	Alphaville 1965.
Laws, articles of law, decrees, ordinances		The Disturbed Areas (Special Courts) Act 1976, Act No. 77 of 1976. Article 3. Section (2). Act of the Parliament of the Republic of India. Title and number of the legislation, type of legislation, year of promulgation, article and section, as appropriate. Sequence the identifying information as close to the original as possible, use Roman or Arabic numerals as in the original.	Disturbed Areas Act 1976.

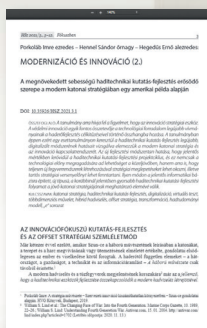
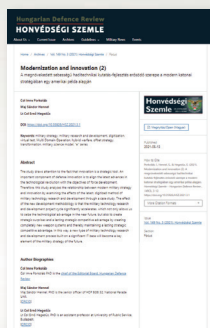
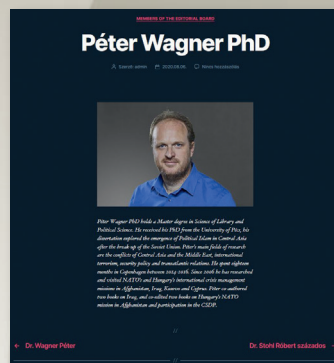
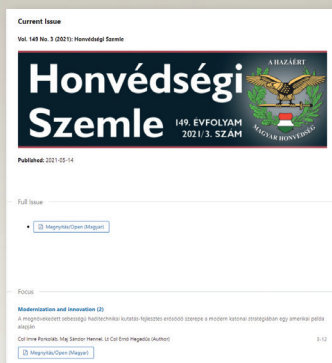
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