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NAVIGATING THE GEOPOLITICAL LANDSCAPE OF ARTIFICIAL INTELLIGENCE: REFLECTIONS AND CHALLENGES

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Abstract: *Artificial Intelligence (AI) has enormously impacted everyday life's economic, social, and political spheres. This impact is even more significant in today's globalized world. Artificial Intelligence and new technologies influenced the geopolitical domain, shifting and influencing the balance of power. The power that excelled in governing, educating, and reproducing novelties in AI claimed the title. However, instead of aspiring to be the best, the great powers balanced out their antagonism and joined forces. They cooperated in the domain of new technologies and AI, aiming for the benefit of humanity. AI had to be adequately harvested to produce peace, prosperity, and stability, acting as a bridge in an interconnected, globalized world. The purpose of the research was to discuss and analyze, through qualitative research analysis, the present and future influences, effects, and policies of Artificial Intelligence and new technologies in the geopolitical domain and their impact on humanity.*

Keywords: *Artificial Intelligence; Geopolitics; Globalized World*

INTRODUCTION

There are many definitions of the meaning of Artificial Intelligence (AI), and they all summarize the idea that AI is a human intelligence process conducted by a machine (Burns 2022, 3). This means the machine can solve problems, learn, and predict. Different kinds of AI exist, such as assistants, chatbots, machine learning, etc. Additionally, there are different categories of Intelligence, including:

- Automated Intelligence, which consists of the automation of manual tasks;
- Assisted Intelligence, which means helping people to perform tasks faster and better;
- Augmented Intelligence, which means helping people make better decisions and
- Autonomous Intelligence means that there is a mechanical or robotic decision-making process without the help of a human being.

Therefore, the collaboration between humans and machines has become more real, and the new transformations and innovations are astonishing (Sizing the Prize 2023). AI expert Prof. Sir Nigel Shadbolt states: "Artificial Intelligence presents a whole spectrum of abilities, from smart programs to super clever programs" (Chen et al. 2023, 2).

Artificial Intelligence is not a new phenomenon, but it has become more authentic and recognizable to people in the past ten years, no longer an abstract concept. It is progressing rapidly

and shaping our everyday lives. It has brought about fundamental changes in society's ethical, social, and cultural aspects and the international economic and political spheres (Zekos 2022, 4). AI has influenced education, the healthcare system, economies, transportation, the work environment, automated everyday tasks, and decision-making, making the development of new products and services more accessible and faster, among other things.

For instance, in education, AI has contributed to the development of personalized learning programs and created new educational technologies and tools, enhancing the educational process in terms of speed and ease. In the healthcare system, AI has played a role in improving diagnosis and treatment, developing medical technologies and tools, and enhancing medical records' accuracy and secure storage. In the finance and economic sectors, AI has improved the accuracy of predictions and better managed economic risks.

Moreover, in transportation, AI has implemented better navigation services, enhanced passenger safety, and facilitated efficient delivery of goods and services. In the workplace, AI has improved collaboration between partners, increased efficiency in the work environment, and facilitated the development of new job roles and the acquisition of new skills.

As AI continues to expand and introduce novelties, it is expected to profoundly impact many other aspects of life, both positive and negative (Dela Cruz et al. 2022, 5-6).

Therefore, from the apparent impact AI has made on a global level, it can earn the nickname of the boomer of the Fourth Industrial Revolution.

LITERATURE REVIEW AND METHODS

The research aims to discuss and analyze through qualitative research analysis the present and future influences, effects, and policies of AI and the new technologies in the geopolitical domain and their impact on humanity. Throughout the research, different theories and frameworks will be used to present and assess the risks and the positive outcomes of using AI. Moreover, through that assessment, continue presenting, framing, and shaping the new aspects and policies on the international arena and the balance of power. Furthermore, the central hypothesis in this research is that AI and new technologies have positively and negatively influenced the world's geopolitical domain. Therefore, for humanity to feel the positive benefits of using AI, the great powers should balance out their differences, join forces, and collaborate in the field to produce prosperity, peace, and stability in this interconnected, globalized world.

The geopolitical landscape of AI is a novel research area, even though the science of geopolitics and the science of AI are not new concepts in their domain. The research findings are changing daily with a focus on many different aspects of AI and the different aspects it influences, especially in geopolitics. Only a few researchers have touched upon this precise topic and have taken different or similar stands of discussion and analysis. For example, in her paper "Steering the Governance of Artificial Intelligence: National Strategies in Perspective", Roxana Radu touches upon the national and governmental approaches to AI from a hybrid perspective (Radu 2021, 1). Meanwhile, Kenneth Krushel, in his work "Geopolitics in the Era of AI: Upending Assumptions", touches upon geopolitics and the new industrial revolution in the new era (Krushel 2022, 2). These and many more studies analyze and discuss only certain aspects of the topic.

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Therefore, through the analysis of the strengths and weaknesses of the research findings, the research was constructed to address the gaps in this research area. Along with the new findings, an effort was made to contribute to new future research.

THE FOURTH INDUSTRIAL REVOLUTION

The Fourth Industrial Revolution is an ongoing process of reproduction and overgrowth. Innovations in the AI sector and all technological spheres are developing faster, more efficiently, and becoming globally accessible. Technology has been widely accepted and interconnected by merging the digital, physical, and biological realms. These new technologies influence our social lives, affecting economies, values, identities, possibilities, and more. Embracing this industrial revolution presents an opportunity to harness its benefits. For example, it can help address environmental problems, which is a significant concern.

On the other hand, if we misuse the instruments produced by this revolution, it could exacerbate existing threats or create new ones. Opting to capitalize on these opportunities involves learning how to manage the associated risks, necessitating a transformation in legislation, governance, and policies. This transformation should be coupled with global cooperation, engagement, and connectivity. This transformation demands collaboration among policymakers, scientists, researchers, scholars, civil society, technology experts, and investors worldwide (Harnessing Artificial Intelligence for the Earth 2018, 7). Positively harnessing and adapting to new technological means is a significant step toward empowering sustainability goals for the betterment of humanity. Even in 1989, Tim Berners-Lee envisioned technology's impact on the world. He foresaw the World Wide Web as a globally shared information space where people would work, play, and socialize, using digital means and collectively participating in various activities. This vision materialized 23 years later (Krushel 2022, 3-4).

Now, let us consider the potential impact that AI will have on geopolitical norms by combining the physical, digital, and biological realms. First, it will connect the world and bring forth new potentials:

- It will raise global income and improve quality of life;
- It will have, in the long run, gains in efficiency and productivity;
- The transportation and communication costs will decrease;
- The logistics and the global supply chain will be more effective;
- Trade costs will diminish (Krushel 2022, 3-4).

However, these are not the sole potentials of AI. If AI is harnessed positively globally, its potential and benefits will extend far beyond the current scope. In such a scenario, the impact and advantages of AI could be significantly amplified, offering unprecedented opportunities for advancements in various fields.

THE GEOPOLITICS OF ARTIFICIAL INTELLIGENCE AND ITS IMPACT ON THE BALANCE OF POWER

The term "geopolitics" refers to the competition among countries to control trade, capital, people, and, in today's world, to control the internet, information flow, and data processing. It also involves striving to be the best and most innovative in AI and cyber technologies. These efforts aim to gain political and economic advantage internationally and globally (Krushel 2022, 3).

The great powers seem to perceive AI only as a means to an end, aiming to improve their position in the international system, especially in the economic, political, and military spheres. This competition in the international arena is driven by several factors: the nature and purpose of the technology, the rapid advances in AI, and most importantly, the historical experience from past industrial revolutions. In pursuing global domination, major powers such as the USA, China, Russia, India, and the European Union have been increasingly investing in AI research and development to be the first and the best (Vijayakumar 2022, 5-6).

The power transition theories in international relations indicate that a country's ability to invest in innovations and dominate in leading spheres is the primary indicator of its capacity to rise. A country's position in the international power pyramid is determined by its ability to sustain power through technological growth and advancement. Countries will fall or rise on the power hierarchy scale based on their advancements (Vijayakumar 2022, 5-6).

The effects of technology on international relations power dynamics are seen to be much more thorough during the three industrial revolutions. These industrial revolutions have changed and influenced the rise and fall of great powers. The First Industrial Revolution and the creation of the steam engine are directly linked to the leader of these innovations: the United Kingdom. This innovation enabled the UK to become the world's economic, political, and military center.

Furthermore, the Second Industrial Revolution is linked to the innovation of electricity and oil mining technologies, with the USA as the leader. The USA continued to lead in the advancement of nuclear weapon technology, positioning itself as a world leader and setting international norms, standards, and interests. To continue the Third Industrial Revolution initiated advances in electronics, the internet, communication technology, and microprocessors. This industrial revolution was reinforced by the globalization process, leading to advances in different countries such as Japan, the USA, and Europe.

Therefore, to understand how AI will influence and shift geopolitics and the global order, we can look back at the three industrial revolutions or the advancements and developments in nuclear weapons. This will guide us in identifying who will be the key player (Vijayakumar 2022, 5-6).

Throughout history, technology has influenced and shaped economies, societies, and military powers, creating new global actors. Therefore, Artificial Intelligence today is shaping and reshaping international relations and the global balance of power.

For example, consider the Sino-American competition on AI and the desire to be the first and the best. This competition directly impacts Europe, as AI is a key component of China's internal and external strategy, and the same applies to the US. The competition also significantly affects both powers' security and defense strategies, especially regarding the military effects of AI usage.

Aspiring to excel in implementing AI will have a crucial impact on warfare and the geopolitical balance of power. Examining Chinese and US capabilities, plans, and visions for AI reveals

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that both states are potent AI powers and highly competitive, shaping the new geopolitical power dominance. For Europe, this competition poses numerous challenges (Ulrike 2021, 13-15).

However, is the competition among the great powers the sole obstacle to reaching global dominance, or are there other impediments? Can the potent alliance between AI and a data-driven society reshape the reality of today's world? Is humanity at risk of losing control to an algorithmic revolution that surpasses normal human understanding and accountability? AI technologies are likely to undermine global governance mechanisms, policies, and legislation (Pauwels 2018, 2-3). The reality is that legislation cannot be reinforced at the same pace as the rapid advancement of new AI technologies. So, when rules and regulations are lacking, can machines become the next dominant power, ruling the world?

In reality, the connectivity, influence, cooperation, and competition offered by new technologies have shifted the geopolitical realm. Perhaps machines will not rule our world as depicted in Sci-fi movies, but they will undoubtedly significantly impact it. Geopolitics will no longer revolve solely around territory; it will be conducted in the data-driven and space-technological realm (Laurent et al. 2017, 85-87).

Politically, legally, and ethically, the world is unprepared for AI. The UN cannot effectively govern AI, given that the development of new technologies outpaces the creation and application of legislation or norms. This concerns international organizations and a growing worry for individual states. Without collective, collaborative governance, there is a risk to global stability (Pauwels 2018, 2-3). Authoritarian regimes with extensive internet infiltration pose an additional risk. Therefore, Western democracies should present a unified stance against authoritarian and undemocratic uses of AI (McBride 2023, 1).

In conclusion, AI is a power enhancer, enabling the management, processing, and application of vast amounts of information. Consequently, the country or government that can effectively use, manage, and control AI will possess the power to rule and govern the world. This is why significant geopolitical interest is in controlling AI manufacturing, storage, and processing (McBride 2023, 2).

REGULATIONS AND OBSTACLES IN MANAGING AI

Each country or international organization establishes different regulations for managing AI. The EU employs regulatory standards using a risk-based approach, wherein only high-risk AI is subject to mandatory regulations. In the US, self-regulation and soft law are used to regulate AI. China's regulation focuses on controlling data and imposing social governance and privacy standards. These approaches are accepted within the respective countries' jurisdictions (Zekos 2022, 4).

Furthermore, China's substantial investments in AI have led to the introduction of various settings that promise efficiency, security, and connectivity. However, there is still the risk that prioritizing these settings may lead to biases and abuse. Nonetheless, the importance of safety and ethical principles has not been undermined.

Moreover, the EU has created ethical guidelines, and India has emphasized protecting privacy and ethics. Despite these efforts, it is deemed insufficient. Ultimately, the US and China need to introduce stricter regulations that go beyond the benefits derived from AI in warfare and the economy, aiming to safeguard security and stability (Taylor et al. 2018, 4). Efforts have been made to

create an ethical and legal framework for autonomous systems. In May 2018, international NGOs presented a new declaration on protecting the rights to equality and non-discrimination by machine learning systems. Building upon international human rights law and emphasizing the responsibilities of both public and private actors, the Toronto Declaration aims to ensure that machine learning technologies and AI incorporate the principles of inclusivity and non-discrimination into their systems (Parakilas et al. 2018, 1-6).

Furthermore, there is the question of legal liability. In cases of harm or errors, determining who is at fault - whether it be the operators of the algorithm, the robot, or another party - poses a challenge. Legal liability sanctions can range from civil fines to imprisonment, but the question of responsibility remains unanswered. The Uber-related fatality in Arizona serves as a test case for legal liability. The state enlisted Uber to test its autonomous vehicles and granted the company significant independence in road testing. It remains to be seen who will take responsibility: the human driver, the state, the suburb where the accident occurred, Uber, the software developers, or the auto manufacturer. Additionally, digital platforms often have limited accountability (West et al. 2018, 5).

Numerous obstacles exist to creating proper regulations and legislation that are universally applicable to all AI and unanimously accepted worldwide. However, this remains the only way to be protected from any threats that may arise from the application of AI, as well as to regulate AI on a global scale.

POTENTIAL BENEFITS IN A GLOBALIZED WORLD RULED BY AI

AI is considered a significant game-changer. A contribution of up to $15.7 trillion to the global economy by 2030 is projected, surpassing the combined present economies of China and India (Sizing the Prize 2017, 7). Of this amount, $6.6 trillion is anticipated to come from increased productivity and $9.1 trillion from consumption. While AI means and tools have already been applied by some markets, sectors, and individual businesses, the use and development of AI are still at a very early stage (Sizing the Prize 2017, 7). Due to AI, a rise of up to 14% in the global GDP for 2030 is anticipated. The economic impact of AI will be driven by:

- Productivity gains from processes being automated by businesses (including the use of robots and autonomous vehicles).
- Productivity gains from businesses augmenting their existing labor force with AI technologies (assisted and augmented intelligence).
- Increased consumer demand resulting from the availability of personalized and/or higher-quality AI-enhanced products and services (Sizing the Prize 2017, 4).

One of the reasons for the growing role of AI is the tremendous opportunities for economic development. The increase in the global GDP will include advances of $7 trillion in China, $3.7 trillion in North America, $1.8 trillion in Northern Europe, $1.2 trillion for Africa and Oceania, $0.9 trillion in the rest of Asia outside of China, $0.7 trillion in Southern Europe, and $0.5 trillion in Latin America (West et al. 2018, 1-6). China is making rapid progress due to its national goal of investing $150 billion in AI and becoming the global leader in this sector by 2030 (West et al. 2018, 5). Furthermore, the McKinsey Global Institute presented a study in which China's AI is expected to give its economy a productivity injection that would add 0.8 to 1.4 percentage points of GDP growth annually. Although

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China currently falls behind the United States and the United Kingdom in AI, the size of its AI market gives China tremendous opportunities for development (West et al. 2018, 1-6).

Beyond the economic advances for countries, AI can become a game-changer in addressing environmental issues globally. Together with other technologies, it can deliver transformative solutions. Some elements AI produces are real-life game-changers and offer the potential to transform human systems fundamentally. For example, Autonomous electric vehicles could work in combination with energy grids, with charging fed by a decentralized and optimized renewable energy grid. These vehicles can help transform people's mobility while reducing greenhouse gas emissions and delivering cleaner air.

Furthermore, machine-learning technology will improve transportation efficiency since autonomous vehicles are connected and communicate with one another. As a result, they will be able to identify hazards or dangers while optimizing navigation and network efficiency. This technology can also encourage car sharing and reduce car ownership, decreasing emissions. However, it is essential to understand that the transition to connected autonomous cars will be gradual and vary from country to country, taking many years to realize the benefits. It is essential to start this transformation from somewhere (Harnessing Artificial Intelligence for the Earth 2018, 1-7).

Another innovation could be the use of solar roads. AI could enable a road to learn to heat up to melt snow or adjust traffic lanes based on vehicle flow. Smart grids and other technologies and advanced materials can increase distributed sources and optimize energy storage. Proper regulation will be necessary to ensure the security and integrity of the software, ownership, liability, and control of intellectual property rights. In the near future, economies and societies will adopt and implement smart infrastructure with minimal adverse effects on the environment (Harnessing Artificial Intelligence for the Earth 2018, 1-7).

Furthermore, other potential benefits of using AI globally can include smart agriculture. Using AI to harvest crops will lead to the early detection of diseases and other issues, providing nutrition and optimizing agricultural inputs. This will increase resource efficiency, reduce water usage, and minimize using fertilizers and pesticides, which harm rivers, oceans, insect populations, and ecosystems. In this sector, AI and other technologies will also introduce robot labor (such as Blue River and chatbots), drones, and synthetic biology for genome analysis. Sensors will measure conditions such as crop moisture, temperature, and soil composition, providing AI with the data to optimize production and identify problems automatically.

Furthermore, other sectors where AI will have an enormous positive impact include weather forecasting and climate change. AI will be able to predict extreme weather events and improve responses to the effects of climate change. Deep learning networks can emulate some aspects of climate simulations, allowing computers to run much faster and incorporate more complexity of the real-world system. So, in time, AI will help create cheaper, faster weather and climate models. There is also an opportunity to formalize, organize, and promote AI for weather and climate science, including international coordination through the World Meteorological Organization.

Additionally, using the community disaster-response data and analytic platform can enhance the effectiveness and prevention of disasters, facilitating a faster response that will further impact the extent of economic losses and human suffering. Harnessing AI to provide better disaster response and planning will require public-private cooperation on a global level (Harnessing Artificial Intelligence for the Earth 2018, 1-7).

POTENTIAL BENEFITS OF AI IN DEVELOPING COUNTRIES

The potential benefits of AI in the developing world are evident in various fields. In healthcare, for instance, an NGO in Brazil has collaborated with an AI start-up to develop a system for predicting diseases. Another benefit lies in government services and information, aiming to enhance e-governance by automating complex assessments. An example of this is a machine learning system developed to predict the locations of mass graves for victims of Mexican drug cartels (Smith et al. 2018, 3).

Moreover, AI contributes to agriculture, helping address threats to new harvests. Examples include using AI systems to support water management in Palestine and drought monitoring in Uganda. In the realm of education, AI has the potential to advance educational offerings by delivering models for quality personalized learning opportunities. In India, for instance, AI is utilized to develop intelligent tutoring systems (Smith et al. 2018, 3).

Regarding the economy and business, AI offers the potential for higher productivity and serves as a catalyst for growth through new business development, innovation, and the optimization of economies. For instance, companies are working to provide access to financial services in Africa for those who do not use them or lack access (Smith et al. 2018, 3).

Therefore, the use and applicability of AI in the developing world are profound and needed to ensure that all parts of the world have the chance to develop and improve simultaneously.

POSSIBLE THREATS AND LIMITATIONS OF THE USE OF AI

The most significant debate over the use of AI is in the welfare field and focuses on autonomous weapons. Additionally, the development and use of commercial autonomous systems could result in a lack of expertise for government and military systems, potentially leading to compromised and unsafe autonomous systems in general. Furthermore, the future of AI in the military is directly linked to the ability of engineers to design autonomous systems that demonstrate an independent capacity for knowledge and expert-based reasoning (Cummings 2018, 7). Also, AI will play a substantial role in the national defense of states (West et al. 2018, 6).

Furthermore, as AI influences warfare, the proliferation of zero cyber threats and malware will challenge even the most sophisticated cyber protection. This necessitates significant improvements in existing defenses. Preparing for hyper-war and defending critical cyber networks must become a high priority, as countries such as China, Russia, North Korea, and others are heavily investing in AI, making it a primary focus. In 2017, China issued a plan to build an industry worth $150 billion by 2030 (West et al. 2018, 7-8). However, these investments in innovations and improvements are only a few among many others that remain unknown to the world.

The drive to be the best in applying AI, especially in warfare, and the aspiration to be the number one superpower in the world may lead to countless consequences for all of humanity. As mentioned, AI should be harnessed for its positive contributions to humanity rather than for military and selfish purposes.

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CONCLUSION

In conclusion, the potential benefits of AI for humanity are vast, spanning healthcare, agriculture, education, poverty prevention, and climate change mitigation. However, alongside these benefits, AI poses significant risks and threats if not properly governed. Issues such as bias, lack of accountability, privacy intrusion, and the potential for misuse in creating deadly weapons highlight the importance of responsible AI development and usage.

Moreover, the rapid pace of AI development outstrips the capacity of existing legislation, policies, and regulations to keep up. A collaborative effort involving policymakers, leaders, corporations, researchers, scientists, and the judiciary is essential to establish comprehensive and universally applicable legislation for emerging technologies. The global applicability of such regulations is crucial to avoid fragmented governance that may hinder effective oversight.

The actions of great powers in leveraging AI resources for national interests contribute to geopolitical imbalances, disrupting the presumed "balance of power". Rather than solely pursuing national advantages, there is a call for these powers to recognize the broader implications of their actions on the global stage. Cooperation in governing AI, focusing on the greater good of humanity, is essential to navigate the geopolitical landscape and ensure a more balanced and harmonious integration of AI technologies worldwide.

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