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AI-Powered Warfare: Navigating the Strategic, Ethical, and Geopolitical Frontiers of Autonomous Arms Races

Najm A. Kh. Alhatimi Aleessawi
Head of Studies and Research Dep.
Association of Arab Universities (Jordan)

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Abstract:
This article investigates the transformative impact of artificial intelligence (AI) on modern warfare, international relations, global security, and arms race dynamics. Through a comprehensive literature review and comparative analysis, it examines how major powers, including the United States, China, Russia, the European Union, and India, alongside emerging players like the United Arab Emirates, Egypt, and Saudi Arabia, are heavily investing in AI-driven military technologies, such as autonomous drones, predictive analytics, and lethal autonomous weapons systems (AWS). The findings reveal a global race to integrate AI into military arsenals and strategies, with substantial budget allocations reflecting its strategic priority across diverse geopolitical contexts. These investments raise profound ethical and governance challenges, particularly concerning AWS's accountability, compliance with international humanitarian law, and the risk of unintended conflict escalation. The article recommends conducting strategic studies to evaluate AI's implications for military applications, community security, and international relations. It advocates for robust ethical frameworks and global cooperation to mitigate the risks of an AI-driven arms race while leveraging AI's potential to enhance strategic capabilities responsibly.

Keywords: Artificial Intelligence; arms race; military planning; strategies; ethics

1. Introduction

Artificial intelligence (AI) and robots are playing an ever-increasing role in militaries around the world. These new technologies are likely to become central to future conflicts, have sparked worries about AI-fueled 21st-century arms races, and are altering the governance of technologies, strategies, and tactics. However, few studies offer fully-fledged analyses of the implications of AI technologies on current armed conflicts. We will thus have to systematically approach the impact of AI technologies on foreign policy strategies and international relations tactics and examine what this might entail for the respective fields of peace and security studies. AI is a game-changer that shapes the future of warfare, military technology, and strategy, revolutionizing traditional military tactics. Integrating AI into weapons can improve operations, decision-making, and the nature of war. The impact of nations investing more in AI-equipped military forces extends beyond the battlefield into the realm of foreign policy, ushering in a new arms race influenced more by technological competition and strategic ambiguity.

Contact; Najm Aleessawi, naleessawi97@gmail.com

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Artificially intelligent military systems stand ready to disrupt international relations, potentially ushering in a new phase of strategic dynamics. Countries at the forefront of AI research have likely embarked on rapid enhancements of their military capabilities, seeking strategic dominance. This advancement could heighten competition and tensions, compelling states to accelerate their own AI development in response to progress made by others, thereby creating a security dilemma. Consequently, nations may become embroiled in an arms race involving conventional weapons integrated with autonomous mechanisms capable of making lethal decisions. Furthermore, deploying artificial intelligence in military contexts raises significant ethical and legal concerns. Fully autonomous weapon systems present substantial challenges to international humanitarian law, intensifying complex issues related to accountability and the principles of distinction and proportionality. The rapid and extensive investments in such technologies by both state actors and private entities increase the potential for misuse or unforeseen consequences, further complicating international relations and amplifying global insecurity.

The interaction between artificial intelligence and the field of international relations and weapons also shapes global governance frameworks. In the absence of a consensus on the regulation of artificial intelligence technology in military settings, a vacuum in regulation negatively affects effective policymaking. With more emphasis being placed on military breakthroughs, rather than mutually undertaken efforts at creating conventions and treaties aimed at minimizing risks that come with artificial intelligence, the chances are that governments will focus on their military potential, possibly leading to an increase in armament development. Consequently, the ramifications of artificial intelligence on weapons would not be confined to immediate military applications but could be extended to frame perspectives toward the future course of international cooperation and stability.

This article analyzes how artificial intelligence technologies generate new strategic and tactical imperatives in international politics, as well as how they impact the dynamics of current conflicts and arms races. In addition to this, it offers a deeper understanding of artificial intelligence technologies and warfare by trying to discern between the potential advantages and dangers that the use of AI might bring to military operations. Artificial intelligence is gradually being proven to bring about important changes in society, and this is happening outside the arena of violent conflicts. However, a large portion of this potential has not yet been fulfilled..

1.1 Background and Context:

The recurring theme in history is the pivotal role of technology in warfare. Each technological advancement has reshaped military strategy and geopolitical dynamics. The evolution from bows and arrows to nuclear weapons showcases humanity's remarkable innovative capacity. Artificial intelligence (AI) represents a significant leap forward, enhancing existing capabilities and introducing novel approaches to conflict. The ability of autonomous systems to make real-time decisions offers both advantages and challenges for military strategists. The application of technology for military purposes often involves dual-use phenomena, a trend observed throughout history. New technologies developed for war drive military and geopolitical transformations, resulting in a wide range of effects. Weapons development has historically progressed through exponential technological leaps, from rudimentary tools like the bow and arrow to complex systems like nuclear arsenals and now algorithmic warfare. However, these systems differ fundamentally in scale, strategic implications, and legal classification(Freedman, 2019).

In this regard, the development of nuclear weapons in the 20th Century marked the first world came to risk each other's total extinction, reacting to the development of other less powerful nuclear weapons.

But here comes the associated bundle of ethical, strategic, and operational considerations that are concomitantly attached. Allowing machines to make such vital decisions, especially related to life and death, calls into question the issues of trusting their judgments, accountability among people, and adherence to the rules of war. Wasn't the inclusion of AI into army systems just helping things get geopolitically more difficult? This could then provoke a fresh arms race. In this scenario, nations would then compete for military superiority. The dual-edged nature of AI underlines the need for effective governance and need for international collaboration for its responsible use within military contexts. In that sense, AI is not just a new development in the military arena, but more fundamentally a transformation in how states conceive, handle, and potentially resolve conflict.

In recent years, the parties involved in the international system have shown excessive haste to incorporate artificial intelligence technology into a broad variety of weapons and conflict systems. AI technology has regularly been shown as a common feature alongside missiles and battleships in modern military advertisements.(Humble, 2024). These advertisements have also included an environment filled with glittering lights and laser beams. It is anticipated that artificial intelligence technology, like previous technical developments in the military, would similarly transform contemporary combat.(Szabo, 2024). Innovators assert that these military technologies come with several intrinsic advantages, including the fact that automation helps save human lives. Some military specialists think that the deployment of autonomous weapons systems is not only preferable on moral grounds to the use of human warriors, but they also provide important strategic and tactical benefits on the battlefield. Those who are opposed to these weapons, on the other hand, argue that they need to be restricted, if not completely prohibited, for some ethical and legal reasons. Those who are in favor of autonomous weapons systems are the first to have their reasons discussed in this article, followed by those who are opposed to them. Following that, it explores the difficulties associated with defining and restricting autonomous weaponry. At long last, it concludes with a prescription for public policy. (Etzioni & Etzioni, 2017).

It is common for military problems to develop in a step-by-step fashion when technologies are introduced into conflict zones. When the mechanisms of arms races are taken into account, it becomes abundantly evident that these advancements do not come without some geopolitical ramifications. New and improved fighting systems are already on the horizon in the contemporary world, and they will have significant repercussions not only for the nation's security but also for the military strategy and tactics that are now being put into action.(Araya & King, 2022).

1.2 Geopolitical Ramifications

Artificial intelligence is changing the face of military operations through the speed at which decisions are made and actionable precision. Several countries are investing in AI-driven technologies, including autonomous drones and automated weaponry that require minimal manpower to function. This may mean a new form of warfare whereby decisions will be made by robots. While this might reduce the number of losses among human soldiers, it would also raise ethical questions around responsibility and the possibility of accidental escalations in conflict. Finally, historical arms races, heretofore, resemble the deterrent factor of nuclear weapons during the Cold War era(Marwala, 2023).

As a result, major investments in artificial intelligence by leading nation-states such as the United States, China, and Russia have stoked fears of an artificial intelligence arms race that might upset global security. In this respect, the speed with which research on artificial intelligence is produced has outpaced already existing regulatory frameworks, making the adoption of effective regulation by international authorities impossible. Artificial intelligence has completely shifted the dynamics of modern combat. AI is capable of analyzing huge

volumes, making rapid decisions independently of human operators, and finding subtle patterns and correlations in only hours(Marwala, 2023).

This is way beyond the capacity of human researchers' ability in decades. The application of AI has significantly reduced the uncertainty and chaos characterizing wars, as its analytics can predict what an adversary is trying to achieve and allow for precise strikes. It can also recommend the most favorable courses of action—military, diplomatic, or economic—whittled out of historical data with applications of game theory and predictive modelling. More importantly, unlike human operations, AI systems cannot be affected by fatigue, boredom, or emotional distractions; hence, such machines are never sleeping. With speed often being a factor in any battle outcome, especially in modern warfare, the integration of AI systems can significantly enhance operational effectiveness and efficiency on the battlefield. For these reasons, AI is slowly but surely becoming integral in military command, logistics, training, and simulation environments.(Atkinson, 2024; Chalagashvili, 2024).

1.3 AI Integration in Military Doctrine and International Law

A few strategic frameworks reflect the growing emphasis on artificial intelligence in developing modern military doctrines. China's integrated doctrine for operations prepares the PLA for its movement toward informal, intelligent, and advanced operations, complementing the military sphere of artificial intelligence. The United States announced the kick-off of a project to employ artificial intelligence in coalition operations aimed at defeating violent extremists. Other projects reflect the range of diverse approaches to incorporating AI: the Russian military doctrine considers buying next-generation combat systems, also including unmanned aerial aircraft, able to create unexpected opportunities. Germany, France, and the UK have released reports on developing European military capabilities, each focusing on the centrality and need for AI in defense(Cunningham, 2024; Kania, 2020).

This is necessary because of the immense spotlight that AI doctrine, future technical contesting, and capabilities for AI to dramatically change military operational strategies, tactics, and force posturing are receiving. It is hence necessary to create novel operational methods and competencies that would utilize AI in fashions that are difficult to replicate by adversaries in this strategic advantage, as well as formulate and execute responses. At the same time, the potential of AI to support naval and aerial decision-makers needs to be explored with priorities on system management and lethal out-of-the-loop possibilities. On the strategic political level, changes and perhaps even paradigmatic shifts in military doctrine will have implications for the organizational structure of tomorrow's armies. The nature of the future wars remains vague in that it is yet to be known whether they would be centralized, machine-to-machine interactions, or something similar to historical accounts, such as entrepreneurs/advocates leading smaller forces with a high degree of specialization. More than planning issues, doctrines need to be flexible enough to be able to accommodate newer technical developments. There is also a need for doctrines to be flexible in the actual deployment of technologies that are built based on them(Cunningham, 2024; Farnell & Coffey, 2024).

What some people refer to as killer robots, AWS creates significant ethical and practical problems for the international community. For instance, given the level of AI dependence required to identify and engage targets and the rapid pace at which weapon systems are making decisions, the line separating traditional principles of protection and distinction for civilians could become blurred. Given that AWSs have pre-established command structures, the accountability of nations regarding acts carried out in ongoing armed conflicts is also questioned. AWS can, therefore, work aboveboard in good faith or out of necessity if adequate controls are set and observed. AWS use has stirred debates relating to the adequacy of

international law in addressing these applications, particularly adherence to the pre-existing regulations that protect civilian populations in cases of armed conflict.

In the absence of further common agreement on the rules of international technology, an AI weapon race could erupt in time. A future that must be avoided at all costs. Policymakers must constantly reconsider the relationship between technology and national security. While technology is under development and maturation, the AI state and national security state is expected to become increasingly fused. The leading countries in AI are, therefore, creating various incentives for the states to adopt the technology of AI so that they could have some military edge in the future over their rivals. One underlying fact that no one can deny is that with increasing convergence between artificial intelligence and military applications, AI will result in shaping military systems. Having AI makes its case; those in possession can also hold a competitive advantage in developing AI for military purposes.

2. Methodology

This study employed a literature review of academic articles, policy reports, and case studies to investigate the implications of AI in military contexts. This approach facilitated the establishment of a theoretical framework and provided essential background for analyzing the role of AI in the arms race (Gómez de Ágreda, 2020; Sharkey, 2013). The analysis of the gathered information was conducted using thematic analysis and comparative analysis (Braun & Clarke, 2006; Sparrow, 2007). The author used the method of thematic analysis to identify and investigate recurring themes or patterns within the data. By using theme analysis, the author investigated the complicated implications that artificial intelligence may have in military settings. An analysis of the literature, policy papers, and case studies was conducted by the author to identify recurring themes about the role that artificial intelligence plays in military operations.(Christou, 2024). A variety of data sources, including qualitative interviews, policy assessments, and publications, were leveraged to conduct thematic analysis to include a wide range of perspectives on artificial intelligence in the context of the arms race.(Braun & Clarke, 2006). The thematic analysis focused on specific areas of inquiry, including the ethical considerations surrounding autonomous weapon systems and the strategic advantages of AI in combat scenarios.(Sparrow, 2007).

In the process of comprehensive analysis, various scenarios or circumstances undergo a systematic evaluation to determine their similarities and differences(Aleessawi, 2023). This methodology is particularly effective for examining the measures taken by various nations or armed formations toward the incorporation of artificial intelligence. An examination of the military doctrines of countries, including the United States, China, and Russia, concerning artificial intelligence constitutes an essential component. This comparison may reveal how each nation perceives the strategic relevance and ethical implications of artificial intelligence. Gómez de Ágreda (2020) emphasizes best practices and lessons learned from exploring different approaches to artificial intelligence in military applications. The results are contextualized within larger geopolitical dynamics through comparative analysis. Gaining an understanding of how artificial intelligence is perceived and used in various cultural and political contexts allows for a more nuanced understanding of its implications for international security (Sharkey, 2013).

Accordingly, this article aims to address the central question: “How do national investments in military artificial intelligence shape global warfare dynamics, ethical governance, and the risk of an AI-driven arms race?”

In the course of this analysis, bigger patterns and consequences for international security were discovered. Both quantitative and qualitative data, including information on military expenditure on artificial intelligence technology, were obtained by the author via this body of literature. The author also gathered qualitative data from what was published in the

field. Additionally, case studies of certain countries' military doctrines addressing artificial intelligence gave insights into how other governments are handling the incorporation of AI into their armed forces. After that, the author conducted an in-depth analysis of the data to identify patterns, difficulties, and opportunities that were associated with the subject matter. An examination was conducted with an emphasis on several different areas, including ethical concerns, legal ramifications, and the possibility that artificial intelligence may alter the character of conflict. In conclusion, I incorporated the results into a logical narrative by using the insights gained from the literature research, data analysis, and case studies. This allowed me to offer a holistic understanding of the influence that artificial intelligence has had on the arms race.

3. Results and Discussion

3.1 AI Arms Race

Mayer (2018) and Amoroso et al. (2018) converge on the transformative potential of AI in military contexts and challenges, with a particular focus on risks associated with dual-use technologies. Mayer highlights that recent progress regarding AI, especially deep learning, has outpaced both existing governance and regulatory frameworks. The dual-use nature of AI, with civilian technologies serving military purposes, complicates arms control and engenders the potential for an AI arms race. This is compounded by the difficulty of AI systems' verification problem and the speed with which technology advances, hence making it very difficult for local and international authorities to catch up with them.

Mayer (2018) further goes to ruminate on the strategic and humanitarian consequences of AI-driven warfare. The disruptive nature of autonomous weapons systems is underlined in an open letter from 2015, signed by over 1,000 academics, which called for preventative measures to avoid a runaway proliferation of lethal autonomous weapons. Similarly, Amoroso et al. (2018) Offer a review of the technological, legal, ethical, and political implications of AWS, putting Bundeswehr modernization into a broader global context. Both works conclude that AWS not only increases the possibility of operating but also loosens the bonds of international regimes, consequently demanding increased regulation and coordination mechanisms on a global level.(Roy, 2024).

3.2 The Ethical and Governance Dimensions of AI in Military Applications

One of the main ethical dilemmas in AI has to do with how the systems are designed and function for human rights and in congruence with international humanitarian law. A good example of this is well documented in the deployment of LAWS, and such drones could engage in battles that would make a person live or die without human intervention, hence raising questions touching on moral responsibility and possible violation of ethical norms during wars(Aleessawi, 2025). Moreover, the risk of bias within AI algorithms can lead to discriminatory outcomes, hence posing a critical threat to fairness and justice in military operations. This calls for strong governance frameworks that not only regulate the development and deployment of AI technologies but also ensure transparency and accountability in their use(Morgan et al., 2020).

In addressing the ethical implications of AI in military contexts, governance frameworks should also account for the wider societal effects of these technologies. Building public trust in military AI is crucial for its acceptance and success. Engaging with communities and stakeholders to promote informed discussions on ethical AI usage is essential(UK Ministry of Defence, 2022). Creating ethical guidelines for AI in defense demands interdisciplinary collaboration involving ethicists, technologists, military personnel, and policymakers to develop strategies that mitigate risks while leveraging AI's benefits. Additionally, ongoing education for military personnel on AI's ethical dimensions ensures informed decision-making

in complex scenarios(Cummings, 2016). As nations enhance their AI capabilities, global dialogue on ethical governance is imperative to avoid an autonomous weapons arms race and foster responsible innovation aligned with humanitarian values(Taddeo et al., 2021).

Khan et al. (2024); Perry & Uuk (2019); Prates et al.(2018) have critically examined AI ethics and governance and stressed the need for strong ethical frameworks and thorough governance mechanisms. Perry & Uuk (2019) criticized governance systems for lacking institutional knowledge, policy instruments, and conceptual frameworks, which hinder regulation. They urge careful policymaking cycles and advise against presenting artificial general intelligence (AGI) research as an arms race, which increases risks and hinders responsible innovation. Moreover, Roche et al. (2023) examined the convergence of ethical standards in AI research globally, highlighting essential principles, including privacy, responsibility, and justice for high-stakes military applications. They show that European, North American, and Asian ethical frameworks dominate, leaving South America and Africa underrepresented. In times of war, this mismatch may perpetuate Western-centric prejudices and ethical lapses(Sanchez et al., 2024).

3.3 Strategic and Operational Integration of AI

Littman et al.(2021; Molina et al. (2023; Nelson et al. (2023) scrutinize the integrated application of artificial intelligence (AI) into military strategies and operations, providing diverse analyses of its utility and implications. Littman et al. Use data, up to October 2023, to offer a comprehensive global analysis of AI's transformative role in power projection enhancement. They highlight this by demonstrating that AI technologies are weapons of both offense and defense – they include precision-guided missiles and advanced surveillance systems. Indeed, distinguishing between conventional munitions and lethal autonomous weapon systems is challenging, as the improvement of the former is regulated by a legal framework that takes the latter situation into account. They argue that there is a dire need for strong international regulatory structures in terms of the UN Convention on Certain Conventional Weapons, hence, the development was meant to supplement such ethical and operational challenges amidst calls that LAWS should be made to conform to international humanitarian laws.

Nelson et al. (2023) discusses some of the ethical issues associated with these accomplishments. They stress concerns about the usage of AI in offensive weaponry, particularly in systems used for targeting, where decisions lack human discretion and moral judgment. The authors also indicate a growing concern among high-tech workers over the possibility of having their ideas repurposed for military a concern reflective of broader public fears about the militarization of technology. This discomfort underlines some of the ethical concerns in the technology industry and raises questions about transparency, consent, and accountability in the defense trade.

In the same way, Molina et al. (2023) discuss the place of AI in military cyber security, particularly to the way it can revolutionize threat identification and precaution. They center on AI’s capacity to process large volumes of data: it can discern signals suggestive of cyberattacks much more accurately and dominantly faster than human operators. In military situations, elements like these are especially essential due to the high interest in cyber difficulties. AI solutions can self-act to new threats and create responses to counter the threats promptly in real-time. Apart from increasing the efficiency of the organization, this element also elaborates on the potential of military organizations for combating more sophisticated and manifold cyber threats. However, the authors also speak of the difficulties in implementing such systems, which may lead to reliance upon the algorithms’ answers, as well as on adversarial compromising of AI’s biases or system instabilities.(Gilbert & Gilbert, 2024).

The previous studies related to AI applications in military settings were more concerned with AI's abilities for simple defensive reactions to cyber threats while the contemporary research is more proactive and deals with AI directions in the context of open combat actions. As reported by Feldman et al. (2024), human-AI cooperation approach for managing lethal autonomous systems has been advanced. Collectively, they convincingly demonstrate that the supervision of such Lethal Autonomous Systems can be enhanced by combining effective Human AI operators with AI/ML proxy Operators. This twofold system is postulated as indispensable for keeping control over the processes in autonomous systems while expanding on their operational benefits.

Taken together, these studies illustrate the transformative potential of AI in military contexts, as well as the ethical, operational, and strategic challenges it presents. Littman et al. pay attention to the global governance and legal implications of AI's military use, while Nelson et al. explore its impacts on workforce dynamics and organizational efficiency. Molina et al. (2023) Complemented these perspectives by emphasizing the technological advancements AI offers in cybersecurity. Accordingly, these analyses underscore the need for a balanced approach that maximizes AI's strategic benefits while mitigating its risks, ensuring that its integration into military systems aligns with ethical norms, legal standards, and global security objectives.

3.4 AI in Wargaming and Tactical Decision-Making

Black & Darken (2024) and (Feldman et al., 2024) provide detailed analyses of artificial intelligence in the matter of wargaming and tactical decision-making, showing how such technologies are reshaping the landscape of military strategy and operations. Black & Darken emphasizes China's "intelligentization" strategy, through which enhanced AI capabilities for better decision-making through advanced wargaming have been included, such as the Mozi Joint Operations Deduction System, which, through extensive human-contributed input into AI-driven processes, shows a multiplicity of opposing forces as combat scenarios. Using these frameworks to build realistic operational simulations, commanders can work through a much broader slate of outcomes and adjust their strategies accordingly. Black & Darken (2024) call on the United States to invest in similar AI-driven wargaming systems to remain strategically valuable against adversaries as they cultivate such capabilities.

In this regard, the model discussed by Feldman et al. (2024) represent a hybrid approach to a human-AI integrated military decision-making process that focuses on ethical oversight and operational flexibility. The model directs attention toward human-AI collaborations in managing autonomous weapons and combat scenarios, wherein this partnership with human operators aims to balance the major strengths of automation speed, data processing, and accuracy with human oversight providing the necessary critical judgment and ethical consideration(Aleessawi & Djaghrouri, 2025). In a dynamic and unpredictable combat environment place where rigid, fully autonomous systems may fail before the imminent and unforeseen variables-Feldman et al. argue that this form of human-AI partnership would be vital.

Both Black and Darken and Feldman et al. create a compelling argument for ethical and strategic alignment in the development and deployment of AI in military contexts. Warning against underestimating AI evolution speed by adversaries, Black and Darken advise tactical innovation and perpetual investment to generate advantageous positions. Despite this, the ethical status of action demands that Feldman et al. explicate human oversight as it relates both to compliance with international humanitarian law and the flexibilities brought about by discharging complex moral dilemmas that autonomous systems pose.

In conclusion, the literature collectively highlights the implications of AI on military applications, referring to its dual-use potential, ethical dilemma aspects, and functional

domains. AI brings a paradigm leap in strategic decision-making, cybersecurity, and tactical operations while also posing critical governance, ethics, and international regulatory questions. They advocate for a balanced approach to AI integration that would marry technological innovations with sound ethical and legal frameworks. Amoroso et al.(2018; Mayer (2018) stress the pressing need to address the dual-use challenges of AI and arms race risks, whereas Prates et al., Perry and Uuk, and multi-culture-orientated Roche et al. suggest consolidating ethical and governance strategies. Littman et al., Nelson et al., and Molina et al. provide a practical understanding concerning operational applications of AI that show great transformational effects in several military domains. Last of all, Black & Darken (2024); Feldman et al. (2024) stress the vital importance of including adversarial perspectives and human oversight to guarantee moral and strategic alignment in AI-led military operations.

As AI continues to advance at a rapid pace, the need for accountability, inclusiveness, and transparency in its military applications is increasingly urgent. Taken together, the studies we have reviewed call for global cooperation and a multidisciplinary approach to harnessing AI's potential while mitigating its risks. Our article thus argues that AI may enhance military capabilities but also pose a significant threat to world peace, requiring a broad ethical, legal, and strategic assessment. Discussions of AI for military uses must prioritize accountability, transparency, and ethics.

3.5 AI Investing in Military Fields

The investment in AI in military sectors has attracted considerable interest because of its potential to transform defense capabilities and improve national security. Numerous nations are progressively dedicating resources to developing artificial intelligence applications for military purposes, including autonomous drones and sophisticated data analytics for battlefield control. Research from the Center for a New American Security indicates that AI technologies enhance decision-making processes and augment operational efficiency.(Kania, 2020). The United Nations has advocated for limitations on deadly autonomous weapons because of the substantial ethical concerns associated with the deployment of AI in military operations. Nations compete to use AI for military dominance, revealing investment patterns that suggest a transition to a technology-centric defense environment, with consequences for global security dynamics.(Daxhelet, 2023). Below, I tabled the fields of using AI in the Military and Key Initiatives and Investments:

Table 1: Artificial intelligence (AI) in military fields

Country	AI in Military Fields
United States	Especially, focus on self-contained control systems and big data for enhancing decision-making and awareness; furthermore, focus on self-contained control systems, predictive maintenance, cybersecurity, and logistics.
China	Pay attention to concepts of 'smart' wars and AI incorporation with weapon systems; reconnaissance, unmanned platforms, supply chain, and cyberspace.
Russia	Progress in the enhancement of automated destructive machinery systems, artificial intelligence in war, self-operated fighting machines, cars, and computers, along with cyberspace and intelligence capability.
European Union	AI application integrates intelligence analysis, logistics, and autonomous systems; besides, cooperation between armed forces and social considerations of applying artificial intelligence
Japan	Enhancing the defense forces with artificial intelligence in the fields of cybersecurity and technological setup, with a focus on Robotics, Surveillance, and Rescue.
India	Applications of AI in surveillance, logistics, defense, and strategies, including decision-making.

Reference: author depending on (BRC, 2024; Csernatoni, 2024; Finlan, 2024)

This table showcases how different countries are utilizing AI in their sector to boost defense capabilities strategically. The U.S. focuses on enhancing efficiency and decision-making through initiatives, like Project Maven and the Joint Artificial Intelligence Center (JAIC) while China aims for global AI supremacy and integration of AI into military operations with programs such as the National AI Development Plan. Russia is focusing on enhancing systems for surveillance and military operations as part of its military upgrade efforts, while the European Union is backing joint defense projects through the EU Defense Fund and exploring frameworks for using military AI technologies efficiently. Japan is giving importance to boosting its strengths through its Military Innovation Strategy and partnerships with tech companies, while India is progressing in AI technology for use and promoting domestic production through the Make in India campaign.

AI improves operational efficiency, acceleration decision-making, and accuracy in a fight according to Atkinson (2024) and Chalagashvili (2024). Drones and automated systems such as AWS are instrumental in contemporary warfare mainly because they offer ease on the user end; however, their operation raises several issues, ethical and legal in particular. Largest superpowers like the USA, China, and Russia are investing in AI specifically for defensive and offensive purposes to have military dominance, consequently, there are threats of the emergence of an AI arms race. According to Marwala (2023); Nelson et al. (2023). Policies have not been able to keep up with technological innovation, and as a result, there is a heightened likelihood of unregulated AI applications in military use(Mayer, 2018; Perry & Uuk, 2019). AWS contravenes the principles of proportionality, accountability, and distinction, as set out in the IHL (Prates et al., 2018; Roche et al., 2023). The use of artificial intelligence in both civil and military contexts poses major challenges to arms control measures in that it requires international collaboration and legal solutions(Mayer, 2018; Roche et al., 2023).

Automated weapons mean that warfare is becoming faster, more accurate, and, above all, more efficient than ever before. Autonomous drones, big data analysis, and machine learning allow the military system to predict its opponents' actions and suggest the best reaction to such activity(Atkinson, 2024; Chalagashvili, 2024). The adaptation of AI in command, logistics, and training systems is minimizing the human burden and increasing strategic decision-making in the context to real-time situations. The US, China, and Russia are the most important players in military AI importance, and the expenditures in it are expected to rise every year. AI is being used by these nations to maintain an advantage on the technological and strategic level (Deloitte, 2024; Marwala, 2023; Nelson et al., 2023). The arms race does not only encompass weapons to use on the battlefield, but also advanced autonomous systems that can make lethal decisions, causing geopolitical strain(Mayer, 2018).

The norms of international humanitarian law, such as the responsibility of armed individuals and the balance between distinction and proportionality, are incompatible with the employment of semi-autonomous weapons systems, sometimes referred to as "killer robots" and drones (Boulanin, 2016; Roche et al., 2023). AWS raises ethical concerns about the need for human oversight of potentially catastrophic decisions, such as those involving nuclear weapons or autonomous cars(Prates et al., 2018). The current system of government is ill-equipped to handle the rapid development and deployment of AI systems for use in the military. The regulation and verification of the AI system become much more complex when considering its application for both legal and Illegal purposes. As already stated by Mayer (2018). Similarly, existing global protocols, such as the UN Convention on Certain Conventional Weapons, do not mandate an understandable framework for the integration of AI into institutionalized military forces as stated by Littman et al. (2021).

Instantaneous decision-making and, most crucially, a low risk of human death are two of AI's unrivalled advantages, but the technology also introduces a vulnerability that may alter

the character of combat or prevent conflicts from ever unfolding. An arms race has broken out as a consequence of AI development, which is keeping different nations at the forefront of defense. This might have a detrimental effect on world peace.(Cunningham, 2024; Nelson et al., 2023). The biggest element that arose from the difficulties with international humanitarian law was this change, which removes human accountability and puts the web platform under the control of AWS. The so-called "Targeted Killing 2.0" brings up moral questions about the acceptable use of artificial intelligence in making life-or-death decisions, as well as on the efficacy of such systems in reducing conflict, preventing misuse, or inciting an unchecked escalation of enemy tensions.(Prates et al., 2018; Roche et al., 2023).

3.6 Projected AI Investment

Here is a comparative overview of AI military investments for 2024 by selected countries alongside their annual defense budgets for the same year:

Table (2): AI Military Investments vs. Annual Defense Budgets in $ billion (2024 and 2025)

Yr.	Country	Annual Defense Budget in billions		Projected AI Military Investment		Ratio	
2024	United States	997		1.8	4.6	0.2	0.5
	China	314		7	14	2.2	4.5
	Russia	149		1	3	0.7	2.0
	India	86.1		0.5	1	0.7	1.2
	European Union	454		1	2	0.2	0.4
	Japan	55.3		0.3	0.6	0.5	1.1
Yr.	**Country**	**Annual Defense Budget in billions**		**Projected AI Military Investment**		**Ratio**	
2025	United States	950	1000	1.8	5	0.2	0.5
	China	266.85	320	8	16	3.0	5.0
	Russia	126	150	1	4	0.8	2.7
	India	75	83	0.6	1.2	0.8	1.4
	European Union	470	500	1.5	2.5	0.3	0.5
	Japan	57	60	0.4	0.7	0.7	1.2

Reference: (Deloitte, 2024; Global Firepower, 2025; Liang et al., 2025; Miskelley, 2025; Sipri, 2024)

The comparative table highlights varied military AI investment trends for 2024 and 2025 among six global powers: the United States, China, Russia, India, the European Union, and Japan, reflecting distinct strategic priorities. In 2024, the U.S. allocates $1.8 billion (0.2%) of its $997 billion defense budget to AI, rising to $5 billion (0.5%) in 2025 within a $950–$1000 billion budget, indicating caution influenced by ethical concerns and diversified R&D, as Littman et al. (2021) note. China invests $7 billion (2.2%) of its $314 billion 2024 budget, surging to $16 billion (5%) in 2025 within a $266.85–$320 billion budget, aligning with Kania's (2020) analysis of its “intelligentization” strategy. Russia’s $149 billion 2024 budget includes $1 billion (0.7%) for AI, quadrupling to $4 billion (2.7%) in 2025 despite a $126–$150 billion budget, reflecting strategic prioritization amid economic constraints(Cunningham, 2024). These trends signal an intensifying AI arms race, particularly driven by China and Russia, corroborating Mayer's (2018) warnings of governance gaps risking unregulated autonomous weapons systems (AWS) proliferation.

India, the EU, and Japan pursue more measured approaches. India’s $86.1 billion 2024 budget allocates $0.5 billion (0.7%) to AI, increasing to $1.2 billion (1.4%) in 2025 within a $75–$83

billion budget, supporting its digital transformation(Deloitte, 2024). The EU's $454 billion 2024 budget assigns $1 billion (0.2%) to AI, rising to $2.5 billion (0.5%) in 2025 within a $470–$500 billion budget, constrained by ethical frameworks(Roche et al., 2023). Japan's $55.3 billion 2024 budget includes $0.3 billion (0.5%) for AI, growing to $0.7 billion (1.2%) in 2025 within a $57–$60 billion budget, addressing regional security(Feldman et al., 2024). The U.S.'s Project Maven and JAIC emphasize interoperability(Kania, 2020), contrasting with China's Mozi system for wargaming(Black & Darken, 2024). Russia's focus on next-generation systems mirrors Cold War dynamics but introduces dual-use complexities(Amoroso et al., 2018), while India's "Make in India" campaign and the EU's regulatory caution highlight diverse priorities.

These investment patterns underscore ethical and governance challenges. Perry & Uuk (2019) highlight inadequate regulatory frameworks, amplifying risks of AWS accountability issues noted by Prates et al. (2018), particularly regarding international humanitarian law compliance. AI's real-time decision-making heightens escalation risks(Marwala, 2023). Cybersecurity vulnerabilities, like algorithmic biases, pose operational threats(Molina et al., 2023). The U.S., EU, and Japan's conservative allocations reflect ethical concerns(Nelson et al., 2023). India balances modernization with incremental growth. Global cooperation, as Littman et al. (2021) advocate, it is critical to establish ethical and legal frameworks ensuring AI's military applications prioritize accountability, transparency, and humanitarian values, mitigating an unregulated arms race while harnessing strategic benefits.

3.7 Some AI Applications in the Arab Military

Regional powers like Saudi Arabia, Egypt, and the UAE are also advancing AI in military systems to modernize their defenses and enhance regional security. (Feldman et al., 2024; Molina et al., 2023). Here, I indicate some AI applications in three Arab countries (the United Arab Emirates (UAE), Saudi Arabia, and Egypt), as follows:

Table (3): Using AI in military fields by Arab countries

Country	AI Application in Military
United Arab Emirates (UAE)	Development of AI technologies for defense and military applications
Saudi Arabia	AI in military modernization and defense strategies
Egypt	AI for defense and security applications

Reference: author depending on (Carchidi & Soliman, 2023)

Many developing countries, such as KSA & UAE, are adopting AI for modernization in military plans and policies, such as Saudi Vision 2030. The UAE has a long-term vision to be one of the leaders in AI by 2031, with current plans such as launching a machine learning hub and a Center of Excellence for uncrewed systems. Currently, EDGE Group is taking an active approach towards procuring AI tools and integrating self-propelled mechanisms. Saudi Arabia is starting to use AI for military purposes to develop different systems that would help in military operations, as the country is trying to build up its military infrastructure with the help of its Vision 2030. Egypt is seeking AI technologies to boost military power and fortify national security despite fewer convenient projects compared to the UAE and KSA.

4. Conclusion

The integration of artificial intelligence (AI) into military applications represents a transformative shift in modern warfare, offering unprecedented capabilities in decision-making, operational efficiency, and tactical precision, while simultaneously posing significant ethical, legal, and geopolitical challenges. The 2024 projected AI military investments, as outlined in the document, highlight the varying priorities of global powers: China's aggressive $7–14 billion allocation reflects its "intelligentization" strategy, Russia's $1–3 billion

investment emphasizes autonomous systems amidst economic constraints, India's $0.5–$1 billion focuses on self-reliance, the EU's $1–$2 billion is tempered by ethical considerations, and Japan's $0.3–$0.6 billion addresses regional threats. These estimates, derived from trusted sources such as Government of India (2025; Wilmington Trust, 2023), underscore an intensifying AI arms race, particularly driven by China and Russia, which risks destabilizing global security due to inadequate regulatory frameworks. The dual-use nature of AI, capable of both civilian and military applications, complicates arms control and necessitates robust international cooperation to ensure responsible development and deployment.

Ethical and governance challenges are central to the discourse on military AI, as autonomous weapons systems (AWS) raise profound questions about accountability, compliance with international humanitarian law (IHL), and the potential for unintended escalations. The document highlights concern over AWS's ability to blur distinctions between combatants and civilians, as noted by scholars like Mayer (2018), who warn of governance gaps outpaced by rapid technological advancements. The U.S., EU, and Japan's relatively conservative AI investments reflect efforts to balance innovation with ethical oversight, while India's incremental approach supports its modernization goals. However, the lack of global consensus on AI regulations, as emphasized by Perry & Uuk (2019), risks perpetuating an unregulated arms race, particularly as nations like Saudi Arabia, the UAE, and Egypt also advance AI for regional security. The call for interdisciplinary collaboration—integrating ethicists, technologists, and policymakers—is critical to establishing frameworks that prioritize transparency, accountability, and adherence to IHL, ensuring AI's military applications do not undermine humanitarian values.

In conclusion, the rapid advancement of AI in military contexts demands a balanced approach that harnesses its strategic benefits while mitigating its risks. The document's analysis, supported by thematic and comparative methodologies, reveals that AI's potential to enhance military capabilities is matched by its capacity to disrupt global stability if left unchecked. Initiatives like the U.S.'s Project Maven, China's Mozi system, and the UAE's AI-driven defense programs illustrate diverse applications, but the absence of unified international regulations, as warned by Littman et al. (2021) heightens the risk of an AI arms race. Global cooperation is imperative to develop ethical and legal frameworks that ensure AI's military use aligns with principles of accountability, transparency, and justice, fostering responsible innovation and preventing a future where autonomous systems dictate the course of conflict without human oversight.

5. Recommendations

The author recommends conducting strategic studies to employ artificial intelligence in armor and its repercussions on community security and international relations. Also, he recommends the inclusion of armed AI within international standards and regulations, strengthening ethical guidelines, human oversight, and focusing on investment in research and development. In addition to strengthening cybersecurity measures and establishing the concepts of dialogue and cooperation, public awareness, and accountability.

Conflict of interest:

There are no competing interests to declare

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