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The New Geopolitics of Artificial Intelligence and the Challenges of Global Governance

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Abstract

From the beginning of the age of technology; Every idea, innovation and new invention has helped humans to start a new era of economic growth. This growth has usually been accompanied by a change in the fundamental principles of nations and their security. In this new era; Artificial intelligence is mentioned as the background of the revolution and the evolution of all human ecosystems in virtual, terrestrial, celestial, etc. spaces. Geopolitical factors seem to play a decisive role in the work process. Predicting an algorithmic revolution that could seriously challenge the model of global governance is not unexpected. It is here that governments must not only increase their understanding of the potential impact of artificial intelligence, but also change their governance model in advancing the technology. This requires understanding the new and future geopolitics of this technology. Therefore, in this study, while examining the current and possible changes in the power factors of governments by artificial intelligence technologies, the new geopolitics of this technology is explained. The method used in this research is descriptive-analytical and library tools, documents and electronic resources have been used to collect data.

Keyword: Algorithmic Revolution, Artificial Intelligence (IA), Geopolitics, Technology

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Introduction

In September 2017, at a meeting attended by a group of Russian students and journalists, Vladimir Putin announced that "artificial intelligence is the future of the world ... whoever becomes the leader of this field will become the ruler of the world." It is obvious that soon the rapid development of artificial intelligence will turn it into a powerful tool economically, politically and militarily, and will leave its effects on relations between countries in an immaterial space.

Many of the most significant technological changes of the last quarter century—including the growth of the Internet, advances in digital storage and computing capacity, and the introduction and mass adoption of smartphones and social media—have occurred largely without artificial intelligence. The use of artificial intelligence is expanding day by day in the world. With artificial intelligence technologies becoming more powerful and its integration in different ecosystems; the countries of the world are trying to better understand the benefits and risks that this technology may bring to national security, prosperity and political stability.

Therefore, there are concerns about the possible dangers that this technology may cause in changing the geopolitics of countries and the world. It is clear that artificial intelligence, like any transformative technology, has risks for existing jobs, the economy, etc. Predictions show that the world is about to undergo an algorithmic revolution that will have its effects on the governance model of governments. New geopolitics that will violate the sovereignty of governments in many power factors from now on. So that the first signs of this technology can be clearly seen in the failure of the recognized international borders.

On the other hand, the general policy of governments is a competitive approach in using this technology. In other words, while artificial intelligence brings great potential to any country, it also brings great geopolitical challenges that affect not only national security, but also the foundations of human security. Therefore, the principle that political actors put forward in the face of this technology is the principle of caution.

In other words, the opinion of many public policy makers of the countries is now the limitation for this technology and the control of this technology by the governments, which can affect the geopolitical change of the power of the countries. The principle of limitations of this technology in the private sector, which is raised by some advocates of the precautionary principle, can also have negative effects on the development of this technology.

The political experience of the principle of caution and the initial restrictions of some governments towards the expansion of the Internet shows that such restrictions are not very effective. It has not yet been forgotten that some countries-imposed restrictions on the development of e-commerce in the 1990s, which caused irreparable damage to the economy and trade of these countries. For this reason, in front of this policy, some experts believe that artificial intelligence and the Internet of Things can create a good opportunity for societies in the future, however, these people do not deny the new worrying geopolitics that this technology travels; But they believe

that the alarming trends and challenges of artificial intelligence may be a crisis at first, but the experience of previous new technologies shows that by adopting an approach that is based on flexibility and patience, this technology can be very beneficial for public interests.

Therefore, the researchers of this article, while examining and expressing dimensions of the geopolitics of artificial intelligence, which in the future can have their effects on the governance of governments; Presuppositions for a more peaceful development of this technology that has less challenges and harms to governments and human societies. This important need to answer these questions, how do technologies based on artificial intelligence affect the geopolitical power factors of a state? And also examines what is the security, social, economic and political consequences of artificial intelligence developments at the global level? Which AI innovations, including advances in hardware, software, processing power, and more, have the greatest impact on the geopolitics of governments? And how can countries approach collective security by becoming more aware of the new geopolitics of AI-based technologies?

Research Method

The research method in the current study is descriptive-analytical method, considering the research topic that we will use. The method of conducting this research is "developmental method" from the point of view of the goal. The meaning of this method is that the researcher aims to provide a new goal by developing and identifying the researchers' research and ideas. The main method of data collection in this research is in the form of a library of analysis by other researchers. In order to collect data in the "Literature" and "Research Background" sections, the library method will be used. In the next stage, according to the background of the research and the sampling and coding of various theories, inferences will be made and in the final stage, the analytical report of the researchers will be presented.

What Is AI?

Artificial intelligence does not have a universally accepted definition. Stuart Russell, professor at the University of California, Berkeley - author of Artificial Intelligence: A Modern Approach - defines artificial intelligence as "the study of ways in which computers behave intelligently".

According to him, artificial intelligence includes tasks such as learning, reasoning, planning, understanding, language understanding and robotics. But most definitions around the idea of machine learning are the ability of a digital technology not only to automate a function, but to learn from interactions with its environment and optimize performance based on it (Russell, 2018). In other words, "artificial intelligence" is a term for technologies that behave rationally like organisms (Smola, 2008:38). In fact, artificial intelligence is an intelligent system tool that understands its environment and takes actions to maximize the chances of success (Luger et al, 2004:235).

Artificial intelligence covers a wide field of knowledge that is at the intersection of several other great sciences such as computer science, electronics, psychology, biology, linguistics, logic and philosophy. Artificial intelligence was born in the 1940s with the research of Alan Turing and Claude Shannon. From that time until today, this new knowledge has gone

through various stages (Mohammad Ali Khalaj, 2014: 104).

The review of the researches and studies done in this field shows that the field of interest of most of the researchers of this topic was in the fields related to the computer. However, these researchers have mostly paid attention to artificial intelligence from a technical point of view and have not explored its applications in different fields. Artificial intelligence is one of the concepts whose emergence has facilitated many areas of human social life. It involves developing computer programs to complete tasks that require human intelligence. AI algorithms can control learning, perception, problem solving, language comprehension, or logical reasoning. Artificial intelligence is evolving rapidly. While science fiction often depicts robots that humans can observe closely. However, robotics is a branch of technology that deals with robots. Robots are programmable machines that are usually capable of performing a series of actions in an intelligent or semi-autonomous manner. Robots are usually autonomous; but some robots do not have technology. Artificially intelligent robots are a bridge between robotics and artificial intelligence. These are robots that are controlled by artificial intelligence programs. Most robots are not artificially intelligent. Until recently, all industrial robots could only be programmed to perform a series of repetitive movements. Repetitive movements do not require artificial intelligence. Non-intelligent robots are quite limited in functionality. Artificial intelligence algorithms are often required for the robot to perform more complex tasks (Ahmadi et al., 2013: 8).

In the last two decades, a series of currents have been born in artificial intelligence, which became known as artificial life. In this paradigm, human intelligence is not considered separated from its environment; rather, man and his environment together form an intelligent system as a whole. Three main trends can be identified in artificial life. The first research trend follows the implementation of intelligent behavior on the living tissues of living organisms. This trend depends on biochemistry more than any other knowledge. But the second trend is trying to build robots with biological abilities. This trend at the hardware level seeks to realize the flow of life in an organism. In this view, the robot and its environment are considered as a single system, and the robot is always considered in an environmental context. But the third trend deals with the study and software simulation of the behavior of living beings in the entire environment and the length of evolution, and considers intelligent behavior as a product of the interaction and exchange of living things with this evolving environment. This trend deals with research in the field of software (See Dennett 114, 1998; Mohammad Ali Khalaj, 2014).

Bellman believes that artificial intelligence is the automation of complex human problems, and Winston states that artificial intelligence is actually computational studies that lead to understanding and reasoning (Russell & Norvig, 2003: 5). Although the development of artificial intelligence and robotics technology plays an important role in meeting people's needs, it has caused problems; including that a robot may cause damage to people and property. Autonomous robots can perform various activities without human control, especially because of the special software in them. Examining the legal responsibility related to the damages caused by the robot is

more difficult than the damages caused by humans (Hekmatnia and others, 2019: 231).

Examples of promising AI technologies include:

1. Artificial neural networks that help humans in diagnosing medical diseases and recommending treatment.
2. Systems that monitor the identification of product fraud in the markets, guide production processes and even consumer production of goods.
3. Visual recognition systems - a place where computers can analyze and interpret images and videos that can be used to teach medical students, develop car safety systems, and produce street-view maps.
4. Virtual personal assistants that are used to help with activities and follow up on commitments and give recommendations to learners.
5. Automation technologies that enable machines to work without humans. For example, we can mention automatic vehicles, scientific research tools and data analysis tools (Thierer, 2017: 6-7).
6. The smart cities market is focused with solutions and services for different things (such as transportation - rail and road, facilities - energy, water and gas, buildings - commercial, residential and smart citizen services - education, health and security).

These cases make it clear that a wide range of promising and distinct technologies and services fall under the AI umbrella. Titles such as neural networks, machine learning and data mining are terms that all belong to the artificial intelligence portfolio. Systems that have worked very well so far. For this reason, one of the first tasks that policymakers considering the vast field of artificial intelligence technologies should do is to draw a clear and appropriate system of definitions for these technologies and the input of industry and academic researchers in this field.

Possible Threats of Innovation in AI

In artificial intelligence, with industrial convergence and maturity, three main technical-scientific trends are created: big data (the power to process large amounts of data generated by the Internet of Humans and Things), machine learning (the ability of computers to learn) and high-performance cloud computing. Although artificial intelligence has been a field of study for more than half a century, the acceleration in the increase of computing power and the recent availability of massive stores and streams of digital data have enabled the use of very powerful machine learning-based solutions.

It is naive to think that artificial intelligence is a neutral tool and has no benefits for human society. Big data, computing power and machine learning actually form a complex socio-technical system in which humans have and will have a fundamental role. So, it's not really about "artificial" intelligence, but more about "collective" intelligence, which involves communities of actors with increasing power dynamics that are highly interdependent.

The main and unchangeable goal of every nation-based government is national survival, which depends on national security (Ahmadipour and Roomina, 2007:91) and increasing geopolitical weight and prestige (Ghaderi Hajat, Gol Karami, 2020:59). Some also

believe that the logic governing the international system and relations between political units is based on competition (Lake's system) which is not necessarily controversial. Limited resources also put countries in constant competition with each other. In geopolitical competition, interests the material and spiritual common ground gives way to conflicting interests (Ahmadi & et al, 2017: 60).

Therefore, in May 2016, the White House Science and Technology Policy Office, in a letter, requested the opinions of leading American political experts regarding new artificial intelligence technologies and how the White House interacts with this phenomenon. In response to this letter, although some experts acknowledged that the development of this technology could reduce inequalities; but all the participants in this survey emphasized the possibility of terrorist groups' abuse and the creation of new geopolitics in the future by means of artificial intelligence technologies (Felten, 2016). This is the dual nature of artificial intelligence technology that not only individuals and institutions, governments, it will make industries, organizations and universities, etc., face various challenges all over the world, but it will also make the future of humanity face huge security risks.

The rapid progress and development of artificial intelligence-based technologies has led to pessimistic speculations about its dual uses and security risks; from autonomous weapon systems to facial recognition technology to decision-making algorithms, each of them can have positive and negative uses.

Autonomous weapon systems were first defined by the US Department of Defense as a defense system that, once activated, can engage targets without direct intervention by a human operator. In this defense system, it is possible to completely remove human forces from the battlefield. So that the operator is located in another country and the weapons are located in another country. Examples of this operation can be mentioned during the assassination of General Shahid Soleimani by the United States and Shahid Fakhrizadeh by Israel. Therefore, the development of large-scale autonomous systems technology represents the potential for a transformation in the structure of warfare that is qualitatively different from previous military innovations.

On March 25, 2019, the first meeting of experts on lethal autonomous weapons systems was held at the United Nations in Geneva. Participants recognized the Autonomous Weapons Systems Summit as an opportunity to change the nature of warfare as well as the diverse ethical dilemmas these weapons systems raise. There is growing concern around the world about the idea of developing weapons systems that threaten humans. However, the exact nature of the ethical challenges to the development of such systems and even the potential ethical benefits are not yet clearly defined.

The Russian Federation report is actively producing artificial autonomous missiles, drones, unmanned vehicles, military robots, and medical robots. The British Army deployed new unmanned vehicles and military robots in 2019. The US Navy is developing a fleet of "unmanned ghost ships" (Maas, 2019). In 2017, Israeli Minister Ayub Kara stated that Israel is producing military robots as small as flies. In October 2018, Zeng Yi, chief executive of the Chinese defense company Norinco, gave a speech in which he said that "in future

wars, no one will be involved, and the use of lethal autonomous weapons in war is inevitable". In 2019, former US Secretary of Defense Mark Esper attacked China for unsupervised sales of drones capable of destroying human lives (Allen, 2019: 5-29).

In the United States, security-related AI-based technologies have been under the purview of the National Artificial Intelligence Commission since 2018. On October 31, 2019, the Defense Innovation Board of the United States Department of Defense released a draft report outlining five principles for weaponized AI and twelve recommendations for the ethical use of AI by the Department of Defense, which ensures that operator human error is detected. You can always refer to the "black box" and check the process of the killing chain (Umbrello et al, 2020:275).

The idea of fully autonomous weapon systems intersects a series of philosophical, psychological, and legal issues. For example, questions arise as to whether moral decision-making by humans involves a visual, non-algorithmic capacity that is not captured by even the most sophisticated computers. Is this intuitive moral perception considered moral from a human point of view? Does the automaticity of a series of actions make it easier to justify individual actions in the ensemble, as is certainly the case with the execution of threats in a mutual destruction scenario? Or must the legitimate use of deadly force always require "meaningful human control? What should be the nature and extent of human supervision of the autonomous weapon system? It also seems to place liability on the automated system itself, and if that is the case, what are the legal liability implications? Who, anyway, should take legal responsibility for the decisions an autonomous weapon system makes?

The reality is that any new innovation in artificial intelligence may be used for both beneficial and harmful purposes. Any algorithm, which may provide important economic applications, may lead to the production of unprecedented weapons of mass destruction on a scale that is difficult to fathom. As a result, concerns about AI-based technologies are growing. With advances in machine learning, computing power, limitless investment, and data availability, AI has potential global applications. A fact that greatly complicates existing security risks. Furthermore, since some recognition of AI capabilities is invisible to humans, it will fundamentally change the security landscape in the future. Of course, it should be noted that, unfortunately, many people's understandings of artificial intelligence technologies is largely based on science-fiction movies, TV, etc. If our mental image of artificial intelligence is Hollywood images, killer robots, etc., we will definitely have a wrong image of artificial intelligence. The stories of the unusual end of the world are sneers that have been mentioned in many non-fiction books and articles. The Terminator is a thrilling tale of human-destroying killer robots, a popular common feature of many works in the field of artificial intelligence and robotics.

Therefore, most people in the world are prone to fear artificial intelligence technologies and their applications based on stories that are far from reality. Especially these connections are connected with the religious predictions of the Day of Judgment of most religions. Such fear has encouraged some critics to use the available media space to get governments to pass preventive laws. Hence, some policymakers

state that "something should be done to address unusual concerns" (Matthew, 2016: 395) due to various concerns and concerns related to artificial intelligence. However, other researchers have proposed more objective monitoring schemes. They propose, among other things, the adoption of international conventions such as the Convention on the Development of Widespread Artificial Intelligence, as well as the creation of an International Agency for Artificial Intelligence or a Federal National Robotics Organization in countries to oversee the process of obtaining the safety of this technology, proposed legislation and the certification process. For example, Nick Bestrom identifies the potential paths of artificial intelligence technologies that will have beneficial or harmful results depending on their design and implementation (Thierer, 2017: 19). The suggestions given by some authors are basically based on the principle of caution.

In general, the policy of the precautionary principle refers to the belief that new innovations should be limited or prohibited until their developers prove that they do not harm people (Tutt, 2017: 21). There is no doubt that these restrictive laws cannot limit the geopolitics of artificial intelligence development to the geographical borders of countries. On the other hand, these restrictions cannot prevent governments from using it outside their geographical borders.

As AI has the potential to be integrated into virtually every product and service in cyberspace, physical objects, etc. to make them intelligent, this transformative cognitive ability will fundamentally change the security landscape for humanity as a whole. Statistics show that not only the number of potential weapons of mass destruction in the world is increasing, but also the level of attack and enemies are increasing. The security risks posed by the threat of double use of artificial intelligence are dire. This leads us to an important question: "Should we leave the survival, security, and sustainability of humanity to the wisdom of individuals, who may or may not be aware of the potential dual-use nature of AI?" Maybe it's time to compile a global document on artificial intelligence. This new world order will bring us a new reality - where anyone from anywhere can access digital data and use it for good or bad use for humanity.

Artificial intelligence and machine learning have raised "black box" concerns about the nature of the algorithms and datasets that support these systems. Some commentators argue that the big data and algorithmic matching techniques at the heart of many AI technologies can intentionally or accidentally exacerbate social and economic problems.

Software programs are designed and filtered by a complex algorithm with the help of artificial intelligence. However, these algorithms are often trade secrets and closed from public view, and even if people can access them, the nature of machine learning techniques can prevent people from accessing some algorithms. For example, Latonya Sweeney, a distinguished professor at Harvard University, argues in her influential article, "Discrimination in Online Job Posting," that searchers discriminate against stereotypical African-American and European-American names, contrary to the material. Most of the International Convention on the Elimination of Racial Discrimination of 1965 AD (Sweeney, 2013:13). Similar concerns have been raised about group stereotyping in algorithmic outputs (Edelman et al, 2014), sharing economy operating systems

(Garvie, 2016), facial recognition software (Marantz, 2015) and web mapping services (Angwin et al, 2016). . This concern increases when, like drones, it leaves the territory of a country and puts the lives of some people at risk. On the other hand, most of the people who are active in this regard are not looking for fame. Therefore, complex algorithms in these machines can become a threat to a country and even in the world arena. The government's lack of control over technological advances in artificial intelligence, and even the lack of government intervention and lack of algorithmic transparency, brought potential risks to the global community.

AI of The New Battlefield and Changing the Balance of Power

Henry Kissinger expressed his concerns about artificial intelligence in an article entitled "How Enlightenment Ends". In this article, he explains why human societies were not ready for the emergence of artificial intelligence. Without naming anyone, he decried the influence of artificial intelligence in US election campaigns, talking about the power to target micro-groups, especially through social networks, and the possibility of disrupting a sense of shared priorities. He stated that "if artificial intelligence makes it possible for authoritarian countries to influence voters in democratic countries, it can also strengthen people's control." Great powers should integrate these moral and political concerns into their strategy that artificial intelligence, like any technological revolution, offers great opportunities, but it also carries many risks (Kissinger, 2018).

Competition is the effort of two or more countries, governments or nations to access space resources (both material and spiritual). Geopolitical competition is to influence or dominate a region or a part of the world, which has no meaning without scale because the local, national, (Abdi et al., 2020: 25). One of the newest forms of international cooperation is strategic partnership. Although this concept is widely used, there is no agreement or consensus about it or a theoretical model in There is no relationship with this type of cooperation (Abdi et al., 2020: 23).

Contrary to popular belief that the digital revolution necessarily involves economic decentralization, it is actually possible that AI will create or reinforce the overall trend of power concentration in the hands of a few actors. Thanks to artificial intelligence, these digital empires benefit from economies of scale and accelerate the concentration of their power in economic, military and political fields. By returning to the "logic of blocs", they become the main poles of the political administration of the whole world. These private-public digital empires expand on a continental scale (especially the US and China), while other actors, such as Europe, adopt non-alignment strategies.

As AI gives its creator and developer increasing power and conflict control at all levels, the race to access infrastructure, data, and information continues for economic and security superiority. While no nation or the existence of other great facilities, including individuals, government, industries, organizations or universities, are in any way capable of revolution and continuous transformation that has been created due to the development of the battlefield of artificial intelligence. This is because the battlefield is not already drawn.

Countries are now threatening their entire war arsenals (including all conventional, nuclear, biological, cyber, etc.) weapons to combat the unknowns of the AI battlefield. Understanding and assessing who are the players in the AI battlefield? What should they control? These cases are among the new geopolitical consequences and challenges of countries and the current world. For example, the risks posed by the convergence of artificial intelligence with nuclear weapons technology (or any other weapon of war) lead to a worsening of geopolitical complexities and global alliances. Historically, wars are generally not fought alone and alliances have been the backbone of the legitimacy of any war. Artificial intelligence is changing. AI seems to have provided the sparks to divide and disrupt global alliances. As many times the frictions of NATO and the European Union have made the historical alliances of the United States and Europe more tense at times.

On the other hand, it is possible that artificial intelligence will change the balance of power, and it seems that in the new geopolitics that is being formed based on this technology, any potential nation, in any event, can become a factor of instability for global peace and security and the future of humanity. While technologies such as artificial intelligence, machine learning, deep learning and more continue to accelerate the technological revolution, it can be a threat to the entire universe from Earth to space and galaxies.

Hence, it is predicted that artificial intelligence will cause massive changes all over the world. Since artificial intelligence has the possibility of redefining the relations between nations, between humans, machines, the earth, the world, etc., the term new geopolitics of artificial intelligence is proposed. Geopolitics that moves beyond the terrestrial space and expands the human ecosystem to the virtual space and other spaces. Perhaps the time has come to use the term virtual, terrestrial or spatial geopolitics.

Now these questions are raised about the future of world politics, what assumptions will be challenged by artificial intelligence inside and outside national borders? How will artificial intelligence change political relations between countries and within human societies, and will it lead to the diffusion of political power or total government control? This leads us to an important question, as artificial intelligence fundamentally disrupts the human ecosystem around the world, will the idea of national unity or even sovereignty survive?

Artificial intelligence is already a tool of power and will become increasingly so as its applications develop, especially in the military context. However, focusing exclusively on hard power is a mistake, as AI exerts an indirect cultural, commercial, and political influence on its users worldwide. This soft power, which particularly benefits the US and Chinese digital empires, raises major ethical and governance problems.

The development of artificial intelligence affects international trade in several ways. One of the effects of macroeconomics is artificial intelligence and the business effects associated with it. For example, if AI increases productivity growth, this will increase economic growth and create new opportunities for international trade. The current rate of productivity growth globally is low and there are various reasons (Remes, 2018:106).

One of the reasons for low productivity, especially for understanding the potential connection with AI, is that it takes time to integrate the economy and use new technologies, especially complex technologies with wide economic impacts such as AI. This includes the time to build a large enough stock to have a total effect and for the additional investments needed to fully utilize the AI investment, including access to skilled people and business practices (Brynjolfsson, 2017:10).

Artificial intelligence will also affect the type and quality of economic growth of countries and trade alliances with international trade effects. For example, AI is likely to accelerate the transition to service economies. This is a result of concerns about the impact of AI and jobs, as AI is likely to increase automation and accelerate the loss of jobs for low-skilled and blue-collar workers in manufacturing fields (Arnett, 2016). In parallel, AI will also emphasize worker-specific skills as it is used to add value to production and products. This issue leads to the further expansion of the share of services in production as well as international trade.

AI and Geopolitical Changes

Historical milestones are generally achieved based on instrumental changes and technological developments. Technological changes are primarily the context of international transformations and secondly the context of actors dealing with a competitive background caused by ideological, historical and geopolitical components (Mossalanejad, 2021:1). When the power equation is accompanied by change, it is natural that there will be grounds for geopolitical displacement in regional environments and international politics (Mearsheimer, 2001:417).

On the other hand, the definition of geopolitics, like many concepts of human sciences, faces complexity and lack of consensus. However, in the definition of this concept, there is a lot of emphasis on the mutual relationship between power and geography. In a somewhat accepted definition in Iran's academic environment, geopolitics is the science of studying the interrelationships of geography, power and politics and the consequences of their combination with each other. In this definition, the element of geography has been considered in the three areas of space, environment and humans (Rasouli, Shariati, 2020:206).

It used to be said that the technological path of a nation over the years was determined by the geography and the existing infrastructure in the space of the earth. But this discourse is rapidly changing, being replaced by rapidly evolving digital infrastructure, digital data and artificial intelligence infrastructure, forcing us to reassess whether geography still plays a significant role in a country's trajectory. Is it or not?

As seen around the world, several countries (including Australia, Canada, China, Denmark, the European Union Commission, Finland, France, Germany, India, Italy, Japan, Kenya, Malaysia, Mexico, New Zealand, the Nordic-Baltic region, Poland, Russia, Singapore, South Korea, Sweden, Taiwan, United Arab Emirates, United Kingdom and the United States) have some kind of artificial intelligence strategy. Now the question is, what about other nations? What time determining factors will make other countries use artificial intelligence and how will they change their

strategic direction? Can other countries create the digital infrastructure, thought leadership, human resources, education systems, social acceptance, and prospects for the advancement and development of artificial intelligence for their nations? It is very important to evaluate this. Because understanding the relationship between artificial intelligence trends, national preparation and geopolitics is fundamental to understanding the future of humanity; when nations will face the unequal advancement of artificial intelligence technology in geopolitics.

Since artificial intelligence can disrupt the development process of nations, it is very important to determine national strategies. The countries that have even the best chance of achieving this success may be countries that have a lot of human capital at their disposal, such as the United States of America, China and many other advanced countries, and even India. So, how can resources influence AI development for countries with the necessary digital infrastructure, vision and strategy? Human resources are at the core of AI development, especially when, for example, automated biometric technologies perform close human monitoring. Automatic facial recognition technology is currently monitoring Chinese citizens. These points lead us to an important issue. As many countries still depend on yesterday's economic models, how can AI play a role in creating new growth models? Who - or what entity - will countries allow algorithms to control AI?

Today's reality is that countries and people are approaching technologies beyond human intelligence and are likely to have the ability to manage entire companies and fundamentally change the structure of countries. It will be interesting to see how nations manage this evolving model of economic growth as devices become increasingly independent of human influence and control and threaten the security model on which nations depend.

It is also important to emphasize that, geopolitically; AI is not a zero-sum game. The level of investment in AI is often associated with the notion that Chinese AI progress will inevitably lead to more US investment, which in turn will lead to bipolar competition and the creation of two blocs. But this logic does not imply causality. China is investing in AI because it's political and business leaders have rightly identified the technology as an important element in China's continued economic growth. But it must be admitted that the United States is still the world leader in artificial intelligence, with an ecosystem that not only includes extensive artificial intelligence research in large companies such as Google, Amazon, Facebook, Apple, etc.; Rather, hundreds of startups are focused on artificial intelligence in various fields, including drug discovery, improving production training. In other words, the collective investment of the American business sector in the field of artificial intelligence is huge.

Indeed, some of the biggest potential AI challenges in the US are not in ideas or human capital; rather, it is the policy level in artificial intelligence. Maintaining this prominence requires a multi-year effort. This, which may take several years or more to invest in the sector, reduces the incentives for risky investors to implement AI-focused policy strategies. Over-regulation that threatens innovation in AI can also hamper incentives to develop new technologies and speed them to market.

Much has been written about the potential for AI to be used to create and promote disinformation, and rightly so. But there is a lesser-known but equally important use to help spot misinformation and limit its spread. This dual role will be particularly important in geopolitics, which is directly related to how governments are formed and respond to public opinion both inside and outside their borders. While the nation-state's interest in information is certainly not a new topic, the incorporation of artificial intelligence into the information ecosystem is accelerating despite the continued advancement of machine learning and related technologies.

It is important to emphasize that the geopolitical implications of AI go beyond information. Artificial intelligence will transform defense, manufacturing, business and many sectors related to geopolitics. But information is unique because the flow of information determines what people need to know about their country and domestic events, as well as about global events. The flow of information is also the basic input for governments' decisions regarding defense security, national security and economic development.

Examining The theory of The Precautionary Principle

Traditional surveillance systems tend to be strict and inflexible regarding new technologies. But it is important to understand that technology has made its way and past experiences have shown that governments that stand against new technologies create more harm and new risks for their societies. Concerns that have led critics to raise the theory of the precautionary principle of prevention (Thierer, 2016: 39). In this regard, Aron Wildavsky, a political scientist, fully documented how policies rooted in the precautionary principle, instead of focusing on specific cases, emphasize the generalities more (Wildavsky, 1988: 183).

Artificial intelligence is amorphous and ever-changing. Currently, artificial intelligence technologies are all around us – including, for example, voice recognition software, automation, fraud detection systems, and medical diagnosis technologies – and new systems are constantly emerging and rapidly evolving. Past experience shows that continuous trial and error in previous technologies can create serious challenges for new technologies.

Early in the formation of the Internet, the United States made several important public policy decisions in the face of this technology, which led to this important technological revolution in the mid-1990s. The explicit support of the United States government provided an environment for innovation and business activities on the Internet.

In 1994, the Clinton administration decided to allow free trade. Before that, only government departments and few university researchers could act in this regard. Electronic commerce was approved by Congress, and President Bill Clinton signed the Electronic Commerce Act in 1996—at a time when the Internet, like other communications and media technologies, was analog.

Most notably, in 1997, the Clinton administration released the Global Electronic Commerce document, which outlined the US government's relatively new approach to the Internet and the emerging digital economy with a market-oriented vision for cyberspace governance. Specifically, this document recommended that "the private sector should be led,

the Internet should be developed as a market-oriented arena, and governments should avoid undue restrictions on electronic commerce" (White House, 1997). The development of Bitcoin, commercial drones, the significant growth of international trade, etc. came out of these protective laws. In contrast, the European Union follows a much more restrictive set of data privacy protection policies.

While the US digital technology ecosystem thrived without licensing, EU innovation policy was a bit different. The United States in general, and Silicon Valley in particular, are perceived to have embraced the risk and the lessons learned from failure. On the other hand, the report of prominent economist Petra Moser in Europe; The European Commission's review of the large innovation gap between the United States and the European Union points out that the entrepreneurial culture in the United States tends to be more accepting of risk-taking and failure, while European cultures tend to avoid risk and the possibility of failure. to minimize Accordingly, many European policies have had a direct and obvious impact on innovation-based entrepreneurship (Stewart, 2015).

The approach of the European Union to the issue of innovation is rooted in the principle of caution. The precautionary principal argument refers to the belief that new innovations should be limited until developers can prove that they do not cause harm to specific individuals, groups, institutions, cultural norms, or existing laws or traditions. The restrictive policy of the 1990s regarding the data of online technologies shows that these restrictions have dealt an irreparable blow to EU electronic commerce and the development of new technologies.

In the European approach to technology, fears about privacy and data have contributed to a series of restrictive policies in the 1990s and beyond. This policy unintentionally limited the innovative capacity of the European Union. For example, the EU Data Protection Directive of 1995 was a relatively restrictive set of regulations for online data collection and use (Zarsky, 2015: 163). This policy played a role in preventing the development of business models based on targeted advertising. But these restrictions were not for the development of American companies like Google and Facebook; therefore, it made them a great success. In fact, the United States did not follow such heavy privacy regulations. As a result, innovation activities in the EU have decreased, and large companies' risky investments in new technologies have been greatly reduced. The important point was that the heavy shadow of these laws can still be seen in the European Union regarding the development of artificial intelligence technologies in the future (Thierer, 2017:46).

This is not to say that governments cannot exercise oversight in AI technologies; Rather, in cases of entering people's privacy or discriminating between people, many of them commit violations of human rights by domestic and international laws and regulations.

Geopolitical Assumptions of Technologies Based on Artificial Intelligence

The overall geopolitical picture of AI is now intertwined with government competition, the growth of multinational corporate monopolies, and public anxiety about the future development of this technology. It is well established that AI is deeply embedded in the discourse of geopolitical competition. The belief

that AI will be the key to future military, economic, and ideological dominance is evident in the statements and mandates of AI trustees by the United States, China, Russia, and other players. There is no question that the advantage of artificial intelligence gives a nation outstanding power. National control over new AI-based technologies is still elusive in a world of global R&D collaborations, supply chains, and digital technology transnational corporations.

When some countries in the world are trying to fight the globalization of AI technology in order to control R&D cooperation and technology transfer, other countries are separately starting to follow AI norms and technology bases in their own versions.

In this process, the huge data sets provided by governments, companies and various agents become a strategic asset and serve as the raw fuel needed to train machine learning algorithms.

Governments are actively exploring ways to regulate these data sets. How they can be used to create cyber weapons to target critical infrastructure, influence other country's intelligence systems, create a better profile bank of the country's elites for targeting and form a clearer picture of the internal dynamics of a political system. As these applications continue to be tested, how data sets are collected and where they are located is becoming a national security issue. The decision of the US and others to ban Huawei and break up Tik Tok can be seen, at least in part, in this context; but as the race for artificial intelligence heats up, the initial excitement and uncritical reception of the technology has turned into an unpleasant situation.

Democratic governments are forced to grapple with the fact that the AI algorithms that run social media platforms work to maximize user engagement and encourage behavior change that can be sold to advertisers. These learning algorithms are empowered by what some analysts call "hard power"—the manipulation of public sentiment through calculated propaganda, disinformation, and conspiracy by external actors and their domestic proxies.

Artificial media created with the help of machine learning can be very entertaining; but they are becoming a growing tool in the information arsenal. AI-generated disinformation was reportedly used by China to interfere in Taiwan's presidential election and in January 2021 by party operatives to discredit Democratic candidate Joe Biden in the run-up to the US election. The increasing AI-powered convergence of the physical and digital worlds continuously creates new infrastructure vulnerabilities. Additionally, the development of "smart cities"—mass automation of public infrastructure through sensors and learning algorithms—opens up more avenues for surveillance, data weaponization, and cybercriminal activity, and provides external adversaries with more tools to access communities. The recent discovery of a massive cyber-intelligence campaign against US security systems, enabled through a US government software contractor, suggests that this is possible.

All of this demonstrates to governments and the general public around the world—if not outright horror—the destructive power of AI operating systems. This alarm is not limited to democratic countries. China is drafting new anti-trust measures that are primarily targeting the artificial intelligence pipelines of Alibaba, Tencent and Baidu.

This battle between governments and global operating systems will be a defining feature of the next decade. As will be the case for public trust in artificial intelligence technologies. China's pioneering work in establishing state-based AI-enhanced surveillance paints a picture of a terrifying totalitarian vision of controlling citizens through their dependence on integrated digital intelligence systems.

As citizens feel disempowered by the ever-increasing use of AI, they are pushing governments and operating systems to be more ambitious in designing technologies and enforceable regulatory regimes centered on the public interest. At least this understanding has created intense national economic competition to create artificial intelligence-powered global monopolies in almost every sector – energy, infrastructure, healthcare, online gaming, telecommunications, news, social media and entertainment – and massive data collection. Is. Governments are also developing AI military technologies such as autonomous lethal weapons and mass technology, as well as AI-enhanced surveillance, communications, and data mining capabilities that they hope will empower their military forces on the battlefield.

In the growing effort to moralize the world of technology, a new idea has emerged: just replace "ethics" with "human rights." In his report to the White House Technology Center, Morin has provided a checklist that policymakers can use to help them accelerate the development of new sectors and technologies. The plan is as follows:

Expression and defense of innovation, without permission as a default of general policy;

1. Identifying and removing obstacles to the entry of innovation;
2. Protection of freedom of speech and thought;
3. Maintaining and expanding the immunities of intermediaries from related liability, using a third party;
4. Relying on existing legal solutions and common law to solve problems;
5. Development of insurance markets and competitive responses;
6. Adopting the best methods for the industrial development of technologies;
7. Educational promotion and adopting a policy of empowering people to solve possible challenges;
8. Targeted and limited legal measures to solve technology problems based on artificial intelligence;
9. Evaluation and feedback review of policy decisions for more certainty (Maureen, 2013).

According to American policymakers in the field of technology, policymakers should follow a flexible policy in the category of artificial intelligence and technologies based on it; Because many AI technologies pose few risks to security and social welfare and fair market competition. For this reason, proactive innovation policy should be a last resort. According to these experts, the governance model for artificial intelligence should be designed with this soft law approach.

Conclusion

The world is entering a period of opportunities and threats. Artificial intelligence and other powerful technologies are dual-use and impact almost every aspect of everyday life. The convergence of artificial intelligence and

emotional computing, cyberspace and biotechnology, robotics and additive manufacturing creates complex global implications that are not well understood. At the same time, the spread of artificial intelligence convergence in a wide range of countries, non-governmental and transnational actors and institutions means that tomorrow's challenges must be addressed collectively and innovatively.

Artificial intelligence will eventually bring extraordinary benefits to medical science, clean energy, environmental issues, and many other fields; But precisely because AI makes judgments about an evolving and still uncertain future, uncertainty and ambiguity are inherent in its results.

Hence, the need for a human-centric artificial intelligence regime is felt every day. This represents an international push to conceptualize artificial intelligence in terms of digital human security and human rights. Artificial intelligence technologies have serious implications on national security and geopolitics, and how to form a convergence and formulate a comprehensive cooperation document on artificial intelligence should be fully investigated. In any discussion about artificial intelligence, it is important to note that the definitions of this technology are not resolved and its applications are many. But most definitions revolve around the idea of machine learning, the ability of a digital technology not just to automate a function, but to learn from interactions with its environment and optimize performance based on that.

For most of human history, the concept and approach to security has mainly revolved around the use of force and territorial integrity. As the definition and meaning of security in the world of artificial intelligence is fundamentally challenged and changed, the concept that traditional security is related to violence against the respective nations in the geographical space from within or within its geographical borders is now outdated and needs to be evaluated and updated.

The emergence of a whole new world of artificial intelligence is more or less like an alien land that few know about and mostly unknown today. This unknown new world causes fear, uncertainty, competition and an arms race, and leads us to a new battlefield that has no borders, and each of which may or may not involve humans, and of course it is impossible to understand and perhaps control.

The challenges and complexities of the evolving threats and security of artificial intelligence cross the barriers of space, ideology and politics and demand a constructive joint effort from all stakeholders across countries. Recent developments in artificial intelligence, robotics, drones, and more have tremendous potential for the benefit of humanity, but many of these advances risk data control, surveillance, and identification without risk through biased or lethal algorithms that no one is prepared for creates.

The security risks posed by these biased and lethal algorithms, which are fundamentally subject to algorithms, data, computing power, and agendas, are complicated by the fact that decision makers involved in the development or deployment of AI generally face the same issues as security. As a result, creating a sustainable culture of security development not only makes AI researchers, investors, users, regulators, and decision makers aware of the dual use of AI development (regardless of the

nature of the algorithms), but also the people involved and beyond, about the development. Algorithm, which can eventually become a dual use problem, needs training.

As the politicization of AI technology is inevitable, now more than ever, each country needs to assess the potential impact of the AI trend on their nation and prepare for what's to come! In the next decade, AI will be intertwined with geopolitics on a level that is hard to fathom today. Because the new geopolitics will be largely determined by many of the same areas that AI is poised to revolutionize.

In short, artificial intelligence will make production, transportation, and trade more efficient and improve product yields, and will create many new opportunities for technological advancement, changes in labor markets, and fundamental revisions in national security approaches and the structure of modern armies. In the coming decades, countries that can successfully cultivate and leverage a culture of AI innovation will be well-positioned for both economic growth and improved national security. On the other hand, countries that continue based on legacy infrastructure and traditional economic models and approach will face increasing challenges to maintain global competitiveness.

The benefits of artificial intelligence will also have geopolitical implications. Artificial intelligence will make it easier to predict severe storms, help drug development and improve crop yields, and help manage the complexities of supply chains for food, medicine, and other goods. All these have very important geopolitical implications.

While the debate over the structure, role, and dual use of AI will continue in the coming years, any effort to redefine AI security must begin by identifying, understanding, consolidating, and expanding the definition and nature of AI security threats. Although the focus of this article is on artificial intelligence, many other technologies should be evaluated for their dual use potential. Now is the time to start discussing the dual use of emerging technology.

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