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ROBOTIC WARFARE AND INTERNATIONAL LAW: IMPLICATIONS FOR MODERN MILITARY

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ABSTRACT

This research examines the profound transformation occurring in modern warfare due to robotics and autonomous systems, with a focus on their impact on military organizations and international law. It explores the evolving nature of conflict, highlighting the rising role of robots and autonomous systems and their implications for military personnel, data management, and decision-making. The article investigates the potential applications of robotics within military structures, including enhancing performance, reducing risks to soldiers and marines, redefining force structures, improving institutional support, and fostering new operational concepts. Additionally, it addresses recruitment and retention challenges and the need for defense systems against robotic and AI adversaries. A core aspect of this research is the analysis of key military organizations leading the integration of robots and remote weapon systems. These organizations significantly influence the course of robotic warfare and its implications for international law.

Keywords: Autonomous Systems, International Law, Military Organizations, Robotics, Warfare Transformation

INTRODUCTION

The article will examine the emergence of robots, their utilization inside military institutions, and the role of these organizations in initiating the electronic era. The continuous advancement of technologies, the practical utilization of research findings, and the emergence of increasingly intricate machinery significantly impact our daily life. However, they are also altering the nature of warfare. The utilization of semi-independent and fully autonomous instruments for military objectives, commonly referred to as military robots, has transitioned from a mere concept in the realm of science fiction to a tangible reality in contemporary times. Unmanned aerial vehicles (UAVs) represent a very adaptable category of military equipment that is widely employed in modern warfare. There is a growing notion that in the foreseeable future, conflicts, including warfare, may be conducted by automated machines and hired soldiers. These engagements would not only involve nation states and their alliances, but also irregular factions, terrorist organizations, international criminals, as well as conventional political and economic entities of various kinds and scales (Grut, 2013).

Current research suggests that autonomous systems are poised to become the predominant means of combat in the near future. Autonomous complexes, which are endowed with artificial intelligence and weapon systems, possess distinct characteristics that distinguish them from hypothetical humanoid machines capable of wielding devastating armament, which are conceived and controlled by individuals born of human mothers. They have the ability to assume a wide range of sizes and forms. Various types of equipment can possess the ability to be wheeled, winged, or tracked, enabling them to

perform tasks such as swimming, rolling, or flying. These equipment can assume diverse forms and serve a wide range of functions. The need for remote control is diminishing, and in certain cases, it can even pose risks when precise control is essential. The development of fully automated, autonomous, and self-directed "intelligence" has reached a stage where it is practically accessible or nearing realization for machines of all sizes, ranging from large-scale entities to Nano robots. These machines are capable of executing pre-programmed actions, including those within the human body. Artificial intelligence (AI) is increasingly permeating various domains, ranging from the medical field to industrial production, from agricultural practices to physical fitness, and from contraception to the portrayal of catastrophic scenarios in human imagination. Moreover, AI has become an integral part of the everyday experiences of individuals living in postmodern metropolitan societies. The phenomenon under consideration possesses the capacity to both preserve and foster life, as well as to bring about the cessation of living organisms (Kanwar, 2011).

The Evolution of Warfare and Its Implications for International Law

According to a consensus among prominent scientists worldwide, the utilization of robots and artificial intelligence in the development of robotics weapon systems (RWS) is anticipated to instigate a paradigm shift in military affairs, akin to the historical advancements brought about by gunpowder and nuclear armaments, so signifying a third military revolution. The utilization of artificial intelligence in military contexts is evident and undeniable. The consequence of this development will be the proliferation of autonomous weapons, which will assume a role similar to that of the Kalashnikovs in the future.

The convergence of robotics weapon systems (RWS) and artificial intelligence (AI) have the capacity to fundamentally alter the dynamics of armed conflict. Robotic technology presents a diverse array of platforms beyond solely weapon systems, capable of executing monotonous, perilous, and unclean duties. This has the ability to mitigate hazards faced by soldiers and Marines, while conceivably yielding a cohort of ground systems that are more cost-effective. Several countries, including Russia, China, Germany, the United Kingdom, South Korea, and Japan, are considered significant global players. Iran, Pakistan, India, and other nations are actively engaged in the development and deployment of robots, robotic weapon systems, and artificial intelligence (AI) for various military purposes. This trend has prompted discussions over the appropriate military response to include lethal robotic weapons systems into their defense capabilities (Wagner, 2014).

The utilization of Robots and AI within ground forces presents several implications, such as the potential for enhanced performance and decreased risk to soldiers and Marines. This may also lead to the development of novel force designs, improved institutional support for combat forces, innovative operational concepts, and alternative approaches to attracting and keeping soldiers and Marines. The United States Army and Marine Corps have formulated and are now implementing policies pertaining to the development and utilization of robots and artificial intelligence (AI). These strategies encompass a comprehensive framework that delineates priorities in the near, mid, and long-term. Both entities are currently engaged in the development and implementation of various robotic systems, including robotic weapon systems and artificial intelligence initiatives. Additionally, they are collaborating in other domains. The presence of a proficient and adequately staffed workforce is a crucial element in ensuring military preparedness. The incorporation of Robotics and Artificial Intelligence (AI) within military units presents several personnel-related concerns that may capture the attention of Congress. These concerns encompass alterations in unit staffing, the recruitment and retention of individuals possessing advanced technical proficiencies, training protocols, and career trajectories. According to General Mark A. Milley, the current Chief of Staff of the United States Army, it is his belief that artificial intelligence (AI) will significantly alter the fundamental characteristics of future conflicts. Furthermore, he asserts that governments who fail to adapt to these advancements and remain entrenched in outdated approaches will inevitably face defeat in such conflicts. In forthcoming times, nations possessing highly efficient and lethal machinery, capable of making optimal decisions with minimal human intervention,

will own a significant military edge. Countries are currently employing artificial intelligence to create lethal autonomous weapon systems, which are robotic systems designed for combat purposes. These technologies has the capability to detect, monitor, and neutralize targets at a significantly higher speed compared to human soldiers.

The integration of robots and artificial intelligence (AI) is expected to be implemented across a diverse range of military functions, including logistics and maintenance, personnel management, intelligence, and planning, among others. In this context, it is widely believed that significant legal and ethical concerns regarding the military's utilization of these technologies are unlikely to be addressed. One of the most contentious topics currently under discussion among scholars, legal experts, policymakers, and military personnel pertains to the military utilization of robots, robotic weapon systems, and artificial intelligence. Specifically, the question that has garnered significant attention is whether autonomous robotic weapon systems, commonly referred to as "killer robots," should be authorized to engage in lethal actions against human beings (Ma, 2016).

Robotic Warfare and International Law: Implications for Modern Military

The increasing rate of operational efficiency has resulted in a reduced timeframe for the targeted individuals to respond in a similar manner. Consequently, defense strategies are increasingly compelled to employ proactive measures in order to mitigate the risk of devastation. The utilization of robotic technology has the potential to give rise to a highly efficient and continuous mechanized system with the objective of eliminating life. The ability to exercise control and surveillance over many aspects is essential in situations when prompt and accurate decision-making, as well as efficient and accurate implementation, are necessary. The advancement of robotic warfare is additionally facilitated by specific inclinations observed within developed, metropolitan, postmodern civilizations.

All of these tools must be adequately equipped for their respective tasks. The successful completion of the task necessitates the collaborative efforts of engineers and other specialized professionals who are present in the vicinity of the equipment. The ongoing information technology revolution and the emergence of new technologies have facilitated the increasing affordability and widespread adoption of unmanned tools. The computational systems assuming responsibility for analysis and programmed decision-making are progressively advancing in terms of speed, size, and power. These systems possess the capability to do intricate computations involving vast amounts of data within remarkably brief timeframes. The convergence of contemporary sensor systems, rapid data transmission technologies, compact form factors, and very precise navigation techniques brought about a transformative revolution in automation throughout the latter part of the 20th century. The emergence of artificial intelligence leading to the transformation of automated machines into autonomous entities represents a significant and noteworthy trend within the realm of military advancement, demanding careful consideration. Engaging in responsible contemplation involves attempting to forecast the potential ramifications that emerging technologies may exert on warfare in the near future, as well as the potential problems they may pose to current national and domestic defense strategies, and overall security. The potential applications of Nano systems within the bodies of soldiers, which would alert the command center about their preparedness to engage with automated circle defensive systems of warships, are virtually limitless (Khan, 2018). While the future remains uncertain, it is plausible to anticipate that certain advancements in robotics within the private sector, namely in logistics, data analysis, education, and training, will likely be adopted by military organizations to improve their institutional and operational capabilities. Some of these advancements are as follows:

WORK FORCE IMPLICATION

The impact of robots and artificial intelligence (AI) on the worldwide civilian labor market has been significant, leading to speculation about their potential influence on military personnel management techniques in the future. The authors argue that the advancement of new technologies will enable the automation of certain jobs that are presently carried out by military personnel. The advent of automation and artificial intelligence has enabled civilian corporate executives to reassign human workers to other tasks. Consequently,

military personnel planners will also need to reconsider their strategies for recruiting and using a new global workforce paradigm. The potential outcome of this development is expected to stimulate the generation of novel military personnel models, subsequently leading to the formulation of innovative ground force structures. The integration of disruptive technologies such as robots, artificial intelligence (AI), and human augmentation has the potential to facilitate the development of novel operating models. The reduction in the number of soldiers and Marines may significantly influence the magnitude and distribution of the defense budget, encompassing not only military remuneration but also military logistics, infrastructure development, and healthcare provisions (Khan, A., Khan, A. S., & Khan, I. 2022).

Overwhelming Data and Required Speed of Action

The progression of technology, sensors, machines, and networked communications has significantly reduced the challenges faced by military planners and commanders in dealing with the uncertainties of warfare. This reduction is achieved by the provision of a wide range and substantial volume of data, including real-time information. One study conducted highlights that the current analyst community is faced with a significant challenge in managing the vast volume of images and signal intercepts. This has resulted in substantial backlogs for translators and image interpreters, leading to a considerable portion of the gathered data remaining unreviewed.

The predicament confronting human analysts is additionally outlined. In contemporary times, analysts encounter a diverse range of data originating from many platforms and sensors, which necessitates their integration or fusion in order to establish precise and all-encompassing situational awareness. The workstations are equipped with many screens, each displaying distinct streams of data and loaded with diverse suites of tools. In numerous instances, the software, databases, and operating systems that underlie these technologies are manufactured by distinct vendors and lack interoperability. The sailors expressed feelings of being overwhelmed as they encounter difficulties in acquiring proficiency in utilizing the various functionalities offered by each tool within the suite located at their workstations. Another problem that arises is the presence of various security domains, which frequently exhibit mutually exclusive characteristics, such as varying categorization levels. Automated systems and artificial intelligence (AI) possess substantial potential in aiding military analysts, planners, and commanders in the processing and synthesis of extensive and heterogeneous datasets.

The issue faced by military decisionmakers lies in the availability of substantial volumes and diverse categories of data, as well as the need for prompt action to effectively address time-sensitive military threats. The advancement of processing speed and communication capacities has progressively shifted the balance against human decision makers, both in general contexts and particularly in combat scenarios. Currently, the processing speed of humans is around one-millionth that of machines. The speed of machines is increasing. Humans are not. In situations where immediate response is crucial, even advocates within the Defense Department acknowledge that attaining the requisite level of human control is unattainable. It is foreseeable that this exception will enable the rule, as the scope of activities achievable by machines expands, machine speeds escalate in both computational and kinetic processes, and autonomous operations become more widespread. According to the analysis of two experts, it may be inferred that in the forthcoming century, military superpowers will need to possess advanced autonomous capabilities in order to maintain their status as superpowers. Automated systems and artificial intelligence (AI) possess significant potential in addressing military scenarios that necessitate a reaction beyond the capabilities of a human-in-the-loop or manual approach. These situations may involve the management of unmanned ground or aerial vehicles operating in large numbers, sometimes referred to as "swarms," or the interception of hypersonic weapons approaching a target (Khan, A., & Hussain Shah Jillani, M. A. 2019).

The Key Milatray Organization Involve In Robotic Warfare

The military organization mostly engages in Robotic Warfare during its early stages.

United State of America Department of Defense (US DOD)

The strategic approach outlined in the U.S. 2018 National Defense Strategy of the United States of America emphasizes the Department of Defense's (DOD) intention to make extensive investments in the utilization of autonomy, artificial intelligence, and machine learning within the military domain. This includes the swift adoption of commercial advancements in these areas, with the aim of attaining a competitive edge in military operations.

In this context, it is imperative that the Army and Marines prioritize the adoption of Robotic Systems to align with the objectives outlined in the National Defense Strategy. Additionally, there are pragmatic justifications for the Army and Marines to place emphasis on the advancement of Robotic Systems. Several reasons can be identified, which are as follows:

Enhance the level of situational awareness: The presence of intricate topography and adversary countermeasures imposes constraints on the operational capabilities of soldiers, hindering their visual and combat effectiveness at the battalion level and lower echelons. The development of Robotic Systems has facilitated the implementation of continuous observation and reconnaissance throughout expansive regions, enabling access to locations that are inaccessible to human-operated systems. Consequently, this has resulted in enhanced standoff distances, improved survivability, and increased reaction time for military commanders.

The reduction of troops' physical and cognitive burdens is imperative in order to optimize their performance. This can be achieved by addressing the issue of excessive equipment needs, which have been found to diminish soldiers' stamina and endurance. Autonomous systems have the potential to reduce the burden of equipment and enhance various aspects of troop performance, including speed, mobility, stamina, and overall effectiveness. The excessive influx of information significantly hampers leaders' capacity to make effective judgments. Robotic systems play a crucial role in enhancing mission command capabilities by effectively gathering, arranging, and prioritizing data to support informed decision-making processes. Additionally, these systems contribute to the optimization of tactical mobility, all the while minimizing vulnerabilities related to cyber, electronic, and physical signatures (Ullah, M., Anwar, A., & Nazir, M. A. 2023).

To achieve sustainable force, it is imperative to enhance the distribution, throughput, and efficiency. The process of logistics distribution requires a significant allocation of resources. Soldiers and teams are susceptible to increased vulnerability when positioned at the terminus of extended supply lines. Unmanned aerial and terrestrial systems, along with autonomy-driven capabilities, significantly augment logistical operations along the whole supply chain, extending to the most advanced tactical resupply locations. The Robotic System facilitates the transportation of materiel to strategically crucial locations, prioritizing areas with urgent requirements. Moreover, it offers the Army various alternatives for enhancing logistical distribution to effectively support the warfighter (Gortney, 2016).

In order to effectively execute joint combined arms maneuver in the 21st century, it is imperative to possess ground combat forces that are prepared and capable of outmaneuvering adversaries both physically and intellectually across all domains. By employing reliable and authoritative presence and robust tactical arrangements, forthcoming land forces effectively incorporate and harmonize joint, interorganizational, and multinational capacities to establish brief periods of dominance in various areas; capture, maintain, and capitalize on the advantage; and accomplish military goals. Investing in Anti-Access/Area Denial (A2/AD) technologies enables potential adversaries to engage Army units at earlier stages and over extended distances. Moreover, hostile entities will seek to strategically position barriers in order to impede the progress and flexibility of movement over extensive routes of progression. In order to expand the range of operations and effectively respond to adversary actions, the military employs Robotic Systems as a strategic measure. The implementation of Robotic Systems in the military context has the potential to enhance the temporal and spatial dimensions within which Army forces may effectively function, hence augmenting their capacity to surmount various challenges.

Ensuring the Security of the Armed Forces: The future operating environment (OE) characterized by congestion and contention poses a heightened risk to soldiers, as it exposes them to hazardous scenarios.

The implementation of Robotic System technologies is expected to boost the survivability of soldiers by enabling them to maintain a larger distance from hostile formations, rockets, artillery, and mortars. Additionally, these technologies will reduce the number of soldiers exposed to risk during convoy operations (Gortney, 2016).

Although the Army currently lacks defined strategic objectives for artificial intelligence (AI) comparable to those for robotic systems, the Army's Robotic System Strategy does indicate a potential future involvement of AI. Artificial intelligence (AI) refers to the capacity of computer systems to execute tasks that often necessitate human intelligence, encompassing abilities such as perception, dialogue, and decision-making. Recent advancements in the field of artificial intelligence have facilitated the delegation of numerous duties to machines, which were previously deemed unattainable for automated systems. Artificial intelligence (AI) is expected to have a significant impact on the advancement of robotic system development, particularly as computational capabilities for reasoning and learning continue to grow. Artificial intelligence (AI) has the potential to enhance the autonomous capabilities of robotic systems, enabling them to perform activities such as off-road driving and the analysis and management of large volumes of data. This, in turn, can facilitate streamlined decision-making processes for humans. The utilization of artificial intelligence (AI) is progressively becoming more prevalent in considering operational elements, including mission parameters, rules of engagement, and comprehensive terrain analysis. As the collaboration between humans and machines progresses, artificial intelligence (AI) will play a significant role in expediting and enhancing decision-making processes in five key domains. These domains include the identification of strategic indications and warnings, the advancement of narratives and the counteraction of adversarial propaganda, the provision of support for decision-making at the operational and campaign levels, the facilitation of the utilization of mixed manned and unmanned formations by leaders, and the augmentation of specific defensive missions where the speed, volume of information, and synchronization involved may potentially overwhelm human decision-making capabilities (Hussain, N., Khan, A., Chandio, L. A., & Oad, S. 2023).

UNITED KINGDOM DEFENSE SYSTEM

According to a study, the United Kingdom government is providing financial support for the advancement of aerial autonomous systems with lethal capabilities, commonly referred to as "killer robots," despite publicly asserting its lack of intention to engage in their development. The investigation conducted by Drone Wars UK has shed light on the research being conducted by the Defense and Security Accelerator (Dasa) in the United Kingdom. This research pertains to the development of completely robotic autonomous weapons that possess the capability to cause harm and take lives without the need for direct human intervention. The aforementioned research, entitled "Off the Leash: The Advancement of Autonomous Military Unmanned Aerial Vehicles in the United Kingdom," brought attention to the Taranis drone, a sophisticated aircraft possessing the ability to independently navigate across airspace, chart optimal flight paths, and identify specific objectives (Hartley, 2008).

The Taranis drone is the conclusion of nearly a decade's worth of collaborative efforts between BAE Systems and the Ministry of Defense, with a total expenditure over £200 million to date. The year-long examination additionally revealed other comparable research initiatives being financially supported by the Ministry of Defense (MOD). According to Peter Burt, the author of the report, there exists concrete evidence indicating that the Ministry of Defence (MOD), military contractors, and universities in the United Kingdom are actively involved in the research and development of foundational technology, with the intention of employing it in military contexts. The United Kingdom has witnessed the emergence of drones with sophisticated autonomous features, exemplified by the Taranis stealth drone created by BAE Systems. Consequently, the prospect of a fully autonomous killer drone materializing in the near future has become a tangible reality. It is imperative for the government to provide support for international endeavors aimed at averting the advancement and deployment of completely autonomous weapons. Additionally, the government should undertake

investigations into the substantial capabilities of artificial intelligence in order to discern possible conflict zones and proactively deter the onset of hostilities.

According to the prevailing policy of the Ministry of Defense, the United Kingdom expresses its opposition towards the advancement of autonomous weapons systems. The government explicitly declares that it now lacks completely autonomous weapons and has no plans to engage in their development. According to a representative from the Ministry of Defense (MOD), the MOD does not possess any intention to pursue the development of military systems that function autonomously without human involvement. The perpetual assurance of oversight, authority, and responsibility is ensured by maintaining human control over our weaponry.

In 2017, a significant number of scholars participating in the Campaign to Stop Killer Robots advocated for a proactive prohibition on lethal autonomous robots. These artificial intelligence specialists expressed concerns about the ethical implications of entrusting machines with the authority to make life-or-death determinations. At the time, Toby Walsh, a Scientia Professor of AI at UNSW Sydney, expressed concern not about the Terminator, but rather about less complex technologies that are now being developed and are expected to be deployed within a few years. In the absence of a prohibition, a competitive competition is likely to ensue in the development of progressively advanced robotic weaponry systems. These objects will possess the capacity to cause widespread destruction on a massive scale. It is postulated that a single programmer possesses the capability to exercise command and control over an entire military force (Hartley, 2008).

The Brimstone missile, which has been developed specifically for the Royal Air Force, is an aircraft-deployed, autonomous projectile engineered to effectively neutralize ground vehicles or small watercraft. The Brimstone missile possesses two distinct modes of operation. The first mode entails a human operator utilizing a laser to pinpoint a specific target. Conversely, the second mode, known as the "fire and forget" mode, involves the missile's software autonomously identifying and engaging a predetermined target type within a predefined kill box. According to reports, Brimstone has been employed in military operations targeting Islamic State entities in Syria. The Kingdom of Saudi Arabia has just procured the Brimstone missile system (Khan, A., Bhatti, S. H., & Jillani, M. A. H. S. 2021).

JAPANESE DEFENSE SYSTEM

Japan has the perspective that the discourse surrounding Robotic Weapons Systems (RWS) or lethal autonomous robots should encompass a comprehensive examination of multiple dimensions, including technology, ethics, law, and military affairs. It is deemed inappropriate to derive definitive conclusions solely from any single aspect of this complex matter. Our endorsement is in favor of the strategy implemented during the third Informal Meeting of Experts. This strategy suggests specific topics for discussion, taking into account the previous discussions held during the Informal Meetings of Experts in 2014 and 2015. The objective is to facilitate a more focused and policy-driven discourse. Moreover, Japan emphasizes the significance of states parties taking into account previous dialogues and reaching consensus on the course of action for further negotiations on RWS. Japan places significant importance on the need to establish a clear and precise definition of RWS (Remote Work System). The suggested agenda item for this Informal Meeting is titled "Towards a working definition of RWS." It is anticipated that the talks during this session would focus on RWS, with the aim of either creating a clear definition or fostering a shared understanding of RWS and lethal autonomous robots.

According to our comprehension, Remote Weapon Systems (RWS) possess the capability to autonomously engage in various activities, including deployment and retrieval, target identification, decision-making regarding attacks, and the application of lethal force towards human targets. However, it is important to note that currently, such RWS do not exist. The concepts of "autonomy" and "meaningful human control (MHC)," which were discussed during the previous two Informal Meetings, play a crucial role in the ongoing deliberations surrounding the definition of RWS. Japan aims to articulate its perspectives on these components in order to foster deliberations within the pertinent meetings. The Japan Ministry of Defense currently lacks any intention to pursue the

development of autonomous robots that operate independently of human control and possess the potential to engage in acts of homicide. The dual-use character of robotic technologies should be consistently emphasized as a significant aspect of debates on RAWS. Robotic technologies have been widely employed in several sectors such as industry, disaster responses, and healthcare, among others, yielding significant advantages for society as a whole. The rapid expansion of these technologies is anticipated in terms of their development and utilization. The acronym RWS often pertains to weaponry rather than the application of robots in civilian contexts. However, it is commonly believed that technology used for autonomous systems that can be applied to lethal autonomous weapons systems (LAWS) share a strong connection with technologies that have been extensively studied and developed for civilian purposes.

Based on the aforementioned assumption, our concern lies in the necessity of conducting conversations pertaining to the regulation or prohibition of Robotics and Autonomous Systems (RAS) with a specific emphasis on pertinent technologies. Consequently, the inclusion of robotics and autonomous technologies employed in civil applications would be integral to these discussions. When considering the topic of Responsible Robotics and Artificial Intelligence (RWS), it is crucial to prioritize the advancement, investigation, and cultivation of the nonviolent and ethical utilization of robots. This can be achieved by leveraging the knowledge and insights acquired from previous frameworks that address technology with both civilian and military applications. Given the recognition by the High Contracting Parties that the existence of RWS is currently absent, it is imperative for the Parties to collectively establish a shared comprehension of RWS. If the third Informal Meeting leads to a more comprehensive consensus, it is conceivable that more sophisticated deliberations can be pursued. Japan, on its part, will actively engage in constructive talks during this Informal Meeting (Swaine, M. D., Swanger, R. M., & Kawakami, T. 2001).

RUSSIAN DEPARTMENT OF DEFENSE

The contemporary modernisation strategy of Russia places significant emphasis on the incorporation of robotic systems and artificial intelligence technologies. Russia has made a commitment to the development of a technologically advanced robotic military force with the capability to engage in combat operations in the contemporary era. The Chief of the Generals Staff of Russia expressed the possibility that a fully autonomous robotic unit may possess the capability to conduct military operations without human intervention in the foreseeable future. In accordance with their conviction, Russia has declared its intention to deploy autonomous sentry robots equipped with weaponry for the purpose of safeguarding five key missile facilities. The aforementioned sentry robots will employ artificial intelligence algorithms to autonomously make choices, eliminating the need for human operators. Russia acknowledges the transformative impact of artificial intelligence and robotics, which are engendering a paradigm shift in military affairs and profoundly altering the nature of battle. Russia's contemporary approach to modernization is currently shifting its focus from manned vehicles to totally autonomous vehicles. The defense industry intends to unveil a prototype of an autonomous T14 tank within the upcoming two years. In order to expedite these transformations, the Army Chief of Staff of Russia has declared their intention to automate thirty percent of their military forces by the year 2020. While the attainment of this automation aim by Russia appears unlikely, it serves as an indication of Russia's strategic outlook on contemporary warfare and the potential determinants of victory in future conflicts.

According to a study, it has been reported that the Russian Military Industrial Committee has sanctioned a proposal aiming to allocate 30 percent of Russian combat capabilities to fully remote-controlled and autonomous robotic systems by the year 2030. During a military technology symposium held in 2016, it has been reported that Russia introduced the Vikhr (also known as Whirlwind) unmanned ground combat vehicle (UCGV), which is derived from the BMP-3 infantry fighting vehicle (Bartles, C. K. 2011).

According to reports, the Russian Ministry of Defense, in collaboration with the Ministry of Education and Science, is actively and promptly pursuing the integration of artificial intelligence (AI) technologies. Despite its current lack of a well-

established high-technology culture and substantial financial resources, Russia is actively engaged in endeavors to mobilize its academic, scientific, and commercial sectors with the aim of advancing Russian Robotic technology and Artificial Intelligence (AI) capabilities, thereby positioning itself as a formidable global competitor in these domains. The participation of the Russian delegation at the inaugural session of the CCW Group of Governmental Experts on robotic Autonomous Weapons Systems has been notable, notwithstanding the lingering skepticism around the inclusion of this subject matter within the GGE's agenda. Our team of specialists actively engaged in all panel discussions organized by the Group, focusing on the technological, international legal, military, and political dimensions of these weapons. Overall, it is our assessment that the efforts of the Group of Governmental Experts (GGE) on the Regulation of Weapons Systems with the ability to choose and engage targets autonomously (RWS/LAWS), led by the Indian Ambassador A. Gill, were effective. The attention brought by the GGE to emerging areas of study, such as artificial intelligence and civic technologies with a significant degree of autonomy, is particularly appreciated.

The GGE's work highlighted the Convention as the most suitable framework for addressing the matter of RWS/LAWS. Additionally, it underscored the importance of applying international humanitarian law to these weapons and emphasized the need for further exploration of issues such as the dual nature of these technologies, which have implications for both civil and military applications, as well as the interplay between machines and humans. Simultaneously, we have encountered persistent challenges in our discourse that remain unresolved. The primary issue at hand pertains to the lack of an officially endorsed operational definition and delineation of the essential attributes of those systems. Currently, our comprehension of RWS/LAWS is predominantly contingent upon the interpretation provided by each delegate. Certain states incorporate semiautonomous and automated systems within this classification, asserting that these systems are already in existence and are extensively employed. There is a counterargument offered by certain individuals asserting the absence of such systems. Given the prevailing uncertainty, it is premature to discuss any specific or intermediate findings of our research. Furthermore, our delegation is in disagreement with the pessimistic evaluations that anticipate the inevitable emergence of fully autonomous weapons systems in the near future. According to the analysis conducted by our panel of experts, a considerable duration of time is necessary in order to advance artificial intelligence systems to the stage commonly referred to as "singularity" or "superintelligence".

This perspective is not solely held by Russian experts. Throughout the duration of the Group of Governmental professionals (GGE) session, we have frequently encountered the evaluations of knowledgeable professionals who contend that humanity is still distant from unraveling the enigma of human conscience and developing completely autonomous weapons systems. The preceding GGE session unveiled a multifaceted scenario concerning various additional matters. Regarding future endeavors, it is our firm belief that a gradual approach should be adopted. The topic of our discourse is highly intricate and multifaceted, necessitating a more in-depth examination. This task should be approached in a sequential manner. The aforementioned steps should be of a diminutive nature. The attainment of the agreement should be accomplished in a gradual manner. It is advisable to prioritize substance above haste.

From our perspective, it is evident that certain significant texts, such as the political declaration, exhibit a deficiency in substantive content. Our delegation places utmost significance on the absence of any adverse effects of GGE operations on the unrestricted advancement of robotics and artificial intelligence technologies by individuals. It is imperative to develop a comprehensive comprehension of the weaponry components inherent in highly autonomous systems, as they possess the potential to serve as a significant tool for safeguarding and upholding national interests. Furthermore, it is imperative to thoroughly examine the international legal dimensions of RWS/LAWS, alongside addressing the question of whether the existing International Humanitarian Law (IHL) adequately addresses the ongoing problems associated with these weapon systems. Overall, it is widely held that the final paper of the GGE demonstrates a commendable level of balance and,

significantly, accurately represents the current state of our deliberations. We have successfully articulated the fundamental knowledge that we currently possess. Despite reservations regarding the timeliness of discussing this topic within the GGE framework and the potential outcomes of the GGE's efforts, we do not have any objections to the Group's continuation of its work, as consensus has been achieved and the research mandate is being upheld (Bartles, C. K. 2011).

CONCLUSION

In conclusion, this research has shed light on the profound transformation occurring in modern warfare with the integration of robotic technology within military organizations. We have explored the multifaceted implications of this transformation, particularly in the context of international law. It is evident that robotics and autonomous systems are reshaping the landscape of conflict, affecting everything from the nature of warfare itself to the structure of military forces and the ethical, strategic, and legal considerations that come with these changes.

As we move forward, several avenues for future research become apparent:

Ethical and Legal Frameworks: Future research should delve deeper into the ethical and legal aspects of robotic warfare. This includes examining the adequacy of existing international laws and treaties in regulating autonomous weapon systems, as well as the development of new ethical guidelines to govern their use.

Human-Robot Interaction: The interaction between human operators and robots on the battlefield is a critical area of study. Understanding how soldiers and commanders interface with autonomous systems and make decisions in the heat of combat is essential for optimizing their effectiveness and minimizing potential risks.

Technological Advancements: Keeping pace with rapid technological advancements is crucial. Future research should closely monitor developments in robotics, artificial intelligence, and autonomous systems to anticipate their impact on military operations and international law.

Global Perspectives: Expanding the scope of research to encompass a wider range of countries and military organizations will provide a more comprehensive understanding of how different nations are approaching robotic warfare and its legal implications.

Conflict Resolution: Investigating how the use of robotic weaponry may influence conflict escalation and de-escalation strategies, as well as the potential for conflict resolution and diplomatic negotiations, is an important avenue for future research.

Interdisciplinary Approaches: Collaborations between legal scholars, ethicists, engineers, and military strategists can lead to a more holistic understanding of the multifaceted challenges posed by robotic warfare.

In an era where technology is reshaping the nature of warfare, it is imperative that research continues to evolve alongside these developments. By addressing these future research directions, we can better navigate the complex intersection of robotic warfare and international law, ultimately striving for a more secure and ethical global security landscape.

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