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A NEW GLOBAL COMPETITION IS ON THE RISE. ARTIFICIAL INTELLIGENCE AS A MEANS OF GAINING A COMPETITIVE MILITARY ADVANTAGE

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ABSTRACT

The paper is a non-technical approach to artificial intelligence (AI), the author claiming no competence in the technology field. It expresses the view of a person interested and concerned about the role of artificial intelligence as an elevator of international power. It is a review of how the United States of America officially recognizes the benefit of artificial intelligence intervention in the military domain and its usefulness for ensuring national security. Artificial intelligence, a booming technological field, influences our existence as individuals, societies, and states. It affects more and more areas of activity, attracts into a continuous mechanism of development and innovation both the state (as the center of decision and political action) and the society (the big companies producing technology and academics), requires the state to develop strategies in the field and puts on the world leaders agenda a new issue of hope and fear at the same time.

KEYWORDS: international system, power, artificial intelligence, military competition

1. The Power-Competition Binomial, a Constant of the International System

More than three decades after the end of the Cold War, the international system has proven incapable of generating a power architecture that would provide stability to the world, imbuing it with a viable operating cadence. In international relations, power continues to represent the fundamental structuring element of such a complex mechanism as the international system is, moreover when extreme overwhelming and highly accelerated challenges (in terms of risks and threats) provoke and excite its stability and functioning. The power structure is reflected practically in exercising international leadership and mapping the world into areas of interest or influence. Generally, it imposes rules and norms on the international system, sets conditionalities and fosters partisanship, projects national interests, and generates tools to achieve them.

The power struggle is based on competition and, depending on the context (conditions, number of participants, types of established relationships, convergent or divergent objectives, capabilities and tools, the rarity of and accessibility to resources owned or desired, etc.), it metamorphoses into cooperation or conflict. However, competition and cooperation do not exclude each other. But when the competition

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exacerbates through the objectives pursued and the morality of the measures undertaken, ending up restricting some of the competitors, conflict occurs. The contemporary international system is characterized by a high degree of conflictuality, despite the bursting and almost annoying rhetoric regarding international stability launched by states but also by international (mainly regional) organizations. An international organization should be understood as the legal expression of a set of hierarchical multinational interests managed by an internal ordering power arrangement (unipolar or bipolar, less likely multipolar, depending on the organization's size).

The power of a state on the international level is defined and enhanced by multiple and highly varied factors expressing the preeminence of a country in one field or another. Nowadays, the diffusion of power and the struggle for power involving more and more state actors with claims to this status mean we no longer speak of plenary powers, manifest and recognized cumulatively under political-economic-military-technological-cultural auspices (superpowers), but of great powers.

2. Methodology

Considering the novelty of the technological domain put under debate and the declared non-technical aprroach of the subject, the research was designed based on a literature review and open-source study of official documents and news articles.

The article's core is structured according to an issue questioning great powers (mainly the United States of America) vision of artificial intelligence development and deployment in the military field.

3. Artificial Intelligence: for Better or/and for Worse

Technology is an indirect element of power, becoming a pawn in international competition through the competitive advantage obtained from its application in the economic and military fields, which are the real battlegrounds where states measure their capabilities based on which they evaluate their power potential.

Artificial intelligence is part of the category of new technologies that impact the most critical areas of modern society, including national security.

Artificial intelligence is part of our everyday life, its intervention in the most varied fields of activity already being a *sine qua non* reality. The increase in its use in society is exponential. This large area of applicability places it in the general-purpose technology category, rolling across industries such as:

– Transportation – can bring innovation to vehicles and infrastructure, help drivers and improve all transportation modes in terms of safety, comfort, and smartness (European Parliament, 2019). Probably the most famous examples are self-driving cars and traffic management.

– Healthcare – both for providing medical services to patients (diagnosis, treatment) and for a better organization from an administrative point of view of the medical act (Foresee Medical).

– Economics – used for better predictions or to make data-based decisions (Niyazov, 2019).

– Banking and Finance services – takes to another level the way people interact with money and redefines the relationship between financial-banking institutions and their customers who want to access more convenient and safer ways of using money (Schroer, 2022).

– eCommerce – by transforming the way we sell and buy goods online. Among other things, the offers are personalized,

and the inconvenience of not having an assistant specific to a physical store has been eliminated by providing permanent (24/7) immediate virtual assistance (Heethuis, 2022).

– Education – by innovating the teaching and learning process, customizing them, and creating smart content. At the same time, it is worth mentioning its beneficial intervention as a facilitator in the case of people with special needs (Plitnichenko, 2020).

These examples highlight the usefulness of artificial intelligence in our daily existence. The benefits are obvious even if, in order to obtain them, strict rules for the use of data related to safety and even privacy must be applied.

The political and military domains remain under debate, namely how artificial intelligence is applied, the advantages obtained, and the potential costs, not so much the financial ones, but rather those aimed at the status of the decision-maker and the ethics of the decision.

So what is artificial intelligence? The study of specialized literature reveals that there is no commonly accepted definition at the technical level and even less at the political one. This diversity can be argued as follows:

– The inclusion of artificial intelligence in both emerging and disruptive technologies.

– Insufficient practical development of the field, which triggers insufficient knowledge concerning its potential.

– The variety of areas of applicability.

– The socialization of the term (by using it in the most varied contexts, sometimes in a confusing or imprecise way, without knowing its actual technological values, costs, and benefits) in parallel with its privatization (being used by specialists in this field of technology).

– Defined in a simple way, artificial intelligence is a technology that powers machines with human intelligence; it *"aims to make computers as smart as humans"* (O'Connor, 2019). Technically speaking, AI combines large amounts of data with fast, iterative processing and intelligent algorithms, allowing the software to learn automatically from patterns or features in the data.

Considering the research question that this paper is focused on, artificial intelligence is a game changer capable of providing an international competitive advantage to the state that develops and implements it in the military field.

Like any other technology, artificial intelligence has its good and bad sides. Referring to the benefits of science and technology in general, Henry Kissinger calls them the *"governing concepts"* of the 21st century, considering their undeniable and unprecedented positive effects on human well-being. At the same time, he emphasizes that *"they have also produced weapons capable of mankind"* (Kissinger, 2015). On the same note, brand representatives in the field of artificial intelligence and robotics addressed, in 2017, a letter to the United Nations asking the ban of lethal autonomous weapons (killer robots), the impact of such technology being equivalent to that of gunpowder and nuclear weapons: *"Lethal autonomous weapons threaten to become the third revolution in warfare. Once developed, they will allow armed conflict to be fought at a scale greater than ever and at timescales faster than humans can comprehend. These can be weapons of terror, weapons that despots and terrorists can use against innocent populations, and weapons hacked to behave in undesirable ways. We do not have long to act. Once this Pandora's box is opened, it will be hard to close"* (Future of Life Institute, 2017).

4. What Does the Use of Artificial Intelligence Mean in the Military Sphere?

We have seen the results of using artificial intelligence in various fields of activity. Starting from these examples, it can be deduced that AI has approximately the same applicability in the military field. We are talking about: information analysis and decision-making, vehicle autonomy and target recognition, but also about the fact that the software systems implemented in this area are useful in individualized instruction and give an increased dose of realism to simulations, help to increase the security of the military, are effective in the search and saving people but also in warfare healthcare, or can prevent enemy attacks, among many other operations. Some of these benefits happen in real-time. At the same time, we can also talk about disadvantages; it is not excluded that: the algorithms used in strategic decision-making are biased by nature, the findings generated by artificial intelligence are overestimated facts that could influence in a negative way the training process or, regarding military operations, uncertainty may arise as to whether automated vehicles are suitable for use in complicated situations (Eliacik, 2022).

Changes mark modern society. It is a biunivocal relationship between the two: modern society is born from the increasingly rapid change of our conditions of existence (of the security environment, in fact), and the continuous but also balanced development of society favors change, desirable for the progress of humanity and the prosperity of individuals.

The changes are equally profound in the military field. Knowledge is embedded in the process of training troops and equipping armies. New technologies influence the way war is conducted, and so the war puts pressure on the defense industry, which is thus forced to resort to advanced technology that generates competitive military advantage at the international level.

Obtaining a competitive advantage in military terms with the help of artificial intelligence could have no impact on society as long as there are no legal regulations and international political consensus regarding the acceptable limits of using the new technology in military operations. In this respect, in a study published by the RAND Corporation in 2020, reference is made to *"machines killing people without direct approval of human operators and, potentially, even without their oversight or ability to intervene if weapons select the wrong targets, decision support systems that might urge escalatory actions, or even preemptive attacks, without commanders being able to examine the complex calculations behind such recommendations, or citizens being detained or even killed as a result of a facial recognition system or some other complex AI calculation misidentifying them as terrorists or criminals"* (Morgan, Boudreaux, Lohn, Ashby, Curriden, Klima & Grossman, 2020). These are issues related to human dignity, human rights, private life, trust, and reliability. They should first concern political decision-makers, the defense industry, researchers in the field, international organizations (United Nations, first of all). Henry Kissinger also talks about human consciousness and balance when he approaches the topic of technology in the military sphere (Kissinger, 2015, pp. 266-290).

5. Great Powers' Vision Concerning Artificial Intelligence and National Security. United States of America

In a world strongly influenced by technological innovation, artificial intelligence poses a significant challenge to powerful states' ability to strengthen their international position. This reality has led

them to issue strategic documents on this matter and to initiate policies to capitalize on the advantages of this factor which, at least for the time being, could be considered decisive. More and more, states place a high stake in the relationship between artificial intelligence and the military field; they will try to harmonize the two elements of the report so that the usefulness of the interaction between them is directly proportional to the security interests defined by political decisions. The United States, China, and Russia *"have perched on the verge of what might be revolutionary advances in military applications of AI"* (Morgan, Boudreaux, Lohn, Ashby, Curriden, Klima, Grossman, 2020) and *"is already disputing its first position"* (Estefanell, 2018). In the race to transform artificial intelligence into a vehicle capable of driving global dominance. It means that the strategic military balance between great powers could be put on the edge due to the potential risk artificial intelligence has. It could reshape the military balance of power and give a start to a new military-technological arms race (Johnson, 2017).

Most opinions lean in favor of direct competition between Washington and Beijing. This fact should not, however, exclude Russia. In 2017, President Vladimir Putin declared, *"Artificial intelligence is the future, not only for Russia but for all mankind. It comes with colossal opportunities, but also threats that are difficult to predict. Whoever becomes the leader in this sphere will become the ruler of the world the one who becomes the leader in AI will be the ruler of the world"* (Vincent, 2017).

5.1. United States of America

The United States already has a history of developing autonomous military systems, managing to achieve clear superiority in AI research and development. This position is under strong challenge today, especially from China which aims to become the world leader in AI by 2030 (Mozur, 2017) by building a domestic industry worth almost $150 billion.

The concerns regarding AI in other states, including at the level of private industry, worked like an impulse for the American authorities. In October 2016, under the auspices of the White House, the document *"Preparing for the Future of Artificial Intelligence"*, developed by the National Science and Technology Council, was launched (White House, 2016). Reviewing the applicability of the technology in various fields of activity, when it comes to the military area, the document underlines the importance of *"greater precision in the use of weapons and safer, more humane military operations"*. The report is a balanced approach, referring to the need for regulation and international cooperation, highlighting both the advantages of AI for the public good and the need for control, safety, and accountability. AI is presented as a factor of economic and social transformation, with the ability to invest in adequately funded programs that maximize opportunities and reduce risks within the public services that the American state provides to its citizens. It also makes 23 recommendations for the US executive. Considering the philosofy of this research, recommendation number 11 should be mentioned: *"The Government should monitor the state of AI in other countries, especially with respect to milestones"*.

In February 2019, President Donald Trump signed the *"Executive Order on Maintaining American Leadership in AI"* (National Archives, 2019), to initiate federal principles and strategies to strengthen America's capabilities in AI to promote scientific discovery, economic competitiveness, and, obviously, national security. It is, in fact, the executive order that created the American Artificial Intelligence Strategy. Only a day away, on February 12, 2019, the Department of

Defense (DoD) launched its Artificial Intelligence Strategy, an extension of the National Defense Strategy from 2018 and having the sub-title *"Sharpening the American Military's Competitive Edge"*. The latter document stated that *"We must anticipate the implications of new technologies on the battlefield, rigorously define the military problems anticipated in future conflict, and foster a culture of experimentation and calculated risk-taking. We must anticipate how competitors and adversaries will employ new operational concepts and technologies to attempt to defeat us, while developing operational concepts to sharpen our competitive advantages and enhance our lethality"* (Department of Defense, 2018). Regarding the Department of Defense AI Strategy, its subtitle is *Harnessing AI to Advance Our Security and Prosperity"* (Department of Defense, 2019) and reflects the attention on the benefits that can be brought to the nation (prosperity) and to the country (security). It is worth noting the importance given to cooperation with partners in society; private technology companies and academia are considered to be *"at the forefront of modern AI advances"*.

In 2022, the DoD released a new National Defense Strategy (Department of Defense, 2022) in which are detailed the path proposed to be followed in these "turbulent times" to protect the American nation while promoting global security, and to capitalize on new strategic opportunities in parallel with safeguarding democratic values. In this respect, some of the approached issues were: the rapid development of technologies exist and the emergence of new ones, the importance of investments in research and development to obtain the military advantage, the need for institutional reforms that facilitate the transfer of artificial intelligence to the warfighter, or the "aggressively seek" to overcome the specific technology gaps, including artificial intelligence specializations.

The last document of major importance mentioned in this framework is the *"National Security Strategy"* (White House, 2022), entered into force in October 2022. Mentioning the objective of modernizing and strengthening the military, the document emphasizes the importance of investing in a range of advanced and foundational technologies for the 21st century, including in the field of *"trusted"* artificial intelligence.

6. Conclusions

The international system is marked by dramatic geopolitical, economic and technological changes that, if not managed correctly, could bring humanity under the specter of destruction.

The power struggle has intensified, the areas of interest are being redrawn, and the competition is very close to turning into (an armed) conflict. It is evident that a new era has entered and that the post-Cold War era has ended without a complete solution to the problems, some deeply rooted in the Cold War era.

There is undoubtedly a link between changes in the international system and technological transformations. The organization of its development and its power structure are strongly influenced by technological advances, which in turn constitute today a primary objective of the development and survival strategies of the states. The field of technology is inherently under the political spectrum, as all areas of activity are and even most aspects of our daily existence.

National security, the ultimate goal of any state, is multi-dimensional. Everything conspires to ensure it, including the technological advancement exploited in the military.

The development of artificial intelligence, still considered to be a new technological field, and the increase of its

applicability in the military field have become a race against time for the great powers convinced that the status of AI leader automatically leads to world political-military supremacy.

The problem is, however, more complex and should not be reduced to a competition between two (or three) athletes with relatively equal chances in terms of physical endurance.

There are unregulated or insufficiently clarified problems or recognized only in the declarative mode. There is a deep interdependence between the subsystems of the global social system: no viable action can be taken outside the law, human security is a separate but not independent concept from national security, ethics is the unwritten law of existence, and ensuring the safety of our existence is the objective of all governance. It means that even in the military field, beyond the emulation created by artificial intelligence, the human factor must not be forgotten; the military fighter on the battlefield and the decisive military strategist in charge of people and operations still have paramount importance.

Finally, the nature of the political regime is critical. The ideological competition between democracy and authoritarianism is reflected through their vision about the international system organization, the functioning of the balance of power, and the exploitation of the usefulness of artificial intelligence in the military field. The problem is that both the United States and China have their own domestic problems – one must redefine its democratic system, saving it from self-destruction, while the other must reshape its political system and keep it from slipping toward totalitarianism.

REFERENCES

Department of Defense. (2018). *National Defense Strategy*. Available at: https://dod.defense.gov/Portals/1/Documents/pubs/2018-National-Defense-Strategy-Summary.pdf.

Department of Defense. (2019). *Department of Defense AI Strategy*. Available at: https://media.defense.gov/2019/Feb/12/2002088963/-1/-1/1/SUMMARY-OF-DOD-AI-STRATEGY.PDF.

Department of Defense. (2022). *National Defense Strategy*. Available at: https://media.defense.gov/2022/Oct/27/2003103845/-1/-1/1/2022-NATIONAL-DEFENSE-STRATEGY-NPR-MDR. PDF.

Plitnichenko, L. (2020). *5 Main Roles of Artificial Intelligence in Education*. Available at: https://elearningindustry.com/5-main-roles-artificial-intelligence-in-education.

Eliacik, E. (2022). *Guns and Codes: The Era of AI-wars Begins*. Available at: https://dataconomy.com/2022/08/how-is-artificial-intelligence-used-in-the-military/.

Estefanell, M.V. (2018). *La inteligencia artificial y su encaje en las Estrategias de Seguridad Nacional. Instituto Espanol de Estudios Estrategicos*. Available at: https://www.ieee.es/Galerias/fichero/docs_opinion/2018/DIEEEO109_2018MARVAL-InteligenciaArtificial.pdf.

European Parliament. (2019). *Artificial Intelligence in Transport. Current and Future Developments, Opportunities and Challenges*. Available at: https://www.europarl.europa.eu/RegData/etudes/BRIE/2019/635609/EPRS_BRI (2019)635609_EN.pdf.

Foresee Medical. *AI in Healthcare*. Available at: https://www.foreseemed.com/artificial-intelligence-in-healthcare.

Future of Life Institute. (2017). Available at: https://futureoflife.org/ai/killer-robots-worlds-top-ai-robotics-companies-urge-united-nations-ban-lethal-autonomous-weapons/.

Heethuis, N. (2022). *Four Ways Artificial Intelligence Is Transforming E-Commerce*. Available at: https://www.forbes.com/sites/theyec/2022/02/15/four-ways-artificial-intelligence-is-transforming-e-commerce/?sh=5eb83940797b.

Johnson, J. (2017). *The end of military-techno Pax Americana? Washington's strategic responses to Chinese AI-enabled military technology*. Available at: https://www.tandfonline.com/doi/abs/10.1080/09512748.2019.1676299?journalCode=rpre20.

Kissinger, H. (2015). *Ordinea mondială*. Bucharest: RAO Publishing House.

Morgan, F.E., Boudreaux, B., Lohn, A.J., Ashby, M., Curriden, C., Klima, K., & Grossman, D. (2020). Available at: https://www.rand.org/pubs/research_reports/RR3139-1.html

Mozur, P. (2017). *Beijing Wants AI to Be Made in China by 2030*. Available at: https://www.nytimes.com/2017/07/20/business/china-artificial-intelligence.html.

National Archives. (2019). *Maintaining American Leadership in Artificial Intelligence*. Available at: https://www.federalregister.gov/documents/2019/02/14/2019-02544/maintaining-american-leadership-in-artificial-intelligence.

Niyazov, S. (2019). *How A.I. Will Redefine Economics*. Available at: https://towardsdatascience.com/how-ai-will-redefine-economics-ec305e3cb687.

O'Connor, T.R. (2019). *Global Security*. USA: Cognella Academic Publishing.

Schroer, A. (2022). *25 Examples of AI in Finance*. Available at: https://builtin.com/artificial-intelligence/ai-finance-banking-applications-companies.

Vincent, J. (2017). *Putin says the nation that leads in AI 'will be the ruler of the world'*. Available at: https://www.theverge.com/2017/9/4/16251226/russia- ai-putin-rule-the-world.

White House. (2016). *Preparing for the Future of Artificial Intelligence*. Available at: https://obamawhitehouse.archives.gov/sites/default/files/whitehouse_files/microsites/ostp/NSTC/preparing_for_the_future_of_ai.pdf.

White House. (2022). *National Security Strategy*. Available at: https://www.whitehouse.gov/wp-content/uploads/2022/10/Biden-Harris-Administrations-National-Security-Strategy-10.2022.pdf.