Lectio Socialis
2026: 1849650

RESEARCH ARTICLE
DOI: 10.47478/lectio.1849650

Artificial intelligence and national security: Military power, digital sovereignty, and great-power competition

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ABSTRACT

This study analyzes how artificial intelligence (AI) is reshaping national security, military power, and great-power competition in the twenty-first century. Rather than treating AI as an autonomous technological force that mechanically determines strategic outcomes, the article conceptualizes military AI as a conditional force multiplier whose effects depend on data quality, organizational adaptation, doctrinal integration, industrial capacity, and human-machine command arrangements. Methodologically, the study employs qualitative document analysis and thematic content analysis of academic literature, official strategy documents, international reports, and contemporary policy analyses. It draws illustrative examples from the United States, China, Russia, and the European Union to examine how AI is incorporated into military modernization, digital sovereignty strategies, cyber security, information operations, and legal-ethical governance debates. The findings suggest that AI may redistribute military effectiveness by increasing speed, scale, precision, and attritional capacity, but that these effects remain uneven and contingent. The article also argues that AI competition is producing a governance gap between technological acceleration and binding international regulation, especially in relation to autonomous weapon systems and meaningful human control.

ARTICLE HISTORY
Received: 26.12.2025
Accepted: 25.06.2026
Published: 28.06.2026

KEYWORDS
artificial intelligence,
national security,
military strategy,
autonomous weapon systems,
balance of power

Introduction

The twenty-first century has witnessed the emergence of artificial intelligence (AI) as one of the principal technological forces affecting global politics, international relations, national security, and geopolitical competition. AI not only reshapes technological, economic, and social relations, but also increasingly influences how states understand security, organize military capability, protect data infrastructures, and compete for strategic advantage. However, the strategic impact of AI should not be understood as automatic or technologically predetermined. Its effects depend on the ability of states to integrate AI into military doctrine, data governance, institutional capacity, command-and-control structures, and legal-regulatory frameworks.

Conceptually, national security refers to the protection of a state's sovereignty, territorial integrity, and vital interests against internal and external threats through political, economic, technological, and military instruments (Baylis et al., 2023, p. 241). With respect to AI, academic studies do not employ a single common definition, partly because of

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divergent disciplinary and methodological approaches to the field. In this study, several complementary definitions of AI are utilized. Accordingly, AI may be understood as an artificial system capable of performing tasks under changing and unforeseeable conditions without substantial human oversight, or as a system that can learn from experience and improve its performance when exposed to datasets. Another definition describes AI as a set of techniques, including machine learning, designed to approximate the performance of cognitive tasks. A further definition characterizes AI as an artificial system, including an intelligent software agent or embodied robot, designed to act rationally by using capabilities such as perception, planning, reasoning, learning, communication, decision-making, and action (Congressional Research Service, 2020). Such capabilities constitute the basis of AI's growing role in societal activities, including national security.

Throughout history, balances of power among nations have been grounded in traditional factors such as military capacity, natural resources, economic prosperity, technological innovation, and diplomatic alliances. The digital age, however, has added a new layer to these conventional components of power. Today, technological competence, data-processing capacity, algorithmic capability, and innovative capacity in AI have become increasingly important indicators of a state's ability to exert influence globally or sustain great-power status. In this context, states that can develop, control, and integrate AI into strategic planning may gain competitive advantages and occupy a consequential position in shaping the future of the international order.

Advances in AI technologies such as machine learning, deep learning, natural language processing, autonomous systems, and big-data analytics offer states significant opportunities to strengthen national security, improve situational awareness, increase economic productivity, and enhance military effectiveness. At the same time, these technologies create new possibilities in areas such as shaping public opinion, controlling information, conducting cyber operations, and carrying out psychological or influence campaigns. This points to the emergence of a security environment in which technological capability is increasingly intertwined with national power, but in which the realized impact of AI remains conditioned by organizational, doctrinal, infrastructural, and human factors.

Major technological and military actors, foremost among them the United States, China, Russia, and the European Union, have recognized AI's strategic significance and have sought to position themselves within this emerging field. This competition is not merely economic and technological; it is also connected to questions of digital sovereignty, military modernization, data governance, and international norm-setting. Yet these actors should not be understood as equal case studies in this article. Rather, they are used as selected illustrative examples to show how AI is incorporated into national-security practices, military modernization, digital sovereignty strategies, and regulatory approaches.

States' growing recognition of the operational and strategic advantages provided by AI has generated strong incentives for the adoption and diffusion of this technology. Particularly in areas such as military planning, reconnaissance, intelligence, logistics, cybersecurity, and decision support, AI-based capabilities encourage states to accelerate investment and, in some cases, to act according to the logic of "use it first, then regulate it." To put it differently, the competitive advantage associated with AI in the national-security domain makes regulatory initiatives, oversight mechanisms, and limitation efforts more difficult to institutionalize before the technology has already become embedded in military and security practices.

In addition, AI's use in armed conflict and its potential to affect democratic societal structures generate significant ethical, legal, and security risks. While AI is advancing

rapidly across many domains, it also raises concerns related to algorithmic bias, privacy violations, human rights, accountability, surveillance, data governance, and behavioral manipulation. The possibility that AI may become an instrument of social control or strategic coercion expands the ethical and legal debate beyond the battlefield and places it at the center of broader discussions on national security, democratic resilience, and international governance.

This study, while focusing primarily on the military and national-security applications of AI, examines how AI may affect international power competition. It addresses three research questions: How does AI transform states' national security strategies and threat perceptions? In what respects do AI-based technologies affect global power competition? What ethical and legal problems may arise from AI applications, and what measures can be taken to mitigate these concerns? The article's original contribution lies in conceptualizing military AI as a conditional strategic force multiplier that may redistribute military effectiveness, intensify great-power rivalry, and produce a governance gap between technological acceleration and international legal regulation. Normatively, the study assesses the ethical and legal responsibilities that emerge with military AI; analytically, it evaluates AI's impact on power balances through contemporary examples and selected comparative illustrations.

The article proceeds as follows. The first section develops the theoretical framework and conceptual clarifications. The second section explains the qualitative document-analysis methodology. The following sections examine AI's role in national security, military applications, great-power competition, digital sovereignty, and ethical-legal governance. The final section presents the findings and discussion before concluding with the broader implications of AI for national security and international power competition.

Theoretical framework

This article is grounded primarily in Power Transition Theory and uses Offence-Defence Theory as a complementary analytical lens. Power Transition Theory is particularly useful because the central question of the study concerns whether AI-enabled military and informational capabilities may alter the distribution of power among leading states. From this perspective, AI is not treated merely as a technical innovation, but as a capability-enhancing instrument that may affect the relative power position of established and rising powers. The competition among the United States, China, and Russia is therefore interpreted as part of a broader struggle over technological capacity, military effectiveness, data sovereignty, and future hierarchy in the international system (Organski, 1958; Kugler & Lemke, 1996).

The concept of "balance of power" is used here in a relational and dynamic sense. It does not refer only to the numerical accumulation of conventional platforms such as aircraft, tanks, missiles, or warships. Rather, it refers to the changing distribution of military effectiveness, intelligence-processing capacity, cyber resilience, algorithmic superiority, and autonomous operational capability. AI becomes significant because it can enhance the speed, scale, precision, and adaptability of these capabilities. In this sense, AI may operate as a force multiplier: it does not replace conventional power, but it can amplify, redistribute, and sometimes offset it.

Offence-Defence Theory further clarifies why AI may affect strategic stability. If AI-enabled systems improve rapid target detection, autonomous strike capability, cyber penetration, and decision-making speed, states may come to perceive offensive action as

increasingly advantageous. Such perceptions can intensify security dilemmas, compress crisis decision-making, and encourage pre-emptive behavior, particularly where military AI is integrated into early-warning, command-and-control, or autonomous weapons systems (Jervis, 1978; Van Evera, 1999). Conversely, AI may also strengthen defensive capabilities through anomaly detection, cyber defense, logistics optimization, and improved situational awareness. The strategic effect of AI is therefore not inherently offensive or defensive; it depends on doctrine, deployment patterns, institutional control, and the wider political context.

The article also avoids a technologically deterministic interpretation of AI. Technological determinism would imply that AI, by itself, inevitably transforms warfare and global order. This study instead argues that AI becomes geopolitically consequential only when embedded in state capacity, military doctrine, data infrastructure, industrial ecosystems, and strategic culture. The same technology may produce different effects in the United States, China, Russia, or the European Union because each actor combines AI with different institutional priorities, regulatory traditions, civil-military relations, and security narratives (Bimber, 1994; Smith & Marx, 1994).

This distinction between potential impact and realized impact is central to the article's argument. AI has the potential to improve military speed, accuracy, autonomy, and scalability; however, these benefits may be limited by organizational inertia, poor data quality, adversarial manipulation, procurement delays, integration problems, insufficient training, and human factors in command structures. Therefore, the article treats AI as a conditional force multiplier rather than as a deterministic substitute for conventional military power.

For conceptual clarity, three key terms are used in specific ways. "Digital sovereignty" refers to a state's capacity to control, regulate, and secure data infrastructures, digital platforms, cloud systems, AI models, and cross-border data flows within its jurisdiction. "Algorithmic capability" refers to the ability of a state or military organization to collect high-quality data, train and deploy AI models, integrate them into operational systems, and use them for intelligence, surveillance, targeting, logistics, cyber defense, or decision support. "AI-centered arms race" refers to a competitive process in which states accelerate investment in AI-enabled military systems, autonomous platforms, cyber capabilities, and decision-support tools because they fear falling behind strategic rivals.

This theoretical framework allows the study to ground frequently used concepts such as "strategic competition," "geopolitical rivalry," "force multiplier," and "balance of power" in a coherent analytical structure. Strategic competition is understood as the struggle among states to control the technological, military, and normative foundations of future power. Geopolitical rivalry refers to the use of AI capabilities to gain relative advantage across military, cyber, informational, and regulatory domains. The analytical focus is therefore not only on what AI can technically do, but also on how states interpret, institutionalize, and weaponize AI within the broader competition for international influence.

Methodology

The study employs a qualitative research design based on document analysis and thematic content analysis. This design is appropriate because the article examines how states and international actors conceptualize AI in relation to national security, military power, technological competition, and legal-ethical governance. Rather than measuring AI capacity

through quantitative indicators alone, the study analyzes how AI is framed in official strategies, defense-oriented policy documents, international reports, and the relevant academic literature.

The source base consists of four categories. The first category includes primary sources: official strategy documents and policy texts issued by states, public institutions, and international organizations, particularly those relating to AI, national security, defense modernization, cyber security, autonomous systems, and data governance. The second category includes reports produced by international organizations and policy institutions where they address AI governance, autonomous weapon systems, international humanitarian law, or digital sovereignty. The third category consists of peer-reviewed academic literature on AI and security, military innovation, autonomous weapons, cyber conflict, international-relations theory, and critiques of AI hype. The fourth category includes contemporary policy commentaries and open-source defense analyses used only to illustrate recent developments in military AI applications.

Sources were selected according to their direct relevance to the article's research questions. The inclusion criteria were: (i) explicit engagement with AI and national security; (ii) discussion of military applications such as intelligence, surveillance, autonomous systems, cyber operations, logistics, or command-and-control; (iii) relevance to great-power competition, digital sovereignty, or power distribution; and (iv) contribution to ethical, legal, or governance debates on military AI. Sources dealing only with commercial AI applications, purely technical engineering problems, or speculative technological scenarios without a national-security dimension were excluded. Preference was given to post-2017 sources because this period corresponds to the publication of major national AI strategies and the intensification of military AI competition.

The analysis proceeded through thematic coding. The reviewed materials were organized around eight analytical categories: military modernization; autonomous systems; intelligence, surveillance, and situational awareness; cyber security and information operations; data sovereignty and digital nationalism; great-power competition; ethical and legal responsibility; and organizational or operational constraints. The last category was included specifically to avoid overstating AI's effects and to capture problems such as institutional inertia, data limitations, procurement barriers, human-machine integration, and command-and-control frictions.

The coding categories were linked directly to the research questions. The first research question was examined through the codes of military modernization, cyber security, information operations, and digital sovereignty. The second was analyzed through great-power competition, autonomous systems, algorithmic capability, and force multiplication. The third was addressed through ethical and legal responsibility, meaningful human control, accountability, and governance gaps. This structure enabled the study to connect its empirical discussion to the theoretical framework rather than merely summarize policy documents.

Although the article does not employ formal process tracing in a strict methodological sense, it uses a causal-mechanism logic to connect AI-related capabilities with observed changes in military planning, digital sovereignty strategies, and governance debates. This approach allows the analysis to move beyond descriptive mapping and to clarify how AI may affect strategic competition only under specific institutional, doctrinal, and operational conditions.

The country comparison is structured as a focused and illustrative comparison rather than an equal tripartite case study. The United States, China, and Russia are examined

because they occupy central positions in the militarization and strategic interpretation of AI. The European Union is included not primarily as a military AI competitor at the same level, but as a normative and regulatory actor whose approach to data protection, algorithmic accountability, and AI governance shapes the international regulatory environment. The selected examples are therefore used to clarify different strategic logics, not to provide a comprehensive measurement of each actor's AI capacity.

Primary sources were used primarily to identify official strategic priorities and regulatory approaches, whereas secondary academic sources were used to interpret the broader implications of these documents for international security and power competition. This distinction is important because official documents reveal how states frame AI as a strategic asset, while academic literature helps assess whether these claims are empirically grounded, overstated, or shaped by technological optimism.

The study has three limitations. First, it relies on publicly available sources and therefore cannot assess classified military programs or undisclosed operational capabilities. Second, because AI is a rapidly developing field, some empirical examples may change as new systems, regulations, or operational experiences emerge. Third, the study does not claim to measure the exact military effectiveness of AI systems; rather, it evaluates how AI is strategically interpreted, institutionalized, and contested within national security and great-power competition.

AI as a strategic asset in national security

In recent years, AI has rapidly evolved into a technological field at the center not only of scientific research, commercial investors, defense-industry experts, and politicians, but also of international competition. In particular, the growing use of AI-based tools in cyberattacks and the diversification of hybrid warfare techniques clearly reveal this technology's transformative impact on national security (Cummings, 2017, p. 1). The contemporary digital ecosystem also helps explain why states are paying increasing attention to AI.

Several basic factors lie at the core of this interest. The first is the change in the nature of security. Technological developments transform traditional understandings of security and give rise to new threat types. The intensive digitalization of the security environment has resulted in states becoming increasingly dependent on AI-based systems. Second, the growing application of hybrid warfare methods by both state and non-state actors has made the nature of war more complex by integrating technology into military, psychological, and cyber dimensions. In this framework, AI emerges as a key instrument in both defensive and offensive strategies (Johnson, 2019, pp. 5–7). Third is the increase in cyber threats. Estimates compiled by the World Bank indicate that the value at risk from cyber incidents runs into the trillions of US dollars, with one widely cited projection placing potential global losses at around USD 5.2 trillion (World Bank, 2024). AI-enabled cybersecurity tools play a critical role in detecting, preventing, and mitigating these threats. Fourth is the highly complex architecture of national security. As AI technologies enter this domain, new and distinctive attributes that must be considered together become apparent. In particular, the structure known as the "internet of things" which connects different devices to optimize performance provides an important foundation for integrating AI into a wide range of applications (Ranger, 2020). Always-connected mobile platforms and cyber-physical infrastructures further complicate the security environment and make it more difficult to manage. In this context, AI-based solutions are increasingly used in areas such as threat analysis, early warning systems, and situational awareness. Fifth is the challenge of dual-use technologies

and access. Because AI applications can be used in both civilian and military fields, controlling the global diffusion of these technologies has become extremely difficult. The absence of stringent control mechanisms comparable to those governing nuclear or biotechnological weapons creates strategic control deficiencies (Allen & Chan, 2017, pp. 8–9). Sixth is the lack of global regulatory mechanisms. The absence of institutional frameworks capable of limiting the spread of AI-based technologies facilitates access by rogue states and non-state actors. This generates asymmetric power balances and enables even relatively small actors to conduct operations that can damage critical infrastructure. The possibility that air-traffic control systems, nuclear facilities, or energy grids may be targeted through AI-enabled attacks poses serious threats to national security.

Taken as a whole, these dynamics indicate a multidimensional transformation in AI's role in national security. The technology should be regarded, on the one hand, as an opportunity that can strengthen the security architecture and, on the other hand, as a risk factor capable of producing instability if left unregulated.

Military applications of AI: force multiplication, scalability, and operational constraints

AI-enabled autonomous systems and robots offer numerous advantages in the realm of military power, one of the most important components of national power. These capabilities function as a force multiplier against adversarial actors.

Reconnaissance and intelligence

AI is expected to assume a strategic role in producing real-time intelligence by analyzing large datasets. The combination of large-scale structured data with advanced computing capacity makes it possible to generate actionable intelligence. For example, an AI system can simultaneously analyze millions of data points derived from satellite imagery, open-source information, and sensor networks to detect military troop movements or unusual activity in border areas in advance and present commanders with immediate, actionable models. This enables faster and more accurate decision-making in modern combat environments where even seconds are critical. Such applications not only provide policymakers with retrospective analytical capacity, but also deliver real-time situational awareness, significantly increasing the speed and accuracy of the intelligence cycle (Corrigan, 2017).

These systems reduce the risks personnel face in tasks such as detection, reconnaissance and surveillance, patrolling, and border security, while enabling longer-duration and broader-scope missions. For instance, uncrewed aerial vehicles (UAVs), autonomous land and maritime platforms, and semi-autonomous logistics vehicles can conduct uninterrupted patrols along border lines without placing human lives at risk. The same platforms can be integrated with fighter aircraft, uncrewed aerial vehicles, armored ground vehicles, and maritime assets, enabling substantial success in joint operational environments.

The United States is working to integrate AI into semi-autonomous and autonomous vehicles across all military branches, including fighter aircraft, uncrewed aerial vehicles, ground vehicles, and maritime platforms. These military applications are expected to leverage AI-enabled commercial autonomous-vehicle technologies for perceiving the environment, recognizing obstacles, fusing sensor data, planning navigation, and even communicating with other vehicles (Congressional Research Service, 2018, pp. 2–3).

Logistics

Developing autonomous and semi-autonomous systems significantly increases the geographic reach and sustainability of military operations. AI provides major contributions to military logistics systems in terms of efficiency, speed, and forecasting capacity. AI-based algorithms can analyze data across all stages of the supply chain to predict material requirements, optimize inventory management, and identify the most suitable routes in transportation planning. As a result, resupply times in the battlespace are shortened, operational flexibility increases, and logistics effectiveness is strengthened while human error and risks decline. For example, the U.S. Air Force makes intensive use of AI in aircraft maintenance. Instead of waiting for an aircraft to fail or applying uniform maintenance intervals across the fleet, it is developing an AI-based, platform-specific maintenance regime. In this model, real-time sensor data from engines and other systems are continuously collected and processed by predictive algorithms to estimate when technicians should inspect the aircraft or replace parts (Weisgerber, 2017).

Autonomous robots and lethal autonomous weapon systems

AI enables the development of autonomous weapon systems designed to operate without direct human control. These systems encompass different weapons platforms, including uncrewed aerial vehicles (UAVs), drones, autonomous ground vehicles, and autonomous surface and underwater vehicles. AI-enabled drones and robots can be used for reconnaissance-surveillance and precision strike missions. For example, autonomous drones can conduct precise air strikes under challenging conditions where there is little or no human oversight, reducing soldiers' exposure to risk and increasing operational efficiency.

One of the most controversial military AI technologies is autonomous weapon systems capable of making the decision to destroy a target that is, the killing decision on their own. Lethal autonomous weapons that can detect and neutralize targets without human intervention have raised serious concerns about the ethical consequences of delegating life-and-death decisions to machines. Lethal systems are integrated weapons platforms designed to perceive, identify, and engage targets, making the decision to attack and destroy without human intervention. Because they perform functions involving direct target selection and engagement, reducing the human role in the command-and-control loop creates significant legal, ethical, and operational risks related to misperception, target discrimination, and proportionality. Accordingly, the development and use of these systems require the establishment of strict oversight, transparency, and mechanisms for human supervision from the perspectives of security, human rights, and international humanitarian law.

Cybersecurity

AI is seen as a key technology for strengthening military cyber operations in terms of both offensive and defensive capacity. As states become increasingly dependent on digital infrastructure, cyberattacks are assessed as a critical threat to national security.

AI-enabled cyberattacks can identify security vulnerabilities in adversary systems, bypass traditional defense mechanisms, and conduct highly sophisticated attacks. For example, AI can be used for cyber operations intended to disable an adversary's digital networks, manipulate data, or disrupt communications systems. Such attacks can also be used for espionage, sabotage, or to paralyze an opponent's military capacity. The 2010

Stuxnet operation against Iran's uranium-enrichment facility at Natanz, widely attributed to a joint United States–Israeli effort, is a notable example. Stuxnet, a highly sophisticated computer worm, secretly accessed the facility's control software and altered the rotational speeds of centrifuges in an uncontrolled manner (Nicoll, 2011, pp. 1–3). Although everything appeared to be functioning normally in the reports, the system was being damaged due to overheating. Iran later confirmed that hundreds of centrifuges were disabled as a result of the attack.

Traditional cybersecurity tools are largely based on detecting previously identified malicious software code. AI-enabled systems, by contrast, can model new attack patterns, identify anomalies, and develop adaptive responses. In this way, cybersecurity can evolve from reactive defense strategies to proactive ones.

Personnel security

AI-enabled systems can take over human labor in dangerous, repetitive, or dirty tasks, thereby reducing operational risks to personnel. In military contexts, autonomous platforms can perform tasks such as demining, chemical-biological-radiological detection, and reconnaissance in high-risk areas, bringing the risks faced by personnel down to a minimum.

Autonomous ground robots can be used for border patrols without being affected by time constraints or harsh conditions, can clear mines, and can carry out other hazardous tasks that traditionally require ground troops. These robots can operate in extremely challenging environments without placing personnel at risk, thereby increasing both operational safety and effectiveness.

Information operations and deepfake content

AI makes it possible to generate highly persuasive images, audio recordings, and videos; such fabricated content can be used by adversaries within the framework of information operations. In this context, deep-fake techniques can be employed to produce fictional content about an adversary state, manipulate public opinion, erode social trust, and even pressure or coerce diplomats through blackmail. Although a significant portion of this fake content can still be detected by experts, the increasing complexity of machine-learning technology suggests that these tools may soon reach a level capable of deceiving even advanced analytical instruments. By tracing individuals' digital footprint, AI can build behavioral profiles through vacation photos, purchase histories, credit-card reports, educational information, and résumés. Such data banks can be used for influence operations targeting public officials, intelligence personnel, or diplomats.

AI and the future of military power: cost, scale, and integration limits

Advances in AI technologies may significantly affect the future of military power, but their effects should be understood as conditional rather than automatic. Progress in robotics, autonomous systems, cyber security, and decision-support tools indicates that AI can act as a force multiplier when it is integrated into doctrine, training, logistics, and command structures. Throughout history, machines, animals, and mechanical instruments have been widely used to protect human life in dangerous environments. As Pedro Domingos puts it: "One of the primary applications of robots is performing jobs that are very dangerous for

humans, and warfare is one of the most dangerous of these" (Domingos, 2015, p. 72). This emphasis summarizes one rationale for employing autonomous systems on the battlefield, but it does not by itself demonstrate that AI will inevitably produce military superiority.

Use of autonomous systems in military operations is not a new phenomenon; since World War II, human control has gradually been transferred to technology. In more recent examples, it is notable that human intervention has progressively declined in mechanical or basic automation-based devices. For instance, sensor-based mechanisms such as landmines can trigger certain actions without human interaction. During World War II, the U.S. Air Force's Norden Bombsight and the Germans' V-1 Buzz Bomb stand out as early examples of integrating technology into the dynamic control processes of lethal force (Singer, 2009, p. 117). Subsequently, modern "fire-and-forget" missiles such as the Tomahawk, using sensors and computers for target selection, have achieved the capability to complete their missions without further human intervention. In such cases, however, the decision to activate the weapon (triggering) has always remained under human control.

This historical trajectory has entered a new phase with the emergence of AI-enabled autonomous weapon systems. These systems can, within seconds, analyze vast quantities of data that personnel cannot manage, and may undertake cognitive functions such as monitoring, target detection, target selection, or strike recommendation with limited human intervention. This may create major operational advantages in modern warfare. Yet equipping autonomous systems with authority over lethal force raises the prospect of irreparable harm stemming from systemic errors, adversarial manipulation, misidentification, and the erosion of accountable human judgment. In this framework, the United States has sought to articulate basic principles stipulating that decisions regarding the use of lethal force must ultimately be made by humans and that humans should remain within the "decision cycle" (U.S. Department of Defense, 2012). Nevertheless, the speed and tempo of war continue to generate pressure toward greater delegation to autonomous systems.

Table 1 provides an illustrative price-and-quantity comparison between selected high-end crewed platforms and AI-enabled uncrewed systems. The figures should not be read as definitive procurement-cost calculations. They instead show how, under open-source cost assumptions, the budget equivalent of a single F-35A or a major surface combatant such as a DDG-51 can translate into much larger numbers of uncrewed systems. This comparison supports a limited analytical point: AI-enabled and uncrewed systems may increase mass, attritional capacity, and operational dispersion. It does not imply that drones or uncrewed maritime platforms can fully replace high-end aircraft or surface combatants, whose value also depends on sensors, survivability, range, payload, integration, and sustainment.

Today, both commercial and military robotics markets are expanding rapidly, while the declining cost of computing and AI inference has strengthened the appeal of scalable uncrewed systems. The Stanford AI Index reports that inference costs for some AI capabilities declined sharply between 2022 and 2024, while hardware costs and energy efficiency also improved substantially (Maslej et al., 2025). In the military field, initiatives such as the U.S. Replicator program indicate that cost-effectiveness, attritability, and numerical scale have become central considerations in the adoption of AI-enabled uncrewed systems (Reuters, 2024). This does not mean that inexpensive systems automatically defeat complex platforms; rather, it shows that cost curves and scalable production are becoming increasingly important in military planning.

Moreover, these human-made technologies can produce engineering solutions different from those offered by nature; for example, it becomes possible to add one system's

capabilities to another. A hypothetical robotic bird might carry night-vision equipment and could also be equipped with a needle that injects poison. Even if it is argued that today's most advanced robots are still far from achieving such combinations of capabilities and performance levels, the existence of similar functions in nature indicates that there is no inherent technical barrier preventing advanced military robots from acquiring these abilities. In addition, technologies absent from nature such as radar, explosives, lethal weapons, and digital communications can be integrated into these autonomous robots.

Table 1. Illustrative cost-equivalence comparison between selected crewed military platforms and AI-enabled uncrewed systems

	F-35A benchmark (≈ US$82.5M)	**DDG-51 benchmark (≈ US$2.7B)**
Current unit costs	One-way attack drone: 2,357 / MALE UAV: 16	UUV (uncrewed underwater vehicle): 18,000 / USV (uncrewed surface vessel): 135
If unit costs fall to 1/2	Drone: 4,714 / MALE UAV: 32	UUV: 36,000 / USV: 270
If unit costs fall to 1/3	Drone: 7,071 / MALE UAV: 48	UUV: 54,000 / USV: 405
If unit costs fall to 1/4	Drone: 9,428 / MALE UAV: 64	UUV: 72,000 / USV: 540

Note: Monetary values are expressed in US dollars. Numerical entries inside the table indicate the approximate number of uncrewed systems that could be purchased under each cost assumption. F-35A and DDG-51 benchmark costs are based on open-source estimates; all comparisons are illustrative and exclude lifecycle costs, munitions, training, maintenance, sustainment, payload configuration, and contract-specific variation (Lockheed Martin, 2024; O'Rourke, 2025; Reuters, 2024).

As systems become more technologically capable, armed forces become more willing to employ autonomous weapon systems and to delegate authority to them. Considering the fact that an AI-based pilot running on a USD 35 computer was able to defeat a U.S. Air Force–trained fighter pilot in a combat simulator, many states recognize that delegating greater authority to autonomous machines may be necessary; otherwise, defeat may be inevitable (Reilly, 2016).

Advances in AI-enabled autonomous weapon systems may increase the vulnerability of some traditional military platforms, particularly when low-cost systems are deployed in large numbers and integrated with accurate targeting, communications, and reconnaissance. However, claims about the obsolescence of high-end platforms should be treated with caution. Conventional platforms continue to provide range, payload, survivability, command integration, and deterrent value that many low-cost systems cannot replicate. The stronger argument is that AI-enabled drones and uncrewed systems may alter the cost-imposition logic of warfare and create asymmetric pressure on expensive platforms, particularly in environments where air defense, electronic warfare, and maritime protection are strained.

Since the outbreak of the Russia–Ukraine war in 2022, Ukraine has increasingly turned to asymmetric and relatively low-cost technological solutions to offset its disadvantage in naval power vis-à-vis Russia. Chief among these are the uncrewed surface vessels (USVs), which have transformed naval engagements in the Black Sea and enabled Ukraine operating under constant air and missile threats to seriously attrit Russian naval power in the Black Sea. The rapid integration of USVs into Ukraine's naval warfighting doctrine has increased Kyiv's accuracy and range, giving its forces the opportunity to fight an adversary such as the Russian Navy that is, on paper, numerically superior and more powerful. In the face of this serious threat, Russian warships expected to establish sea control in the Black Sea have

effectively been confined to ports. This outcome strikingly demonstrates the asymmetric role that AI-enabled uncrewed platforms can play in modern naval warfare (Mazzucco, 2025).

Recent battlefield experience also points to the limits of autonomy. In Ukraine, small first-person-view (FPV) drones have been widely used and rapidly adapted for diverse missions, yet human oversight remains critical in engagement decisions and fully autonomous warfare remains aspirational rather than operationally mature (Bondar, 2025). This evidence suggests that AI-enabled autonomy should not be equated with fully reliable autonomous targeting, especially where detection, classification, and contextual judgment remain difficult.

Developments in AI-enabled autonomous systems may allow military power to grow more independently of population size and economic strength. The CIA World Factbook still considers the number of men of fighting age in a country as one of the factors determining that country's military power. In the future, however, even small states with aging and shrinking populations may possess robotic power far beyond their human populations. For example, South Korea announced that it will spend approximately USD 1 billion on AI research and development over the next five years. In doing so, South Korea will reach the same level as the U.S. AI Research and Development, even though the U.S. economy is 15 times larger. This means that a smaller and less populous country such as South Korea could gain significant superiority in AI-based military systems and thus be able to deploy a larger number of more capable robotic combat elements to the battlefield compared to more populous rivals.

Moreover, the scalability of military AI is constrained by infrastructure requirements, including advanced semiconductors, data centers, cloud or edge-computing capacity, secure communication networks, and high energy consumption. Recent work on AI data-center demand shows that AI capability increasingly depends on electricity supply, grid resilience, and capital-intensive digital infrastructure (Mural et al., 2026). These constraints limit the assumption that AI-enabled military capacity can be expanded rapidly or cheaply in all national contexts.

AI and great-power competition: from technological leadership to strategic rivalry

Artificial intelligence (AI) has become one of today's most strategic technological domains and now sits at the intersection of economic competition, national security, and geopolitical rivalry. Recognizing that leadership in AI technologies may provide military, economic, and diplomatic advantages, powerful states are investing in this field with increasing urgency (Brands & Cooper, 2021). At the same time, the strategic importance of AI should not be conflated with the claim that AI automatically determines power outcomes. State capacity, industrial ecosystems, data access, institutional adaptation, and doctrine remain decisive mediating variables.

The United States has long occupied a leading position in AI research and development. Technology companies such as Google, Microsoft, IBM, and OpenAI constitute the driving force of global AI innovation (Eastwood, 2023). Thanks to leadership in areas such as natural language processing, machine learning, and autonomous systems, the United States sustains not only economic advantage but also the continuity of its global military power predominance. Through extensive investments in AI within the defense sector, the United

States plays a pioneering role in military AI applications. Programs such as the Department of Defense's Joint Artificial Intelligence Center and "Project Maven," which automatically detects objects in uncrewed aerial vehicle (UAV) imagery for target analysis, aim to automate intelligence analysis and decision-support systems on the battlefield. This strategy positions the United States as a leader in AI both technologically and militarily.

In its 2017 New Generation Artificial Intelligence Development Plan, China explicitly set the goal of becoming the world's leading AI power by 2030 (State Council of China, 2017). State-backed investments, large-scale data infrastructures, and national commercial champions such as Baidu, Alibaba, and Tencent form the backbone of this objective. In the Chinese model, data-collection capacity, centralized planning, and surveillance technologies are particularly salient. Although this approach generates debate with respect to privacy and human rights, it strengthens China's AI strategy across national security, public order, and economic development. By placing the concept of "data sovereignty" at the center of technological development, China emphasizes the state's steering role. China continues its research on various autonomous vehicles across land, air, sea, and undersea domains. In 2017, a Chinese university working in the defense field showcased a swarm of 1,000 AI-enabled drones at an air show. Subsequently, media reporting presented a computer simulation in which a similar swarm detected and destroyed a missile launcher (Kania, 2017, pp. 40–41).

The European Union (EU), while not yet at the same level as the United States or China in terms of AI development capacity, has focused on building an ethical, human-centered, and secure AI ecosystem. On the one hand, it prepared the Artificial Intelligence Act (AI Act) to regulate AI's societal and legal impacts; on the other, it has made the concept of digital sovereignty one of its strategic objectives. The General Data Protection Regulation, the Draft Artificial Intelligence Act (European Commission, AI Act, 2024), and the EU Digital Strategy constitute the foundations of this approach. By emphasizing principles such as personal-data protection, algorithmic transparency, and accountability, these frameworks place the EU in the position of a global norm-setter in AI governance and ethical standards.

Russia, by contrast, approaches AI primarily through the lens of national security, defense, and strategic autonomy rather than economic development. President Vladimir Putin's 2017 statement that "whoever leads in artificial intelligence rules the world" reflects the state-level perception of AI's strategic importance (Vincent, 2017). Russia's National Strategy for the Development of Artificial Intelligence, approved in 2019, focuses in particular on the use of AI in military applications, cyber warfare, intelligence, and automated defense systems. Moscow views AI as a means of generating asymmetric advantage in its power competition with NATO and the United States. Defense-industrial entities such as Kalashnikov, Concern, and Rostec conduct intensive work on autonomous weapon systems and target-recognition algorithms. However, because Russia's private-sector innovation and data-sharing infrastructure are limited, its AI ecosystem is shaped more in a state-controlled and militarily prioritized manner. Russia continues to adhere to its defense modernization agenda introduced in 2008, which envisages "robotizing" 30% of armed forces equipment by 2025 (Simonite, 2017).

These developments indicate that AI is becoming a determining factor shaping the distribution of international power toward the middle of the twenty-first century. Today, a state's AI capacity directly affects not only its economic and military power but also its geopolitical position (Kissinger et al., 2021, pp. 109–110). Accordingly, success in AI carries the potential to transform global power balances. In a scenario in which no country

establishes clear dominance in this domain, it is likely that a multipolar international system will gain strength (Bremmer, 2022, pp. 105–109).

Although interstate competition can stimulate faster and more innovative AI development, the uncontrolled intensification of this struggle also brings various security risks. The diffusion of AI-based weapon systems and the fact that international legal regulations on these technologies have not yet been sufficiently institutionalized increase the risk of a new technological arms race among the United States, China, and Russia (National Security Commission, 2021, p. 12). Indeed, the Chinese government has continued to expand state-backed AI funding, including national AI industry investment funds and the 2024 "AI Plus" initiative aimed at accelerating the integration of AI across the economy (China to launch AI, 2024). This trend and prioritization underscore the importance of future-oriented global competition in AI.

This investment example should therefore be read as illustrative rather than as evidence of a China-only trend. The United States has also treated AI as a defense-modernization priority through initiatives such as Project Maven, the CDAO-centered modernization agenda, the NSCAI recommendations, and the Replicator initiative, which emphasizes scalable and attritable systems. Russia's investment profile is less transparent, yet its National AI Strategy and subsequent digital-sovereignty discourse also frame AI as a tool for technological independence, national security, and strategic competitiveness (National Security Commission on Artificial Intelligence, 2021; Reuters, 2024; Russian Federation, 2019).

The resulting picture deepens not only strategic rivalry but also a global crisis of trust. AI-enabled information operations, disinformation campaigns, and cyber intrusions increase mutual distrust in interstate relations. In this context, allegations that Russia interfered in the 2016 U.S. presidential elections strikingly demonstrate how AI-based tools can threaten international security through asymmetric warfare and information manipulation (Rid, 2020, pp. 7–9).

Digital sovereignty, cyber vulnerability, and the security risks of AI

AI's steadily increasing strategic importance has led to profound changes in states' security policies while simultaneously giving rise to new threat domains. In particular, data has become a fundamental element in developing AI models. Accordingly, states have increasingly recognized the importance of protecting their digital assets against rising cybersecurity threats, privacy violations, and risks of foreign interference. Within this framework, data regulations that require data to be stored and processed within national borders are at the center of countries' efforts to protect their digital sovereignty (Musoni et al., 2023, pp. 5–6, 11).

Governments regard control over data and AI technologies as one of the core components of national security. Protecting sensitive information, preventing foreign surveillance activities, and strengthening defensive capacity against cyberattacks sit at the heart of many countries' digital sovereignty strategies. In this context, major powers such as the United States and China have implemented strict policies that limit foreign access to critical data infrastructures and AI technologies to reduce cyber-espionage risks and protect internal security.

Rapid advances in AI-driven algorithmic decision-making and data-processing technologies have transformed digital platforms from mere communication tools into key components of national security and strategic competition. One of the most visible examples is U.S.–China tension surrounding TikTok, a social media application owned by China-based ByteDance. Reaching hundreds of millions of users worldwide, TikTok stands out not only for short-video sharing but also for its capacity to collect large amounts of personal data and analyze user behavior. U.S. concerns about the potential access of the Chinese government to user data, and about the possibility that recommendation algorithms could be used for manipulation, propaganda, or disinformation, were expressed in congressional debates and official legislative materials, including House Report 118-417 on the Protecting Americans from Foreign Adversary Controlled Applications Act (U.S. House of Representatives, 2024).

The legal basis frequently cited in this debate is Article 7 of China's 2017 National Intelligence Law, which requires Chinese organizations and citizens to support, assist, and cooperate with national intelligence work in accordance with law (National People's Congress of the People's Republic of China, 2017). From this perspective, TikTok's data-processing practices have been evaluated not merely as a privacy issue but also as a national security risk (Mueller & Farhat, 2022, pp. 1–3). In April 2024, the U.S. Congress enacted the Protecting Americans from Foreign Adversary Controlled Applications Act as part of Public Law 118-50, requiring the divestiture of applications controlled by designated foreign adversaries, including ByteDance/TikTok, as a condition for continued operation in the United States (U.S. Congress, 2024). These developments show how technological data infrastructures are intertwined with security policies and how closely private-sector activities have become linked to national interests.

The rise of AI-enabled infrastructures such as cloud computing, facial recognition systems, and surveillance technologies has turned digital sovereignty into a core national security issue. To prevent foreign actors from gaining influence over national security systems, states have become increasingly insistent on retaining control over AI infrastructures. This is also reflected in strategic sectors such as defense, telecommunications, and financial services.

The struggle for digital sovereignty also leads to the fragmentation of the internet as a consequence of nations' efforts to control the digital spaces in which they operate. This fragmentation points to the emergence of isolated national or regional digital ecosystems governed by their own rules, regulations, and technologies. AI-enabled national protectionist efforts and digital sovereignty will create regional differences in the development, use, and oversight of AI and digital technologies by producing divergent regulatory approaches. For example, while the United States emphasizes a regulatory approach focusing on ethics, privacy, and fairness, China adopts a more centralized and state-controlled framework. These differences may produce competing technological ecosystems and standards, limit global interoperability, and deepen digital divides.

Russia represents a third variant of this digital-sovereignty logic. Its 2019 National Strategy for the Development of Artificial Intelligence links AI development to national interests, strategic priorities, scientific and technological development, and national security. In parallel, Russia's "Sovereign Internet" approach seeks to increase state control over domestic internet infrastructure and reduce dependence on foreign-controlled digital networks. These measures demonstrate that, in the Russian case, AI and digital sovereignty are closely connected to technological autonomy, information control, and regime-security

concerns rather than only to market competitiveness (Russian Federation, 2019; Internet Society, 2023).

The fragmentation of the digital domain will make it more difficult to establish global governance frameworks for AI. Efforts to build unified international standards on AI ethics, security, and safety will face serious obstacles because states pursue their own national agendas. The lack of global cooperation will lead to resource waste and duplicative efforts in AI development and will weaken initiatives aimed at addressing shared challenges such as cybersecurity threats, privacy violations, and human rights abuses.

Human control, responsibility gaps, and the legal governance of military AI application

AI systems' image-processing errors, algorithmic biases, adverse interactions among multiple systems, and weaknesses in adaptation to different operational environments create serious risks (Bender et al., 2021, pp. 617–618). The development of AI-enabled lethal military applications generates major debates not only in terms of technical capacity and strategic advantage but also regarding ethical values and legal responsibility. As human oversight declines in the decision-making processes of autonomous weapon systems, questions arise as to who makes the final "killing decision" and to whom responsibility should attach.

Ethical responsibility and human control

From an ethical standpoint, the core debate concentrates on maintaining human control in decisions related to the use of lethal force. The principle of "keeping the human in the decision loop" offers a normative framework that constrains military autonomy (Cummings, 2021, p. 6). By requiring that the final decision to kill be made by a human, this principle aims to prevent delegating such authority to algorithmic processes in the absence of "moral judgment," a uniquely human value.

In the speed and data intensity of modern warfare, while AI can make analytic decisions in seconds, insistence on keeping the human in the decision loop may endanger operational success because personnel may struggle to keep pace with this tempo. Because winning wars is often treated as the overriding objective, there is a risk that human-centered ethical concerns will be pushed into the background. Given that human history tends to prefer pride in victories, the accounting of the costs of success is often condemned to silence.

The integration of AI into military operations raises significant questions. It remains unclear how armed forces will ensure human oversight over autonomous systems and, in the event that AI makes an error, under which protocols and by whom responsibility will be borne. Beyond ensuring the reliability of AI systems, it is an important necessity to guarantee accountability for any damage and casualties they may cause.

All AI-enabled autonomous systems must operate within international legal and ethical frameworks; however, in practice it is evident that achieving this balance is extremely difficult. For these reasons, the use of AI in the conduct of military operations should be evaluated not merely as technological progress, but as a multidimensional process requiring institutional transformation, strategic autonomy, and robust legal oversight.

In the natural environment, an attack by a wild animal on a human cannot be assessed ethically or legally because there is no agent with will. However, if an attack is carried out

by an animal under human control, almost every legal system recognizes both the moral and legal responsibility of the animal's owner. This example is a classic point of reference for clarifying to whom responsibility belongs when harm is caused by instruments or systems directly controlled by humans. Similarly, when unintended harm is caused by an autonomous AI system developed by humans, responsibility may attach to the designer, programmer, operator, or the state that uses the system. Just as it has become a norm to hold the commander who orders the launch, or the personnel who employ the weapon, responsible for destruction caused by a missile fired by mistake, comparable accountability mechanisms are sought for harm caused by AI-enabled autonomous weapon systems.

In practical terms, these mechanisms are discussed by states, international organizations, humanitarian-law experts, and civil-society actors in several forms: Article 36 legal reviews of new weapons, command responsibility within the military chain of command, state responsibility for internationally wrongful acts, procurement and testing requirements, operational audit trails, and human-in-the-loop or human-on-the-loop control standards. The CCW Group of Governmental Experts and the ICRC have both emphasized that human responsibility must be retained across the life cycle of autonomous weapon systems, even where the technical system performs target selection or engagement functions (ICRC, 2014; United Nations Report, 2021).

Yet as decision-making in AI-based systems becomes independent of humans, the applicability of traditional legal concepts such as perpetrator, fault, or intent weakens. When target detection, the decision to strike, and execution are carried out entirely by algorithms in fully autonomous systems, "human will" effectively disappears and responsibility becomes ambiguous. This brings to the fore a new ethical and legal problem known in the literature as a "responsibility gap" (Matthias, 2004, pp. 176–177). Particularly in terms of international humanitarian law, a key question is to what extent the principle of "keeping the human in the loop" should be preserved (Crootof, 2015, p. 1880). In an order in which humans withdraw entirely from decision-making, the system functions not merely as a tool but as if it were an independent actor; this makes the causal link between act and actor, and the question of who can be held legally responsible in the face of destruction caused by autonomous weapon systems, contentious.

Contemporary studies emphasize that the concept of "algorithmic accountability" must be developed to address this problem. This approach envisages that system designers, developers, and decision-makers assume legal responsibility for the predictable outcomes of AI algorithms (Santoni de Sio & van den Hoven, 2018, p. 2). At the same time, there is a widespread view that existing international legal norms are insufficient in the face of the complexity of AI-based autonomous systems. Therefore, developing new normative frameworks that redefine the boundaries of human responsibility in autonomous systems has become one of the most urgent issues for the protection of civilians and the law of armed conflict. It is observed that the United Nations which played a critical role in the formation of international humanitarian law norms, has also taken initiative on AI. The UN document on "Principles for the Ethical Use of Artificial Intelligence" sets out principles aimed at ensuring that AI systems are compatible with ethics and human rights (United Nations High-Level Committee, 2022). In 2024, the UN General Assembly adopted the first global AI resolution (Alper, 2024). Undoubtedly, turning these efforts into binding international agreements and establishing oversight mechanisms will require a long process. Nevertheless, as technology develops rapidly and states do not wish to fall behind in this strategic race, it appears extremely difficult to reach binding international agreements concerning the military use of AI.

Autonomous lethal systems also referred to as "killer robots" are viewed with concern by human-rights organizations, some states, and international institutions, while other approaches argue that fears in this domain are exaggerated. According to this latter view, AI's emotional neutrality and capacity to process vast amounts of data have the potential to reduce human error on the battlefield (Arkin, 2010, pp. 335–338). Current violations in the application of the law of war and the norms related to the protection of civilians clearly demonstrate the inadequacies of existing human-controlled methods of warfare. Moreover, national and international legal sanctions against these violations are, in many cases, far from sufficiently deterrent and effective.

Accordingly, an expectation is emerging that, in the future, such systems may be able to comply with the principles of international humanitarian law at a higher level than humans. Indeed, Crootof argues that if they are designed appropriately, autonomous weapon systems have the potential to reduce harm to civilians and therefore should not be excluded on ethical grounds (Crootof, 2015, pp. 1866–1867).

Legal responsibility and international norms

From the perspective of international law, AI-enabled autonomous weapon systems place significant pressure on existing normative regimes. The Geneva Conventions, international humanitarian law, and the principles articulated by the United Nations Office for Disarmament Affairs (UNODA) emphasize the protection of civilians and proportionality obligations in armed conflict. However, the risk that autonomous weapon systems may violate these principles gives rise to serious concerns (Scharre, 2018, p. 350). For example, determining whether a target is lawful may yield erroneous assessments due to algorithmic bias or data errors. This may increase civilian casualties and create the basis for debates on responsibility under the rubric of war crimes. The core issue is: where does legal responsibility lie with the engineer who developed the algorithm, the military operator who used the system, or the chain of command that authorized its use? At the international level, no binding norm has yet been established on this matter. However, the "killer robots" debates carried out under the framework of the UN Convention on Disarmament have brought forward various proposals to limit or ban the use of these systems (United Nations Report, 2021).

At the intersection of ethical and legal debates, the concept of the "transfer of responsibility" has gained decisive importance. The more autonomous AI systems become, the more the likelihood increases that humans will be distanced from oversight. For this reason, future international regulations should not be solely prohibitive; they must also offer a framework that secures accountability. In this context, it appears inevitable that the international community will move toward a common normative arrangement. Initiatives within NATO, the EU, and the UN make it necessary to redefine ethical codes and principles of legal responsibility in a manner compatible with technological developments.

AI-enabled information operations and societal security risks

Today AI is transforming not only the economic dimension of human life but also social relations, information flows, and patterns of political behavior. This transformation increases the impact of digital platforms on social structures and creates new fault lines from a national security perspective. Social media platforms are among the primary domains in which AI-supported algorithms shape content feeds, user interactions, and the circulation

of information. By analyzing users' behavioral data, these algorithms provide personalized content; however, they also facilitate the spread of hate speech, disinformation, and radicalizing narratives to broader audiences. In this respect, AI systems possess features that both generate threats and help mitigate them. The use of AI by malicious actors for manipulation, propaganda, and psychological operations constitutes a serious threat to democratic processes and social stability. Conversely, the same technologies provide security institutions with critical advantages such as harmful-content detection, automated content moderation, and monitoring extremist tendencies via early-warning systems. Therefore, AI's role within the social media ecosystem has a dual character: it both creates conditions for national security threats to emerge and functions as an effective tool in preventing these threats.

The dual-use nature of AI-enabled technologies sits at the center of contemporary debates on national sovereignty and security. Such technologies are not limited to state control; they are accessible to non-state actors, particularly large multinational technology companies such as Google, Meta (Facebook), Alibaba, and Tencent. This expands the potential for AI to be "weaponized" and constrains national governments' institutional capacity to exercise control over security.

The systematic spread of disinformation through bot networks, automated content generation, and fake news sites on social media platforms creates serious threats to information security and social stability in democratic regimes. AI enables highly realistic image, audio, and video forgery (deepfake) that adversarial actors can use as a tool in information operations (Allen & Chan, 2017, p. 29). In particular, profiling and manipulative use of user data on platforms such as Facebook can disrupt healthy democratic functioning (Tufekci, 2018, p. 28). In China, technology giants such as Alibaba and Tencent have deepened a model of surveillance capitalism by commercializing data obtained from millions of cameras equipped with facial recognition systems.

Fake news and unfounded claims produced with AI technologies and circulated through social media increase polarization within society and reinforce distrust and hostility. This fragmentation weakens the culture of tolerance and compromises necessary for social peace and thereby threatens national security (Chesney & Citron, 2019). There is concrete evidence that AI-based algorithms can inflame social conflicts. According to a 2018 report of the UN Human Rights Council, Facebook's algorithmic content recommendations in Myanmar amplified hate speech against Rohingya Muslims, contributing to mass atrocities and the forced displacement of hundreds of thousands of Rohingya (United Nations Human Rights Council, 2018). This clearly demonstrates how AI-enabled digital platforms can threaten national security by fueling social manipulation and ethnic discrimination.

Findings and discussion

The findings of this study suggest that AI is best understood not as an isolated technological variable, but as a conditional strategic force multiplier embedded in the broader redistribution of military, informational, and normative power. When interpreted through Power Transition Theory, AI appears as a capability-enhancing domain that may affect the relative position of major powers. When interpreted through Offence-Defense Theory, it also appears as a technology that may alter perceptions of vulnerability, speed, and first-mover advantage. However, the evidence reviewed in this article does not support a technologically deterministic conclusion. AI's strategic effects depend on doctrine,

institutions, data quality, procurement systems, human-machine integration, and the capacity to convert technical potential into operational advantage.

First, AI may transform military power by multiplying and redistributing existing capabilities rather than by simply replacing conventional military power. AI-enabled systems can improve intelligence analysis, logistics, cyber defense, targeting, and situational awareness. They can also allow lower-cost platforms to create asymmetric pressure against more expensive assets. Yet this does not mean that high-end platforms such as combat aircraft, destroyers, satellites, or integrated air-defense systems become irrelevant. The more precise finding is that AI changes the cost, scale, speed, and risk calculations of military power. It adds a distributed and attritable layer to existing force structures rather than automatically abolishing platform-based military superiority.

Second, AI intensifies great-power competition by shifting rivalry from platform superiority alone toward data, algorithms, computing infrastructure, semiconductor supply chains, autonomous systems, and decision-support architectures. The United States and China are central to this competition because of their advanced innovation ecosystems, defense-industrial bases, and large-scale data and computing resources. Russia illustrates a different pattern: a more state-directed and security-driven approach that seeks asymmetric advantage despite weaker private-sector innovation capacity. The European Union, by contrast, is more significant as a regulatory and normative actor than as a military AI competitor at the same level. This differentiated pattern supports the article's claim that AI competition is uneven, multidimensional, and institutionally mediated.

Third, AI produces a governance gap between technological acceleration and legal-normative regulation. Autonomous weapon systems, algorithmic targeting, AI-enabled cyber operations, and deepfake-based information campaigns create risks that existing legal frameworks only partially address. The principle of meaningful human control remains central, but its implementation becomes difficult when operational tempo, data volume, and machine autonomy compress the time available for human judgment. The result is not simply a technical problem, but a legal and institutional challenge concerning responsibility, causation, accountability, and oversight.

Fourth, the thesis of an "AI-centered arms race" requires qualification. AI competition is real, but it does not resemble a traditional arms race organized around a single weapons category. It is instead a dispersed competition across ISR, cyber operations, logistics, decision support, autonomous platforms, information operations, and regulatory standard-setting. This makes the competitive dynamic harder to measure and harder to regulate. States may simultaneously pursue military advantage, commercial innovation, data control, and normative influence, blurring the boundary between security competition and technological governance.

A further qualification concerns "AI hype." Some policy and defense debates overstate the speed with which AI will revolutionize warfare. Critical scholarship and recent policy assessments warn that AI systems may be brittle, vulnerable to adversarial manipulation, dependent on high-quality data, difficult to certify for safety-critical environments, and hard to integrate into complex command structures (Black et al., 2024; Horowitz, 2018; Payne, 2018). These limitations do not make AI strategically irrelevant; rather, they indicate that AI's realized impact will vary according to organizational learning, testing, procurement reform, and the ability to combine AI with existing capabilities.

The link between the research questions and the findings can therefore be stated clearly. Regarding national security strategies and threat perceptions, AI shifts attention from territorial defense alone toward data infrastructures, cyber resilience, algorithmic

governance, and information security. Regarding global power competition, AI reinforces rivalry among major powers by changing the sources of military effectiveness and by increasing the value of data, computing, and autonomous systems. Regarding ethical and legal problems, AI creates a governance gap in which the delegation of decision-making authority to machines complicates responsibility, proportionality, distinction, and human oversight.

The article's original contribution lies in synthesizing these findings into a single conceptual claim: military AI should be understood as a conditional force multiplier that links power transition dynamics, offence-defense instability, digital sovereignty, and legal accountability. This contribution moves beyond a descriptive survey of AI applications by explaining why the same technology may produce different strategic effects across different states and why international regulation has lagged behind technological development.

Conclusion

AI has become one of the most significant technological dynamics affecting states' security calculations and international power rivalry in the twenty-first century. Its importance lies not only in the emergence of autonomous systems, but also in its capacity to enhance data processing, analysis, surveillance, logistics, cyber defense, and decision-support functions across multiple sectors. For states, AI is therefore more than a discrete technology; it is a potential strategic force multiplier for building and projecting power, protecting national interests, and improving military effectiveness. Yet this potential is neither automatic nor evenly distributed. It depends on organizational adaptation, data quality, industrial capacity, doctrine, human-machine integration, and the ability to transform innovation into operational practice.

AI-enabled autonomous weapon systems, while reshaping the state's legitimate use of force, create a distinctive threat environment that must be considered legally. From a legal perspective, it does not appear possible to characterize AI solely as a passive tool subject to human will. Integrated into decision-making processes and often operating autonomously from human will, AI systems create a new risk domain that should be evaluated, in the law of responsibility, in a manner like a "source of danger." These systems reveal a relationship of collective agency that contributes both to the execution of the act and to the occurrence of damage and casualties, thereby complicating the establishment of causation and the determination of to whom legal responsibility should be attributed.

At this point, although the international community's efforts to make rules and set ethical standards are important, it is observed that determination regarding international AI regulation remains weak and insufficient. Great-power rivalry and concerns about its strategic advantages slow the formation of binding international rules and cause regulations to remain at the level of general principles. Norm-building efforts led by the United Nations are far from achieving the desired outcomes due to states' desire to preserve their AI capacities and their security concerns. Leading states in the AI domain, aware of the superiority this technology provides, limit information sharing and shift AI away from being an instrument that should serve the common good of humanity, turning it into one of the new axes of global power competition. This weakens optimistic expectations of international cooperation and fuels a dynamic of technological polarization that is deepening steadily.

In the period ahead, as AI's autonomous capabilities and operational consequences become clearer, regulatory and oversight mechanisms are likely to mature gradually and

unevenly. While strategic-competition pressures will continue to push states toward rapid adoption, the concretization of risks may also create incentives for more functional norms on accountability, legal responsibility, and human control. AI's role in national security is therefore unlikely to be shaped by a simple dichotomy between unlimited autonomy and complete prohibition. A more plausible trajectory is the emergence of gradual, contested, and sector-specific governance models informed by operational experience. Within this framework, states that strengthen digital sovereignty, knowledge-production capacity, responsible AI governance, and institutional adaptability will be more influential in the AI-shaped international order.

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Disclosure statement

The author has declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article. The author has received no financial support for the research, authorship, and/or publication of this article.

Supplemental material

Supplemental material for this article is available online.

Ethics approval statement

The data used in this article is publicly available and does not require any ethics committee report.

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