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ROLE OF AI IN CATALYZING A REVOLUTION IN MILITARY AFFAIRS: A CASE STUDY OF RUSSIA-UKRAINE WAR

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Abstract
This paper examines the catalyzing role of AI in bringing a revolution in military affairs by taking the case study of the ongoing Russia-Ukraine war. The massive use of AI for military purposes has been studied through the lens of the Revolution in Military Affairs (RMA). The RMA is specifically chosen to confine the scope of the study to its specific tenets that would provide precise and clear understanding. The paper discusses the historical evolution of AI in general and then analyzes its Role for the military purposes in detail in the Russia-Ukraine Conflict. Within the context, the use of AI in decision support systems, integration into the weaponry, and the organizational adaptation of both countries have been examined. In conclusion, this study contends that AI serves as a catalyst by accelerating the possible revolution in military affairs introduced by advanced technologies, including machine learning, quantum computing, robotics, data analytics, etc.

INTRODUCTION

The swift development of artificial intelligence (AI) has surpassed conventional limits and is becoming a potent force in nearly every aspect of human activity, including warfare (Marwala, 2023). In the twenty-first century, warfare has spread beyond battlefields to areas controlled by data, algorithms, and machine learning, eroding traditional notions. With changes occurring at an unprecedented speed, accuracy, and efficiency, the incorporation of AI represents a significant change in warfare (Flournoy, 2023). In recent major military events including Israel's operation in Gaza, U.S and Israel's war with Iran and Russia-Ukraine war, AI playing a vital role. The Israeli army has accepted the use of an AI system named "The Gospel" to identify and target combatants and equipment (Brumfiel, 2023). Likewise reports indicate that the U.S used Anthropic's AI model Claude to strike Iran (Pilkington, 2026). Russia and Ukraine are also using a large number of AI technologies and machine learning (ML) techniques in their warfare.

Notable countries like the United States, China, and Russia have accelerated their efforts in utilizing AI for warfare. According to the U.S.-China Economic and Security Commission Report (2024, p. 170) AI is central to U.S.-China competition and could play a decisive role in their technological competition. The substantial application and incorporation of AI in the military, along with force multiplier technologies, has sparked a discussion on how AI might transform warfare. Scholars are divided on it;

some contend that it is only revolutionizing combat, while others opine that, along with more modern technology, such as in computing and robotics, AI is a fresh advancement that will probably lead to innovations in the military.

The extensive use of AI in a wide spectrum of warfare in the ongoing Russia-Ukraine war has made it a hot topic for scholars across the globe. Bendett (2023) says, "*Artificial Intelligence (AI) is emerging as a significant asset in the ongoing Russian-Ukrainian conflict.*" Ashby (2024) has termed this war as the future of conflict. As each army looks for an edge over the other, AI is equipping them with capabilities to enhance their performance on the battlefield and at the strategic level. They are using AI for numerous purposes, including data analysis for quick decision-making, integrating into weapon systems, and organizationally adopting AI as a key pillar in their militaries (Pardo de Santayana, 2024, p. 9).

The range of contemporary military technologies used in conflicts is extensive and significantly impactful, encompassing everything from sophisticated weapons to cyberwarfare and artificial intelligence (Gogua, 2023, p. 36). This paper evaluates AI's role in the technology-driven revolution by analyzing its use in military operations by Russia and Ukraine in their ongoing war. This particular case study was chosen precisely as it is the first time any country has used AI extensively in military operations. The study initially distinguishes between Military Revolutions (MR) and Revolution in Military Affairs (RMA) to address AI's influence on warfare. Furthermore, the paper is mainly focused on the application of AI by both countries and its integration into the military.

By identifying only three areas in which both countries employ AI, the paper provides a better understanding of the potential change that may be brought up by AI in warfare. It has discussed the impact of AI on warfare by studying three main areas including decision support systems, the weapons systems, and the organizational adoption of AI by both countries. As there is an evident rise in the use of AI for military applications, it is regarded as a powerful force capable of transforming the character of warfare. Therefore, the paper argues that AI enhances and boosts the potential technology-driven revolution in military affairs.

Understanding RMA

The concept of RMA is complex, developing along with the advancements in technology and to the extent of organizations adopting these advancements. Also, many of the characteristics of RMA and MR are similar therefore, different authors have different views. While some authors distinguish between the two, others view them as identical. The debate on RMA began in the latter half of the Cold War when Soviet Marshal Nikolai Ogarkov, from 1977 to 1984, noticed the RMA phenomenon while analyzing the changes in US warfighting strategies (Correll, 2019). Ogarkov recognized that a military-technical revolution was occurring, which is also considered the Soviet take on RMA. While referring to the advancement in technology and military systems, innovation, and organizational adaptation, he predicted that the U.S. would gain superiority over the Soviet Union. Correll (2019) states that later the overwhelming success of the U.S. against Iraq proved his arguments to be correct.

Andrew Krepinevich, one of the top experts on military revolutions, specifically the characteristics of the post-Gulf War revolution, also discusses the change in the character of warfare (Krepinevich, JR., 1994, p. 27). In Cavalry to Computer, he draws a framework for describing a military revolution. Krepinevich's important observations include the possible consequences of ignoring organizational and technological change while an opponent welcomes it, as well as the role that organizations and the military play in creating and embracing change (Krepinevich, 1994, p. 39). According to Krepinevich, a military revolution is when a new technology is incorporated into a large number of military systems along with creative operational ideas and organizational adoption in a manner that radically changes the nature of conflict and necessitates a sharp rise in the combat potential and efficacy of armed forces (Krepinevich, 1994, p. 42).

On the contrary, William Murray differentiates between MRs and RMAs. According to him, MRs

are a component of broader social upheaval, and the RMA, which has military roots, typically follows the MRs as a sequence of military developments (Murray, 1997). Murray's argument is that RMAs would emerge in the political and strategic wake of an MR, but his conclusion about peacetime innovation is that RMAs will continue to be driven by countries with strategic or political imperatives. Murray (1997) primary distinction, which is pertinent to this argument, is the reason for and extent of an RMA or MR's impact. Clifford Rogers offered an alternative viewpoint and a refutation of the causal link between MR and RMA. The Artillery Revolution, which altered the offensive and defensive nature of warfare while also altering the established equilibrium of power in Europe and causing profound social changes, is an example of how technology with broad social, economic, and political influence may appear as an RMA.

Major Stephen James Carl Bates of the Australian Army, in his master's thesis, concludes that Military establishments are the main source of RMAs, which can take place before, during, or following MRs (Karl Bates, 2017). He stated that like chemical reactions, RMAs depend on two essential components: "technology" and "scope". They are also tempered by innovation and organizational adaptability. Technology serves as a catalyst as well as a component, and its effects vary according to the range of systems it influences. The effectiveness of an RMA is determined by its effective execution through new doctrines, like Germany's blitzkrieg, and organizational readiness to change, like the U.S. Big Five strategy for conventional dominance. Karl Bates (2017) formulates that *New Technology + Systems × Innovation × Adoption* are the parameters for an RMA, and a higher result pushes RMAs closer to MRs.

Having established the theoretical distinctions between MR and RMA, the Russia-Ukraine war has been taken as a case study to illustrate how AI might (or might not) fulfill the criteria for an RMA. Therefore, after applying the lens of RMA to AI, it is argued that it is a driver for the advancements in the militaries. It is altering the character of warfare by improving operational efficiency, decision-making, command and control, automation, etc. ("How AI is changing warfare," 2024). Also, AI is strategically important due to the breadth of its usage, which spans almost all sectors, from providing logistics and intelligence gathering to autonomous weapons and cyberwarfare. Furthermore, it is pertinent to keep in view the degree to which the organizations are willing and able to adopt AI along with safeguarding the moral and ethical values from the challenges rising due to AI.

AI and Its Integration into Warfare

Despite being in use since the 1950s, the term "artificial intelligence" still lacks a standard definition (PIEL, 2025). Typically, it is viewed as a technology that supports current functional applications rather than being a stand-alone application. It is ultimately based on algorithms created to address particular tasks, gathering, organizing, processing, analyzing, transmitting, and reacting to bigger data sets that are appropriate and able to correspond to the cognitive ability of the human intellect and operations approaching it (Szabadföldi, 2021, p. 158). As per the Department of Defence, *"Artificial Intelligence (AI) refers to the ability of machines to perform tasks that normally require human intelligence – for example, recognising patterns, learning from experience, drawing conclusions, making predictions, or taking action – whether digitally or as the smart software behind autonomous physical systems"* (Reding & Eaton, 2020, p. 57).

Essentially, there are three forms of AI. Weak AI, commonly referred to as narrow AI, is when a machine can complete a task more effectively than a human (Szabadföldi, 2021, p. 158). Then, the General AI or strong AI can outperform humans in any intellectual task. Lastly, Szabadföldi (2021) states that it is anticipated that Artificial Super Intelligence (ASI) will surpass humans in nearly every domain, but particularly in social skills, scientific inventiveness, logic, and wisdom. Scientists at large still believe that the level of ASI will never be achieved, as AI would require humans to be in the loop. Even if AI reaches the level of ASI, contributions from humans would be required while applying AI at some point because

humans are unique in the sense that they have ethical, intuitive, and spiritual motivations and abilities that the AI can mimic to some degree, yet not entirely.

The use of AI for military purposes emerged in the latter half of the 20th Century when the development of AI applications saw various ups and downs. The initial phases of AI's development in security and defense were marked by the creation of expert systems. In the 1970s and 1980s, these systems were employed for threat analysis, data interpretation, and decision support (Iqbal et al., 2023, p. 343). Iqbal et al. (2023) writes that in the following decades, Machine Learning (ML) was considered a key milestone in AI. Because ML algorithms can examine vast datasets and find patterns independently, they have become essential in domains such as picture identification, speech recognition, and predictive analytics, thus strengthening security apparatuses' capacity for intelligence. The 21st Century saw the application of AI into Robotics, Autonomous weapons, enhanced Intelligence, Reconnaissance, and Surveillance (ISR) capabilities (Akhter et al., 2024, p. 4601).

In recent years, the use of cognitive computing in defense applications has surged. Systems with cognitive AI can understand, evaluate, and learn from changing environments. This progress has led to changes in decision support systems that enable more effective responses to evolving threats, as noted by Kurzweil (2024), an American scientist and author. Furthermore, in the modern world, AI is becoming central to predictive analysis and cybersecurity. Machine learning algorithms are utilized to go through massive amounts of data to search for any weakness or threats, strengthening security and resistance in the face of cyber threats (Kharbanda, 2023, p. 9). The integration of AI with advanced technologies has propelled the transformation in defense and security. AI combined with cutting-edge technologies like quantum computing, Augmented Reality, data analytics, Robotics, etc., will make the defense systems more complex and interactive (Clark, 2023).

Furthermore, the Russia-Ukraine war has witnessed new heights in the use of AI, potentially bringing up a new age in the AI revolution. Russia and Ukraine both have equipped the armies with AI technologies to improve their performance on the battlefield and to minimize human casualties. Kirichenko (2024) states that Ukraine is employing AI-driven drones and technologies to improve target acquisition, enhance battlefield awareness and coordinate operations. Likewise, Russia is also utilizing AI technologies at large. They have incorporated AI into existing weapons as well as introduced new AI-enabled platforms. Kirichenko (2024) notes that these platforms are helping Russia achieve precise targeting, gather information, secure communication, and conduct speedy operations. AI has improved the operations of both countries by reducing time, increasing accuracy, and making effective decisions.

AI in the Russia-Ukraine War

The war between Russia and Ukraine makes extensive use of AI and other technologies. Bergengruen (2024) states that due to the extensive use, many experts have termed it as a "living lab" or "testing ground" for AI. Many analysts predicted that Russia would have a technological edge because of its larger military and investments in upgrading its troops, but Ukraine has successfully employed sophisticated technologies to resist and initiate counteroffensives (Favaro & Williams, 2023, p. 34). It is difficult to draw clear conclusions on how developing technologies are impacting the Russia-Ukraine war. In one sense, this war has been rather traditional and has shown a great deal of continuity with combat from earlier decades. On the other hand, advanced and sophisticated technologies have altered the character of war by giving rise to new ways for crises to escalate, new capabilities on the battlefield, and chances for new players to have role greater in conflicts (Favaro & Williams, 2023, p. 35). Since AI was Ukraine's lifeline against Russia and helped the country rebuff early Russian victories, its application in three key areas by both nations is pertinent to analyze in detail.

AI in Decision Support Systems (DSS)

Rapid Decisions play a decisive role on the battlefield, which is why Russia and Ukraine are investing in enhancing their DSS and decision-making. The DSS is defined as a *"model-based set of procedures for processing data and judgments to assist decision-makers situated at different levels in the chain of command to solve semi-structured and unstructured decision tasks"* (Susnea, 2012, p. 132). DSS is designed to help with tasks like collecting, processing, and analyzing data, including communications, satellite images, biometric data, signatures, audio signals, and geographic information. Among other purposes, DSS can be used by human commanders to visualize specific details on maps, create and assess military strategies, determine the probabilities of circumstances and the viability of responses, assign resources, or compute the possible outcomes of deploying particular weapons (Nadibaidze et al., 2024, p. 7).

It is claimed that by "learning" from vast amounts of data, ML and AI algorithms integrated into DSS "enhance" these systems by increasing their adaptability to diverse contexts. The Militaries across the globe intend to integrate AI into the decision-making process at the strategic level to operational-level tasks such as intelligence gathering, surveillance, reconnaissance (ISR), command and control, and target recognition, etc. Reports suggests that both countries are using such systems in warfare, especially the software applications that boosts their decision-making and targeting capabilities.

Russia had deployed automated systems like Acacia-M and Acacia-E systems on the battlefield. These systems have the capabilities to utilize data to track over thousands of targets simultaneously and provide commanders with real time intelligence (Rostec, 2023). Axe (2024) states that Russia has developed a very rare and complex RB-109A Bylina electronic warfare command-and-control system which can tack enemy radars and radios. Furthermore, Russia is set to deploy Svod system that would assist commanders at the frontline in decision making as it can converge data from multiple sources, process the data, identify patterns, enhance situational awareness and suggest best course of action for the commanders in charge. Ukraine on the other hand also is heavily relying on AI tools for decision making. It is utilizing the Palantir MetaConstellation toll that is able to collect data from heat sensors, drones, and commercial satellites providing commanders better situation awareness and assisting in target acquisition (Mações, 2023).

In addition, Ukraine is using the domestically developed system Korpyva which computes ballistic calculations using sensors, radars, and drone imagery and just by putting coordinates of the target they are automatically transferred to the closest artillery earning the name of Uber for Artillery" (Bondar, 2024, p. 8). Furthermore, Griselda developed under Brave1 by the Ministry of Digital Transformation collects intelligence and processes information from satellites and drones, media, social media, and can even hack enemy systems. Ukraine have integrated these systems and also using the Delta platform developed with the help of NATO for military planning and battlefield management. Together with other intelligence, Delta provides Ukrainian commanders with maps and real-time information that help them decide "where and how Ukrainian troops should attack" (Jakes, 2022).

Both Russia and Ukraine are using AI to scan through vast amount of data in seconds to identify, monitor and track targets. For the first time a facial recognition software Clearview Ai has been utilized by Ukraine to identify dead Russian soldiers and uncover Russian assailants (Pardo de Santayana, 2024, p. 12). Bondar (2025, p.19) writes that the need of human labor in paper work and data analysis has been reduced to 99 percent due to ability of AI to scan through massive data in short span of time. In addition, talking about the future, Raska (2024) argues that the incorporation of AI in the OODA loop will significantly improve the speed, precision, and adaptability of air forces in the coming years.

AI in DSS has fundamentally changed the decision making especially with the ability to scan through vast amount of data at high speeds. It also provides various scenarios and numerous courses of action for the commanders to make the most

informed decision in real time making significant enhancement to the decision making. Notably the most important change that it has brought is the decentralization of command and control as Stellar (2025) argues that this has given more autonomy to the frontline units. This decentralization is fundamental transformation especially in the Russian military that traditionally followed a centralized command and decision making was strictly restricted to the higher command.

Integration of AI in Weaponry

The Russia-Ukraine war witnessed a significant employment of AI in weapon systems across the full spectrum of the battlefield. AI has been integrated into their drones, artillery, and combat vehicles, as well as fully autonomous platforms. Due to the integration of AI into these systems, they are now able to independently track and target the enemy, minimizing human intervention. Contrary to the initial Russian Offense which resulted in heavy casualties, the Russians have now focused more on the AI-assisted weaponry. Likewise, Ukraine is also relying on AI-assisted weapons mostly to advance their own objectives in the war (Nafuye, 2024). The recent Operation Web Spider, carried deep inside Russian territory and targeting their strategic assets through AI-assisted drone shocked the entire world initiating a new debate on the lethality of small drones when employed well (Horowitz, 2025).

According to the information available, Russia is actively employing AI-enhanced weaponry. In the start of the war, missiles were utilized vastly against Ukrainian positions however, soon Russia changed its tactics and turned to the utilization of kamikaze drones most prominently the Shahed 136 drones. Furthermore, Russia is also employing AI-enhanced loitering munitions such as Lancet-3 and KUB-BLA. These systems also record videos and are equipped with onboard AI systems to identify targets and engage them. The data collected through these systems are then evaluated, thus such systems play a significant role in data gathering too. Furthermore, Russia is employing UAVs having autonomous flight capabilities.

In addition, Russia has also continuously employed Unmanned Ground Vehicles (UGVs) to the battle field. One of the prominent systems is the Marker UGV, which is also capable of working in groups as well. In addition, Russia is also testing Uran-9 UGV, which is armed with a 30 mm canon and anti-tank missiles having the ability to target units 3-5km away (Nafuye, 2024). Uran-9 has the capability to avoid obstacles and independently identify and engage targets. Along with AI systems on the ground, Russia has also incorporated AI into its missiles. Also, experts believe that Russia has upgraded the Iskander-M Ballistic missile, Iskander-K cruise, Kinzhal and Zircon missiles to enhance their accuracy.

On the other hand, Ukraine is also relying on AI-enabled and AI-assisted weapon systems in this war. It has achieved significant success in developing advanced technologies and using it against Russia effectively. During the month of march, it has carried out nine thousand frontline missions with unmanned vehicles (The New York Times, 2026). Ukraine is also massively utilizing UAVs for ISR and targeting purposes. At the early stages of war, it depended the Turkish-made Bayraktar TB2 drone, which is a multipurpose platform with autonomous flight capabilities (Ozberk, 2025). However, now it has deployed various kinds of drones and autonomous loitering munitions like Switchblade 300 and 600. Along with this, Ukraine is provided by the United States with Phoenix Ghost Unmanned Aerial System that offer the same capability as switchblades.

Ukraine is primarily focused on developing weapons that could be used for defense against Russia and strives for maximum automation, as stated by Ukraine's Minister Mykhailo Fedorov (Mozur & Satariano, 2024). Ukrainian company Vyriy is developing autonomous drones that are cheap and capable of targeting Russian positions with precision. Mozur & Satariano (2024) also notes that Ukraine producing remote-controlled machine guns of all sizes, such as Wholly, a futuristic gun having autonomous targeting capabilities that can be controlled from a PlayStation controller and tablet. It is assisted by

AI and has emerged as one of the several weapons that are in combat at the front lines. In essence, Ukraine is developing all sorts of cheap, innovative, and easy-to-use weapons with maximum automation to stop Russian advancements.

This incorporation of AI into weapons systems has revolutionized the development, deployment, and employment of weapons in battles (Osimen et al., 2024, p. 13). The Russia-Ukraine war has marked an exception from prior battles, in which conventional weapons dominated. However, in this conflict, autonomous and semi-autonomous weapons are dominating the battlefield. This battle has seen the integration of AI into a variety of smart weapon systems, indicating a shift toward semi-autonomous and autonomous combat. It has revolutionized the battlefield by reducing human casualties and minimizing collateral damage due to the accuracy of such weapons (Boffey, 2025). According to Bondar (2026), about 80% of Russian fire missions are carried out by unmanned systems and Russian forces strike upto 300 targets per day.

Meanwhile by 2025 about 80% to 85% of the frontline targets were engaged by Unmanned Aerial Vehicles (UAVs) on the frontlines while conducting at least 215,000 targets in the summer 2025 alone. Communication, navigation, and autonomy are the three core pillars of the Ukraine successful UAV operations (Bondar, 2026, p. 2). Also, AI has improved the success rate of the drones by about 3 to 4 times higher chances of a successful hit through autonomous navigation (Bondar, 2026, p. 34). Furthermore, the success rate of the drone engagements has been improved from 10 to 20% to around 70 to 80%. However, these developments had heightened the risk of escalation control, unintended consequences, and raised numerous ethical and legal questions concerning the lethal force of these weapons.

Organizational Adaptation of AI

Though there was awareness in both countries about the important role of AI since 2014, this war significantly shifted their focus towards the military application of AI. The urgent needs of the continuing struggle against Russia, in which AI technologies have repeatedly shown the ability to provide a competitive edge on the battlefield, have played a significant role in driving this transition. Notably, Ukraine has even established the Unmanned Systems Forces, a whole new branch of the military. Also, Special Unit Typhoon of the Ukrainian National Guard is another example of how other defense and security agencies have established new groups and given them the authority to speed up technological innovation (Panella, 2024). Another organizational change is the Center for Innovation and Defense Technologies, which came into being due to the tech volunteer community. In 2023, it officially took the responsibility for the modernization and development of situational awareness technologies.

Along with these developments, engineers also started to incorporate AI/ML capabilities into the Delta in 2024, enhancing its abilities to detect enemy forces in real time (Bondar, 2024, p. 10). Also, organizations have modified their mandates as a result of the conflict. In Ukraine, the lead in AI related developments have been taken by the Defense Intelligence of Ukraine (DIU) and Security Service of Ukraine (SSU), which are working under the Ministry of Defense. Bondar (2024) point out that both these organizations are relying on AI for data analysis and carrying out long range strikes on Russian Infrastructure. In addition to establishing new organizations and redefining the functions of existing ones, Ukrainian authorities have been enacting legal changes and initiating a variety of projects to facilitate the development of AI by businesses and its use by military forces. The MDT, which is in charge of formulating policies related to AI development, is encouraging an innovative regulatory environment, steering clear of excessive regulation, and advancing AI development.

Also, in the case of Russia, well before the war, President Putin, on various occasions, emphasized the role and importance of AI. Speaking to the students from the city of Yaroslavl, "Artificial intelligence is the future not only of Russia but of all of mankind" (Gigova, 2017). In 2020, he listed the creation of weapons with artificial intelligence

components as one of the five main MOD goals for the foreseeable future to offset the advantages and risks posed by the United States and NATO. In September 2022, the Department for Artificial Intelligence Implementation in Weapons Development was established by the Russian MOD. Its declared responsibilities include overseeing AI-related technology, integrating wartime efforts and lessons gained, and giving priority to projects that can benefit the warfighter the most, such as data analysis for improved battlefield management (Bendett, 2024, p. 9).

The Russian Federation is also cooperating with the private sector in the realm of AI technologies. Deputy Prime Minister Dimitry Chernyshenko revealed in August 2022 that the Russian government has established a National AI Center to identify and evaluate practical AI solutions for government, business, and science that will start work in September (TASS, 2022). At a 2023 meeting, ERA invited the MOD's Department for Artificial Intelligence Implementation and other MOD officials to talk about the deployment of uncrewed aerial vehicles and the integration of AI technologies in military systems (Bendett, 2024, p. 10). Additionally, with more UAV and artillery research and enhancements, the MOD has identified the development of AI for command and control to be among its three primary goals, which are influenced by the fighting in Ukraine.

So, when it comes to the most important tenet of RMA, the organizational adaptation of a new technology, it is visible that AI has effectively changed the organization's structures in both Russia and Ukraine. By influencing how organizations plan, coordinate, and execute, AI has shown a great deal of change in the organizations to adopt it. They have changed their structures from a centralized to a more decentralized and networked structure (Jain, 2025). Also, AI has now brought the civil and military to work jointly and with coordination, where civilian tech companies, scientists, and engineers now make decisions along with and execute plans with military planners. It has also impacted the rigidity of the military institutions, and now militaries across the globe are no longer confined to uniformed commanders.

AI as a Catalyzing Agent

The crucial aspect of the Russia-Ukraine war is the catalyzing role of AI in changing the character of war, which is dynamic. Given the wide range of concepts that fall under the umbrella of "artificial intelligence," analyzing AI's potential influence on military affairs is already difficult and can vary greatly, ranging from extremely hopeful to extremely cautious (Loss & Jhonson, 2019). Nonetheless, examining AI from the perspectives of the four fundamental RMA components, technological change, military systems evolution, operational innovation, and organizational adaptation, can assist in determining whether or not an intellectual and technical revolution is taking place (Krepinevich, Jr, 2002).

AI, which is generally understood to be the collection of technologies that allow computer systems to carry out activities that call for human intellect, has traditionally included a variety of decision-making systems but is most commonly associated with machine learning systems that use deep neural networks (NSCAI, 2021, p. 6). Neural network-driven AI approaches have advanced very quickly during the last ten years in fields including computer vision, decision support, and language processing and creation. Although defense agencies are aware of these transformations, these AI applications have drawbacks, too. Tucker (2021) opines that unlike training contexts, in real time and dynamic conditions, AI-enabled systems may render ineffective and subject to manipulation by hostiles forces. Secondly, points out the cost associated with capacity building and training of AI systems. Additionally, argues that merging human-machine teams for some AI applications can be challenging and even hazardous.

Also, AI is accelerating the development of military systems in China and the US, albeit not yet in a way that will fundamentally alter their militaries. The term "military systems evolution" is used to describe how new technologies are integrated into new or pre-existing military applications and capabilities (Daniels, 2022).

Although AI applications have made strides in areas such as autonomy and robotics, decision support, cyber, predictive maintenance and logistics, modeling, and simulation, they still suffer from many flaws; advancements are typically more superficial than profound. Similarly, in the Russia-Ukraine conflict, AI is not completely transforming their forces but boosting their capabilities, which are changing the way war is waged. For example, the KUB-BLA kamikaze drone and lancet-3 loitering ammunition use AI for the selection and engagement of targets, thus reducing human input (Zysk, 2023).

With respect to the operational innovation, this war has exclusively demonstrated the fundamental role of AI in modern conflicts and its undeniable impact on the tactics and operations of armies. Time reported in 2024 that the majority of the targeting in Ukraine was carried out using Palantir Technologies AI tools. Furthermore, Palantir has embedded a software engineer in each battalion, illustrating the type of experimentation that has boosted the "most significant fundamental change in the character of war ever recorded in history," stated General Mark Milley, former Chairman of the Joint Chiefs of Staff (Bergengruen, 2024). To make better use of it, militaries in both nations incorporate AI for decision-making, and it is playing an important role in introducing advances and modifications to military tactics and strategies.

In terms of organizational capacity innovation, organizational adaptation refers to structural changes made in order to take advantage of new systems and operational patterns (Daniels, 2022, p. 23). He states that operational innovation is the product of analytical thinking on how militaries could employ new technology and systems to achieve their goals. AI has brought much change at the organizational level in both Russia and Ukraine, as it has prompted changes in organizational adaptability. One of the major changes it has brought is that Russia has created a dedicated artificial intelligence development department in the Russian Defense Ministry (Bendett, 2024, p. 9). On the other hand, Ukraine is also embracing and adopting AI at the organizational level more extensively, along with providing a leading role to private sector entities (Bondar, 2024).

From the above arguments, it is visible that AI is bringing about a transformative change in warfighting. It is a major factor in contemporary military developments, though it may not be the only force behind a revolution in military affairs. AI acts as a catalyst, speeding up changes brought about by other cutting-edge technologies like autonomous systems, cyber capabilities, and hypersonic weapons. Bendett (2023) opines that *"AI is an enabler and not the tip-of-the-spear solution in this conflict, since the war is fought on the ground by infantry and weapons in ways that are more reminiscent of WWI or WWII, where territory is gained and lost in slow, grueling combat."* Nevertheless, AI is playing a central role in their ongoing war, enhancing their combat capabilities to a greater extent.

Furthermore, today's warfare is integrated and technology-driven, where numerous technologies, including AI, Quantum computing, Machine learning, Data analytics, Robotics, and Hypersonics etc., are utilized in an integrated manner. Each of which plays its own role to achieve the desired objectives, and excluding one can have a notable impact on the integrated system. AI is central to their integration and decision-making, yet not mature enough to be considered as the sole driver of transformation in warfare, even in decision-making. This is because in the conflict, AI-powered decision-support tools increase command effectiveness; yet, their influence is constrained in the absence of a strong digital infrastructure, skilled troops, and real-time battlefield flexibility (Lindelauf et al., 2023, p. 41).

Conclusion

The debate around AI's revolution is still building, with academics divided on the difference between MR and RMA, and the impact of AI. While some scholars believe that AI has brought up a revolution in military affairs, others are still considering it to be a factor in the technological-driven revolution. For the first time, AI and AI-assisted technology and weaponry have been used extensively in the ongoing conflict between Russia and Ukraine. Utilization of AI in this conflict has altered the character of the battlespace, which now

involves greater speed, precision, and improved decision-making. The incorporation of AI has reformed the tactics and strategies of armies in both countries. This advancement has also altered the warfighting where now AI assisted and autonomous weapons are the decisive factors. As the war continues, AI has become the backbone for the military operations in both countries.

So far, the function of AI can be related to that of an enzyme that speeds up a biochemical reaction by lowering the activation energy. Same as the enzyme, AI is speeding up the potential revolution by integrating various technologies and connected them all to make significant alterations in the warfighting thus AI is catalyzing the potential revolution. Nonetheless, a larger transition in military affairs is driven by a complex interplay of elements, including doctrinal evolutions and developments in other technologies like cyber warfare, space-based systems, and hypersonic weapons. Lastly, the essential nature of RMA is not in the existence of AI but in how the military combines it with other developments to reinvent the art of warfare.

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