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Artificial Intelligence and National Security Policy of China: A Realist Constructivist Perspective

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Abstract:
The intersection of artificial intelligence and national security is a matter of power politics among major global powers. The policymakers of China understand the profound impact of AI on the long-term viability of their political and ideological systems and bolster national security interests. Using the theoretical framework of realist constructivism, this study provides a nuanced understanding of the national artificial intelligence policies of China and helps to examine how ideological factors and material perspectives affect policy outcomes and shape the behavior of any state. This study shows how the national security interests of China are linked with economic growth, social stability and global leadership through the productive use of artificial intelligence. This study concludes that AI has the potential to shape the trajectory of their governing ideologies and China can reap the benefits of artificial intelligence with a particular emphasis on modernizing its national defense and military apparatus.

Keywords: Artificial Intelligence, National Security Policy, China, Technology

Introduction

The decision-makers of every country consider their national security policy as an essential part of handling day-to-day decisions as it helps them prioritize security objectives and interests[1]. In the contemporary era of globalization, an array of formidable risks loom over the very fabric of national security. National policymakers and theorists have a shared goal to effectively comprehend the increasingly complex intricacies of global affairs and navigate a path successfully through them [2]. The conventional perspective on national security encompasses the realms of military and economic security. However, the evolving dynamics of the international system during the 1990s compelled states to integrate both conventional and non-conventional facets of security. China explains the multifaceted nature of national security, which includes sovereignty,

[1] Knudsen, Bård B. "Developing a national security policy/strategy: A roadmap." *Sicherheit und Frieden (S+ F)/Security and Peace* (2012): 135-140.

[2] Clarke, Michael, Adam Henschke, Matthew Sussex, and Tim Legrand, eds. *The palgrave handbook of national security*. Vol. 15. palgrave macmillan, 2022.

territorial integrity, state power, unity, sustainable social and economic development, people's well-being, and the safety of people from external and internal threats. [3]

The concept of national interests serves as an analytical tool for explaining the external behavior of nation-states, and it is widely used to justify or criticise foreign policy. States have different national interests, but there are crucial interests that are common, including territorial integrity, national sovereignty, and external threats. Moreover, it is imperative to acknowledge that the utmost concern of any given state lies in its very survival, a concept that is aptly described as national security. The concept of national interest pertains to a state's capacity to effectively deter any potential military aggression. Moreover, the concept of national interests encompasses a complex mechanism of social cohesion through the deliberate act of delineating boundaries between outsiders and insiders. The countries that prioritize and align their interests are defined as nations, while those whose interests are disregarded or overlooked are denoted as outsiders or aliens[4].

National security, therefore, entails defending certain interests of any country at all costs. The majority of the countries are concerned with national security interests as their national integrity and indispensable governance structures. There are numerous potential threats to nations because of the pervasive interconnectedness of the internet, which might be small or large, and everyone, whether an individual, a small business, or a large corporation, is vulnerable to the detrimental consequences of cyber-attacks[5].

Now in the 21st century, AI as a technological frontrunner is widely acknowledged by political experts, and advances in the realm of AI may manifest the comprehensive power and strength of any nation. Besides, it can show its competitiveness over other nations when its functioning industries are innovative and upgraded. Henceforth, it is of utmost importance for all nations to attain a state of eminence in the pursuit of artificial intelligence. The US and China formulated their long-term national policies with the aim of augmenting the advancement of artificial intelligence (AI) and upholding their preeminent positions in this domain. Both nations have diligently pursued the development of artificial intelligence as a national priority due to its profound implications in various domains of national security, such as economic growth and global recognition. The ongoing competition within the realm of artificial intelligence has evolved into a zero-sum endeavor as the breakthroughs in AI applications have significantly altered the equilibrium of both military and economic powers between the United States and China. The realm of artificial intelligence being a vanguard and strategic technology, is progressively transforming into a battleground of competition and conflict between China and the United States [6] [7]. In 2017, the State Council in China issued a policy document 'New Generation Artificial Intelligence Plan. The purpose of this policy aimed at making China the global center of artificial intelligence

[3] Blanchette, Jude. "Ideological security as national security." (2020).

[4] Burchill, Scott. *The national interest in international relations theory*. Springer, 2005.

[5] Patel, Kathan, and Dhaval Chudasama. "National security threats in cyberspace." *National Journal of Cyber Security Law* 4, no. 1 (2021): 12-20p.

6 Wang, You, and Dingding Chen. "Rising sino-US competition in artificial intelligence." China Quarterly of International Strategic Studies 4, no. 02 (2018): 241-258.

7 Talking AI into Being: The Narratives and Imaginaries of National AI Strategies and Their Performative Politics

innovation by 2030. Besides China is committed to create an AI industry worth more than 150 billion Yuan by 2020, 400 billion Yuan by 2025, and 1 trillion Yuan by 2030 [8] [9].

The government of China is leading the world in the progress of AI projects and strategies. China has identified the best prospects for artificial intelligence and allocated funds from its budget for AI projects that have a high likelihood of success [10]. China is making investments in technology linked to its strategic objectives such as enhancing its military apparatus, expanding international influence, and social control. The United States unlike does not have any separate priorities related to technology [11].

The development of artificial intelligence is being considered as a major strategy to enhance national security and increase national competitiveness [12] [13]. China therefore started work on developing artificial intelligence at the national level to protect its national security interests such as artificial intelligence has become a new locomotive for the growth of its economy and providing support for strengthening the defense system.

The paper is structured into five sections. The first section reviews the impact of artificial intelligence in securing the national security interests of China especially making breakthroughs in the military. The second and third section presents the analysis of China's national policies on AI between 2017 and 2022, in which Chinese policymakers talk about the significance of artificial intelligence in protecting China's national interests and aligning with the political goals of the ruling party. The last section explores major findings, trends and recent developments in the integration of artificial intelligence in the national policies of China.

Methodology

The study is undertaken using the research methodology of document analysis. All four main elements of document analysis were incorporated. The policy documents were collected from their official sources. Secondly, the documents used in the study are credible because they are collected from official sources and show the true representation of events. There was no such personal involvement of any individual was found as the documents were collected from official websites. The data collected also complies with the element of representativeness because the documents are available in their original form on their official sources which are also accessible to the people.

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8 Roberts, Huw, Josh Cowls, Jessica Morley, Mariarosaria Taddeo, Vincent Wang, and Luciano Floridi. The Chinese approach to artificial intelligence: an analysis of policy, ethics, and regulation. Springer International Publishing, 2021.

9 State Council. 2017. A New Generation of Artificial Intelligence Development Plan. UNODC. https://www.unodc.org/ji/en/resdb/data/chn/2017/new_generation_of_artificial_intelligence_development_plan.html.

10 Desouza, Kevin C., David Swindell, Kendra L. Smith, Alison Sutherland, Kena Fedorschak, and Carolina Coronel. "Local government 2035: Strategic trends and implications of new technologies." Issues in Technology Innovation 27 (2015).

11 Hass, Ryan, Patricia M. Kim, Emilie Kimball, Jesscia Brandt, David Dollar, C. Kerry, Aaron Klein et al. "US-China technology competition." Brookings, https://www. brookings. edu/essay/us-china-technology-competition (2021).

12 Nadibaidze, Anna, and Nicolò Miotto. "The Impact of AI on Strategic Stability is What States Make of It: Comparing US and Russian Discourses." Journal for Peace and Nuclear Disarmament 6, no. 1 (2023): 47-67.

13 MASEVSKI, Stojanche, and Slobodan STOJANOVSKI. "ARTIFICIAL INTELLIGENCE: GEOPOLITICAL TOOL OF MODERN COUNTRIES." Contemporary Macedonian Defense/Sovremena Makedonska Odbrana 23, no. 44 (2023).

The content of the policy documents was comprehensive and easy to understand and there was no excessive use of literary styles and jargon that make it difficult for the readers to comprehend. First of all, the thematic analysis was done manually through content analysis by reading all policy documents one by one. Secondly, the thematic analysis software including autocode sentiment analysis and word frequency cluster analysis of China's national AI policies was done using Nvivo.

Leveraging Artificial Intelligence in Social Construction

The government of China believes that artificial intelligence can help in social construction. The resource environment constraints, population aging and many other grim issues require timely solutions. Artificial Intelligence is crucial for effectively maintaining social stability because it can do effectively perceiving, forecasting, early warning trends of social security operations and infrastructure, active decision-making, the ability to maintain social control and enhancing the level of social governance [14] [15] [16] [17].

There are many uncertainties in the advancement of artificial intelligence which may bring new challenges. It is, therefore, necessary to focus on both the development of artificial intelligence and measures to control the risks and challenges to ensure the controllable and relatable development of artificial intelligence [14].

China has also laid a strong foundation for AI development by deploying special projects including research and development projects, the "internet," development in science and technology and industrial development. The major breakthrough of China in the field of artificial intelligence, where it ranked second globally, is the huge amount of patent inventions and the number of scientific papers published internationally. China's intelligence monitoring, information processing, industrial robots, biometric identification, service robots, practical application of unmanned driving, entrepreneurship and innovation in the field of artificial intelligence have been widely recognized. Overall, China has an advantage in artificial intelligence because of its massive

14 State Council. (2017). A New Generation of Artificial Intelligence Development Plan. UNODC. Retrieved from https://www.unodc.org/ji/en/resdb/data/chn/2017/new_generation_of_artificial_intelligence_development_plan.html

15 Wright, Nicholas. "How artificial intelligence will reshape the global order." Foreign Affairs 10 (2018).

16 Roberts, Huw, Josh Cowls, Jessica Morley, Mariarosaria Taddeo, Vincent Wang, and Luciano Floridi. "The Chinese approach to artificial intelligence: An analysis of policy and regulation." Available at SSRN 3469783 (2019).

17 Hine, Emmie, and Luciano Floridi. "Artificial intelligence with American values and Chinese characteristics: a comparative analysis of American and Chinese governmental AI policies." AI & SOCIETY 39, no. 1 (2024): 257-278.

data resources, technical capacity, open market environment and huge application requirements [18] [19] [20] [21].

The US is putting a tight hand on the export of semiconductors to China. The proponents of free trade argue that such policies of restricting the export of semiconductor technologies to China can damage the US national security [22] [23] [24] [25].

In order to meet the new challenges and demands, China is taking further steps such as leading the world in the development trend of artificial intelligence, protecting national security, serving economic and social development and improving the country's overall competitiveness [26] [27] [28].

China is increasingly investing in the manufacturing of semiconductors which shows that computing power is playing an important part in the geopolitics of artificial intelligence. This semiconductor production has attracted the attention of global powers as a strategic asset. The manufacturing of semiconductors is believed to be a national security matter because of issues related to business ownership and intellectual property (IP). Furthermore, the rising semiconductor

18 Ibid, 3.

19 Wu, Wenjun, Tiejun Huang, and Ke Gong. "Ethical principles and governance technology development of AI in China." Engineering 6, no. 3 (2020): 302-309.

20 Cui, Di, and Fang Wu. "The influence of media use on public perceptions of artificial intelligence in China: evidence from an online survey." Information Development 37, no. 1 (2021): 45-57.

21 Liu, Hong Yu. "The role of the state in influencing work conditions in China's internet industry: Policy, evidence, and implications for industrial relations." Journal of Industrial Relations 65, no. 1 (2023): 3-21.

22 Lewis, J. (2002). Export Controls/Dual Use Technology and Technology Transfer Issues. Center for Strategic and International Studies (CSIS) Washington, D.C. Retrieved from https://csis-website-prod.s3.amazonaws.com/s3fs-public/legacy_files/files/media/csis/pubs/020117_tech_transfr_testimony.pdf

23 Allen, Gregory C. "Understanding China's AI strategy: Clues to Chinese strategic thinking on artificial intelligence and national security." (2019).

24 Khan, Saif M. "US Semiconductor Exports to China: Current Policies and Trends." Washington, DC: Center for Security and Emerging Technology, October (2020).

25 Bown, Chad P. "The US–China trade war and Phase One agreement." Journal of Policy Modeling 43, no. 4 (2021): 805-843.

26 18

27 Zeng, Jinghan. "Securitization of artificial intelligence in China." The Chinese Journal of International Politics 14, no. 3 (2021): 417-445.

28 Zeng, Jing, Chung-hong Chan, and Mike S. Schäfer. "Contested Chinese dreams of AI? Public discourse about artificial intelligence on WeChat and People's Daily Online." Information, Communication & Society 25, no. 3 (2022): 319-340.

industry in the Asia-Pacific region can bring this matter into the realm of international politics as tensions may escalate between China and the US [29] [30] [31].
The new national semiconductor fund of China is worth $40bn to grow its domestic chip industry and to decrease dependence on the US. In 2018, China imported semiconductors worth $312.1bn more than crude oil imports worth $240.3bn [32] [33] [34] [35] [36]. However, US semiconductor companies are witnessing less financial support from the government, which may become problematic in the upcoming years. The semiconductor industry is declining because of the high labor costs and tax laws imposed by the government on the semiconductor industries [37] [38].

The AI Development and Communism

When any nation sets foot on the path of economic growth, it does not mean that it casts aside its institutional patterns; rather, the political ambitions and orientations of the party leadership determine the future of the country [39].
The guiding thought behind the development of artificial intelligence is the implementation of the thoughts of the National Congress of the Communist Party in which the Four-Pronged Strategy

29 Hwang, Tim. "Computational power and the social impact of artificial intelligence." arXiv preprint arXiv:1803.08971 (2018).
30 Ding, Jeffrey, and Allan Dafoe. "The logic of strategic assets: From oil to AI." Security Studies 30, no. 2 (2021): 182-212.
31 García-Herrero, Alicia, and Pauline Weil. "Lessons for Europe from China's quest for semiconductor self-reliance." Policy Contribution Issue 20/22 (2022).
32 Kubota, Yoko. "China Sets Up New $29 Billion Semiconductor Fund." Wall Street Journal 25 (2019).
33 Soo, Zen, and Meng Jing. "How China Is Still Paying the Price for Squandering Its Chance to Build a Home-grown Semiconductor Industry." South China Morning Post 4 (2019).
34 Jingjing, M. (2020). China able to mass produce 7-nm chips in two years, replace imports: analyst. Retrieved from https://www.globaltimes.cn/content/1189597.shtml

35 He, Alex. "China’s techno-industrial development: A case study of the semiconductor industry." (2021).

36 Zhu, J., Huang,, K., Mo, Y., & Liu, R. (2023, September 5). Exclusive: China to launch $40 billion state fund to boost chip industry. Retrieved from Reuters: https://www.reuters.com/technology/china-launch-new-40-bln-state-fund-boost-chip-industry-sources-say-2023-09-05/

37 Harada, Lawrence K. Semiconductor technology and us national security. US Army War College, 2010.
38 Lazonick, William, and Matt Hopkins. "Why the CHIPS are down: stock buybacks and subsidies in the US semiconductor industry." Institute for New Economic Thinking Working Paper Series 165 (2021).
39 Robinson, James A., and Daron Acemoglu. Why nations fail: The origins of power, prosperity and poverty. London: Profile, 2012.

aims at social, political, cultural and ecological progress [40] [41]. The State Council and National Congress of the Communist Party are committed to implement meticulously the strategies for integrating artificial intelligence into defense, economy and society [42] [43] [44]. The government can achieve its 'two hundred years' goals through initiatives like the development of an intelligent economy, national security protection, the construction of an intelligent society, national strength and competitiveness for leading the world in science and technology predicting the upcoming challenges, social productive forces and mutual support for systems, and cultural talent. All these measures may provide support for the great rejuvenation of the nation [45].

The basic principles of China's national policies on AI focused on becoming the leader in technology by grasping the latest global trend in artificial intelligence, provision of long-term support, highlighting the foresight of research and development, achieving breakthroughs in methods, theory, systems and tools, and achieving high-end leading developments [46] [47] [48].

As identity plays an important role in shaping and constructing any security threat. The bilateral relations between China and the US are fragile and the US always securitizes China by labeling it non-democratic [49]. Whereas the definition of national security interests for US national policy decision-makers in the twentieth century during the Eisenhower administration emphasized two goals "maintaining the security of the United States and the vitality of its fundamental values and institutions." The United States before WWII gained global recognition by exploiting its industrial and technological supremacy rather than its manpower. US policymakers also prioritized a single-domain nuclear power program that served as a deterrent [50] [51]. Chinese President Xi Jinping, after taking office in 2013, claimed that China is determined to reclaim soon its top position in the global hierarchy. This was the mission of their pioneer Mao, who took power in 1949.

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40 Jinping, Xi. "Secure a decisive victory in building a moderately prosperous society in all respects and strive for the great success of socialism with Chinese characteristics for a new era." In delivered at the 19th National Congress of the Communist Party of China October, vol. 18, no. 2017, pp. 2017-11. 2017.

41 Li, Jianhao, and Xindi Zhang. "We Must Consider "Why Can the Communist Party of China Be Able?" from the Four Great Successes Achieved by the CPC in the Past Century." Open Access Library Journal 9, no. 8 (2022): 1-8.

42 Zeng, Jinghan. "Artificial intelligence and China's authoritarian governance." International Affairs 96, no. 6 (2020): 1441-1459.

43 Wu, Wenjun, Tiejun Huang, and Ke Gong. "Ethical principles and governance technology development of AI in China." Engineering 6, no. 3 (2020): 302-309.

44 The Chinese approach to artificial intelligence: an analysis of policy, ethics, and regulation

45 14

46 Ibid, 4.

47 Lundvall, Bengt-Åke, and Cecilia Rikap. "China's catching-up in artificial intelligence seen as a co-evolution of corporate and national innovation systems." Research Policy 51, no. 1 (2022): 104395.

48 Cheng, Jing, and Jinghan Zeng. "Shaping AI's future? China in global AI governance." Journal of Contemporary China 32, no. 143 (2023): 794-810.

49 Hayes, Jarrod. Constructing national security: US relations with India and China. Cambridge University Press, 2013.

50 Pilbeam, Bruce. "International Security Studies: Theory and Practice." NY: Routledge (2015).

51 Basu, Dipak, and Victoria W. Miroshnik. The political economy of nuclear energy. Springer International Publishing, 2019.

"There cannot be two sons in the sky, nor two emperors on the earth" – Confucius [52].

Socialist System and Systematic Layout

The second basic principle of China's national policies on artificial intelligence is the development of strategies in which all projects and new tasks such as technology development that serve the cause of the socialist system [53].

The third basic principle of the national policies on AI is that the policies of China are market-oriented, and the government handles its relations with the market and other enterprises. However, the government can have a significant role in policy support, security, planning guidance, environmental construction, ethical regulations and other aspects. The government is making sure every support is provided to form a competitive advantage and enhance the commercial application of artificial technology [53] [54].

The fourth basic principle of China's national policies on Artificial Intelligence is grounded in open source in which China endorses the concept of open source and sharing and promotes the sharing of research, innovation and production. Efforts are also being made for the integration of military and civil resources and innovations which can lead to the development of national defense construction and economic development [53].

Three Phases of China's AI Strategic Goals

Artificial intelligence has become a major source of economic growth throughout the world. In 2017 China divided its strategic goals into three phases.

AI and First Phase of Strategic Goals

In the initial phase, China showed affirmation to maintain the entire level of artificial intelligence technology and application with the level of global advancement by 2030 as artificial intelligence can rank China not only in the list of innovative countries but also pave the way for a moderately prosperous society. A new generation of artificial intelligence technology and theory achieved milestones through cross-media intelligence, large-scale data intelligence, group intelligence,

52 Chen, Kai. "The hundred-year marathon: China's secret strategy to replace America as the global superpower." (2018): 1071-1072.

53 Ibid, 4.

54 Roberts, Huw, Josh Cowls, Emmie Hine, Jessica Morley, Vincent Wang, Mariarosaria Taddeo, and Luciano Floridi. "Governing artificial intelligence in China and the European Union: Comparing aims and promoting ethical outcomes." The Information Society 39, no. 2 (2023): 79-97.

autonomous intelligence systems, hybrid enhancement intelligence, artificial models, basic types of equipment and high-end equipment [55] [56] [57].
China is committed to make the scale of the AI core industry more than 150 billion yuan and more than 1 trillion yuan in related industries with the establishment of globally leading AI backbone enterprises, an industrial ecological chain and service system and artificial intelligence technology standards Besides artificial intelligence policies, ethics, norms and regulations are being established to optimize the environment for artificial intelligence development [55].

AI and Second Phase of Strategic Goals

In the second phase of strategic goals China is getting a landmark in artificial intelligence's basic theory, application and parts of the technology at the global level by 2025 and artificial intelligence has been proven to be a leading force in the construction of an artificial intelligence society and the transformation of the economy and society [58].
The scale of the core industry is going to be more than 400 billion Yuan and more than 5 trillion Yuan in other related industries. In the second phase of strategic goals, the focus would be on the formation of AI rules and regulations, policy systems, artificial intelligence control capabilities, and safety assessments and ethical norms [58].

Third Phase of China ‘s Strategic Goals

In the third phase of strategic goals by 2030, China will be among the countries with major artificial intelligence centers in the world and advance AI technology, application and theory. These measures can guarantee the remarkable results of China’s entry into the forefront of economic powers and innovative countries. Furthermore, the use and application horizon of artificial intelligence can be expanded in social governance production and life and national defense construction [58].
The industry scale of artificial intelligence can be more than 1 trillion Yuan and more than 10 trillion Yuan in other related industries [59] [60] [61]. It was decided to establish the world’s leading artificial intelligence personal training base, AI technology innovation, policies, comprehensive

55 Ibid, 5.

56 Ding, Jeffrey. "Deciphering China’s AI dream." Future of Humanity Institute Technical Report (2018).

57 Hussain, Fakhar, Zakar Hussain, Muhammad Ikramullah Khan, and Ali Imran. "The digital rise and its economic implications for China through the Digital Silk Road under the Belt and Road Initiative." Asian Journal of Comparative Politics 9, no. 2 (2024): 238-253.

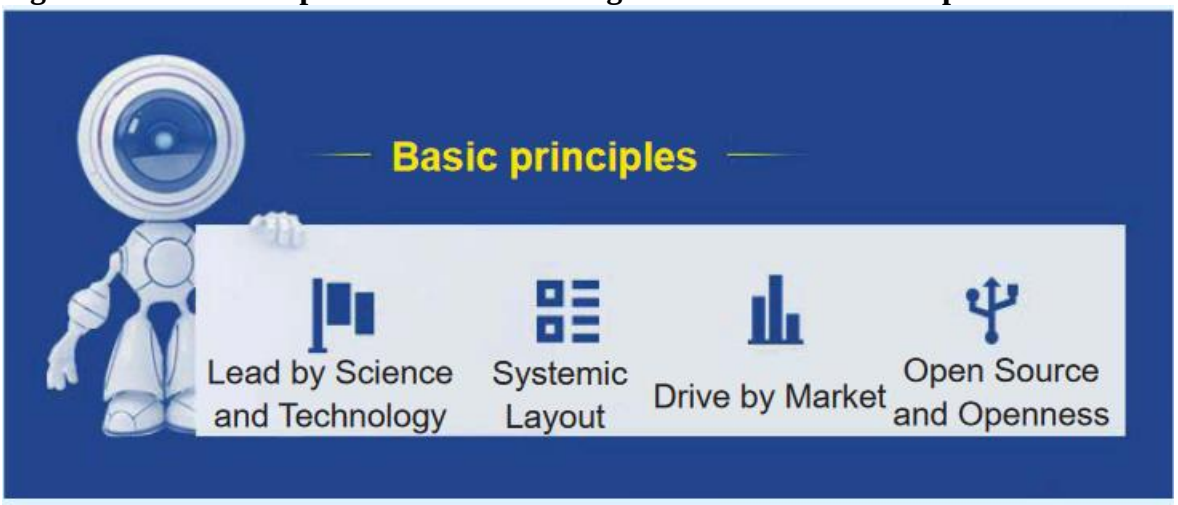
58 Ibid, 6-10.

[59] Zhang, Shanshan, Cheng Yang, Nina Qian, Qingye Tang, Xiangfeng Luo, Tuo Leng, Xiaoqiang Li, and Yuexing Han. "Artificial intelligence and people’s consensus." *Reconstructing Our Orders: Artificial Intelligence and Human Society* (2018): 1-27.
[60] Churchill, Owen. "China’s AI dreams." *Nature* 553, no. 7688 (2018): S10.
[61] Huang, Weilong, and Zhenguo Fan. "Innovation and Coordination a SWOT Analysis of Artificial Intelligence Industry in Guangdong Province." In *E3S Web of Conferences*, vol. 235, p. 03050. EDP Sciences, 2021.

laws and regulations and ethics on the use of artificial intelligence in the third phase of strategic goals [58].

There can be guaranteed overall development by implementing the national policy on artificial intelligence and the state fully supports social development and national security, economics and science and technology. The artificial intelligence industry is being strengthened by considering a smart economy and creating opportunities for the economic prosperity of China for decades. Artificial intelligence is helping to build an AI society for the development of science and technology in world, the implementation of the ideology of people-centered development and the protection of national defense and national security [58 62 63 64 65 66 67].

Figure 1: Basic Principles of Artificial intelligence in China National policies



(Fig 1 Source: website of the State Council, Sep 15, 2017)

China is ranking high in artificial intelligence development in the world by the deployment of the basic theory of artificial intelligence, artificial intelligence key common technology system, basic support platform, personnel training, the ability to continuously enhance system innovation, and the promotion of open source sharing.

China supported the building of cooperation and an open system of artificial intelligence and planned to make more contributions to the development of artificial intelligence via key common technologies, frontier basic theory, open-source sharing, basic support platforms and personnel training.

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[62] Zeng, Jinghan. *Artificial intelligence with Chinese characteristics: National strategy, security and authoritarian governance*. London: Palgrave Macmillan, 2022.

[63] Sverdrup-Thygeson, Bjørnar, and Stig Stenslie. "Beijingology 2.0: Bridging the "Art" and "Science" of China Watching in Xi Jinping's New Era." *International Journal of Intelligence and CounterIntelligence* 36, no. 3 (2023): 892-911.

[64] Mahoney, Josef Gregory. "China's rise as an advanced technological society and the rise of digital orientalism." *Journal of Chinese Political Science* 28, no. 1 (2023): 1-24.

[65] Kerry, Cameron F., Joshua P. Meltzer, and Matt Sheehan. "Can democracies cooperate with China on AI research?, Rebalancing AI research networks." (2023).

[66] Westphal, Theo, and Ruoxi Wang. "Artificial intelligence with Chinese characteristics: national strategy, security and authoritarian governance." (2023): 410-411.

[67] Meng, Bingchun. ""This is China's Sputnik Moment": The Politics and Poetics of Artificial Intelligence." *Interventions* 25, no. 3 (2023): 351-369.

A new generation of basic theory of artificial intelligence system is being established in which scientific frontier issues of artificial intelligence can be addressed keeping long term development and current needs. The advanced layout is also being introduced in the basic theory of artificial intelligence which ensure AI paradigm transformation of basic research, promotion of depth application artificial intelligence, cross integration of disciplines for sustainable development and provides scientific reserves [58].

Besides the new generation of artificial intelligence key common technology are established for research and development and deployment. The major focus of research and development deployment is on data and hardware to enhance the perception, algorithm, human-computer interaction capacity and knowledge to form open, compatible, mature and stable technology system [58].

China also decided to construct an innovative platform for artificial intelligence to strengthen research and development and support for the application of artificial intelligence. In these basic support platforms, there are hardware and software platforms for AI open source, group intelligence service platforms, hybrid enhancement intelligent support platforms, autonomous unmanned system support platforms, and basic data and security detection platforms for artificial intelligence.

The AI open source software and hardware platform lead to the building of a unified computing framework platform which supports probability, statistics, knowledge, reasoning, artificial intelligence paradigm and depth learning. The group intelligent service platform, on the other hand, focuses on a consortium of open sharing tools and knowledge resource management for large-scale internet cooperation and forms a service environment for the innovation of both universities and industry. The hybrid enhancement intelligent support platform provides a service-oriented systematic platform for the solution of complex intelligent computing, new computing cluster and large-scale training and supports the construction of a heterogeneous real time computing engine.

The automatic unmanned system support platform is being established in which there are supportive platforms for automatic driving of ships and rail traffic, supportive platforms for space reboots, polar reboots, service reboots, marine robots, unmanned aerial vehicle independent control and auto, unmanned system common core technology, intelligent control equipment technical and intelligent factory and so on [68].

On the other hand, artificial intelligence security detection and basic data platforms focus on the construction of the artificial intelligence for standard test data sets, public data resource libraries, cloud service platforms, and security test evaluation methods, tools, techniques and norms. All the platforms mentioned above comply with the requirements of the depth of integrating military and civilian. The most crucial development of artificial intelligence in China is aimed at constructing a high-end talent team which includes a better artificial intelligence education system, cultivation of AI talent, strengthening the basic research of AI, maintenance and operational aspects of technical and professional personnel training and applied research.

The major focus of AI development in China is laying the groundwork for achieving an efficient intelligent economy which includes efforts such as the development of emerging industries in AI, the upgradation of industrial intelligence, the development of intelligent enterprises and leading artificial intelligence to new heights.

Artificial intelligence industries will be developed by building competitive AI industry clusters, cultivating new forms of AI, introducing smart robots and intelligent vehicles, developed transport systems, and improved water management systems [69].

68 Ibid, 13.

69 Ibid, 16.

The level of industrial development intelligence can be enhanced by promoting AI applications, manufacturing processes, intelligent agriculture, intelligent logistics, smart financial systems, the use of intelligence in business and smart housing [70]

Intelligence enterprises can also be developed by integrating intelligent finance with business models, introducing a new mode of operation and creating enterprise organizational structures to support all platforms and institutions which use artificial intelligence to provide professional services [71].

Artificial intelligence may gain new horizons of development by incorporating AI applications in the relevant industries according to the regional competencies and needs.

Pilot demonstrations for the application of artificial intelligence are being carried out in those areas where its potential is bigger. There is the construction of a national AI industrial park, national AI base, talent cultivation, policy regulations and reforms to promote social development, and an intelligent economy[71].

The primary goal of using AI applications is to improve the quality and living standards of people. The basic major goals consist of the development of efficient and intelligent services, the promotion of social governance intelligence and improvement of public safety measures, promotion of mutual interests and social interaction. AI can not only be used for the betterment of local challenges but can also be incorporated into military units for national security purposes. Such mechanisms are being introduced through universities, scientific research institutes and military institutions that work collaboratively to use artificial intelligence in a more efficient way. The civil-military partnership is encouraged to promote national defense technology [72].

Intelligent Infrastructure System

The traditional level of intelligence infrastructure can be transformed into the most efficient intelligent infrastructure system. The ultimate goal of building this intelligent infrastructure system is to form an intelligent society, smart economy and to meet the national defense challenges. For this, the network of digital information infrastructure systems, research and development for the fifth generation of mobile communication (5G) system, data support for artificial intelligence to strengthen privacy protection and data security and high-performance computing infrastructure for the research and development applications of the next generation of computers [72].

The government of China planned to allocate domestic and international innovation resources to support the development of AI. The government established state-led financial support mechanisms and financial guidance in which the effective use of social, governmental capital cooperation and other models to direct social capital towards the implementation of major technological and scientific projects in various applications of artificial intelligence.

Artificial Intelligence and One Belt and Road

The international collaboration on AI research centres and the promotion of applications are in the sphere of One Belt and Road. There is complete support from the government for teamwork between domestic and international AI research institutes, AI leading universities. Foreign AI research institutions and enterprises are being encouraged to set up research and development centres in China [73].

China is willing to promote the rapid growth of artificial intelligence which requires institutional arrangements to deal with the upcoming challenges related to its use and potential. For this, there

70 Ibid, 17.

71 Ibid, 18.

72 Ibid, 22.

73 Ibid, 25.

is a dire need to strengthen the research on ethical, legal and social issues related to artificial intelligence and establish ethical frameworks, rules, and regulations to ensure the healthy development of artificial intelligence. Besides, China can deepen global cooperation on AI rules and regulations to deal with global problems jointly. The tax policies and incentives are being reformed and specific standards can be established for the protection of intellectual property for AI technology [74].

China is implementing safety supervision and evaluation systems for artificial intelligence's long-term safe deployment and to retrain its application for immoral and unethical concerns. AI skills and training facilities are being given to the labor force to meet the requirements of an intelligent society and an intelligent economy [74].

A new generation of artificial intelligence development planning is comprehensive. The CPC Central Committee and State Council along with leading groups of innovation system construction and national science and technology system reform collaborate to review major policies, major issues, major tasks and key work arrangements to promote the coordination, guidance, and construction and supervision of relevant laws and regulations on artificial intelligence. The Ministry of Science and Technology, National Science and Technology Plan in conjunction with other relevant departments is responsible for strengthening coordination with other planning tasks and promotion of a new generation of major scientific and technological projects in artificial intelligence. The AI Strategy Advisory Committee was established which provides assistance in measuring the scope and finding major strategic issues in the pathway of AI development. The think tanks are being constructed and given full support to carry out major research on artificial intelligence [75].

Artificial Intelligence Mobilization in Public

The development of artificial intelligence must be mainstreamed on all media channels and the whole society should be mobilized and encouraged to participate in the healthy development of artificial intelligence [75].

Trends in Artificial Intelligence Technology Development

In the contemporary era, the technology platforms are becoming open source. The phenomenon of open-source learning frameworks led to the development of artificial intelligence fields and influence deep learning enormously. The scale of applications, integrated technologies and technologies has expanded due to open source learning platforms and layouts effectively the entire artificial intelligence production chain. The leading search engines such as Google, Baidu and other leading national and international firms have deployed an open-source AI ecosystem and in the future many hardware and software companies can participate in an open-source ecosystem [76].

Besides, artificial intelligence brought industrial transformation and working as a driving force in the new rounds of artificial intelligence. AI is witnessing new industries, new technologies and patterns. According to McKinsey, the total value of the global AI application market can reach up to US$127bn by 2025 and artificial intelligence is playing a crucial role in the development of intelligent product industries [77]

74 Ibid, 26.

75 Ibid, 27.

76 CESI; 中国电子技术标准化研究院. (2018). Artificial Intelligence Standardization White Paper.

77 Ibid, 25.

Figure 2: AI Business Forms

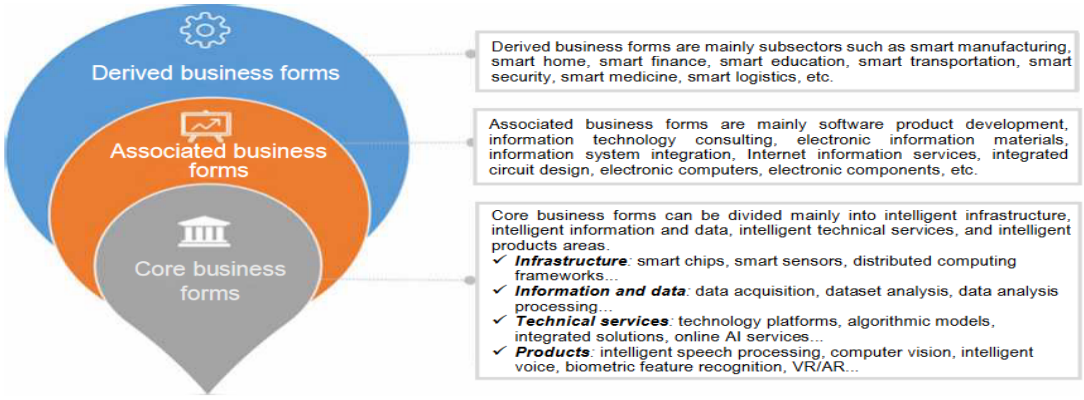


Fig 2 Source [78].

It is evident from historical experiences that technologies can enhance efficiency, increase production and promote social progress. As artificial intelligence is still in the initial development phase, there are certain concerns regarding privacy-related policies, standards, laws, field ethics, and safety. Such issues can raise mistrust among the public about the use of AI tools. In order to remove such ambiguities and create an element of trust among the public, it is required to establish such an environment, standards and laws to make AI technology serve the public interests which is the prerequisite for the healthy and sustainable development of artificial intelligence [79].

Public Consensus on the Ethics of AI

The selection of ethical considerations regarding AI depends on in-depth thinking and broad consensus principles among the public and society.

Three Major Principles of AI Ethics

The major principle is the principle of human interest which is manifested in respect for human rights and decreasing negative impacts on humans and technological risks and maximum benefits for humans and the natural environment. The system needs to be vigilant in order to avoid biased decisions and actions in society through machine learning and other algorithms. If these biases are not corrected through necessary measures, they may exist perpetually in society [79].

The second major principle is accountability which includes the establishment of an accountability system for both application aspects and technology development. This system is making the responsible and accountable to both the department and personnel who develop AI technology.

The third principle is transparency which includes an understanding of future development prediction, working principles of the systems and humans should have how know about the AI's functioning and decision-making processes and investigate why a specific result was generated.

The fourth principle is consistency in responsibilities and rights which future laws and policies must stipulate on necessary business data records, supervision of relevant algorithms and intellectual property rights in the case of business entities and to protect trade secrets [80].

78 Ibid, 26.

79 Ibid, 34-35.

80 Ibid, 36.

Social Trust and Sustainable Technology Development

The risk linked with technology development is about social trust and how social trust can be secured depends on the ethical requirements of technology deployments which can guarantee the safety of privacy. It is mandatory to formulate a rational foundation of laws, standards and policies through collaboration with the global community concentrating on the upcoming enormous challenges and their significant benefits for society. China, as an important member of the global community is shouldering important responsibilities to ensure the healthy development of artificial intelligence.

AI Standardization

In the age of market internationalization and economic globalization standards artificial intelligence works as an important part of social and economic activities. The standardization work provides supportive and guiding roles for the industrial development of artificial intelligence and competition in the global product market.

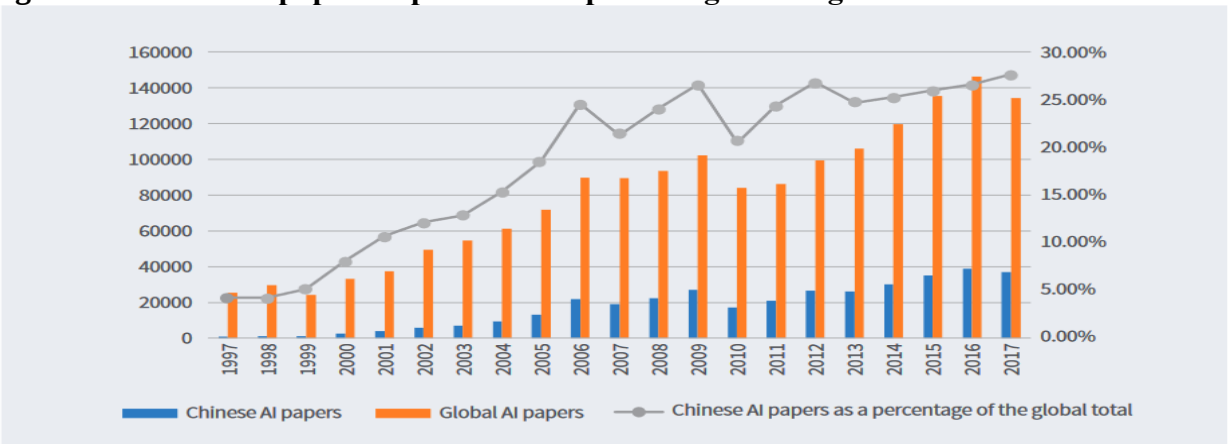
China is giving great importance to the task of AI standardization. In the Three Year Action Plan, the Ministry of Industry and Information Technology pointed out the need to improve AI technical standards on basic universality, industry applications, privacy protection, traceability and cybersecurity, etc

China also plans not only AI standardization on a national level but also encourages participation in international exchanges and workshops on standardization [81]

Paper Output on Artificial Intelligence

Besides, there is a tremendous rise in the publication of AI scientific papers worldwide. Almost more than 100, 000 papers get published on Ain every year. This shows that the researchers' interest is increasing in the domain of artificial intelligence research and relevant research as well. China made huge progress in the last two decades in paper publishing output from 1000 in 1997 to greater than 37000 in 2017 [82].

Figure 3: China's AI paper output and as a percentage of the global total from 1997-2017



Source Fig 3 [82].

81 Ibid, 47-48.

[82] China Institute for Science and Technology Policy at Tsinghua University. (2018). China AI Development Report .

Figure 4: Top 20 countries/regions in AI paper output (1997-2017)

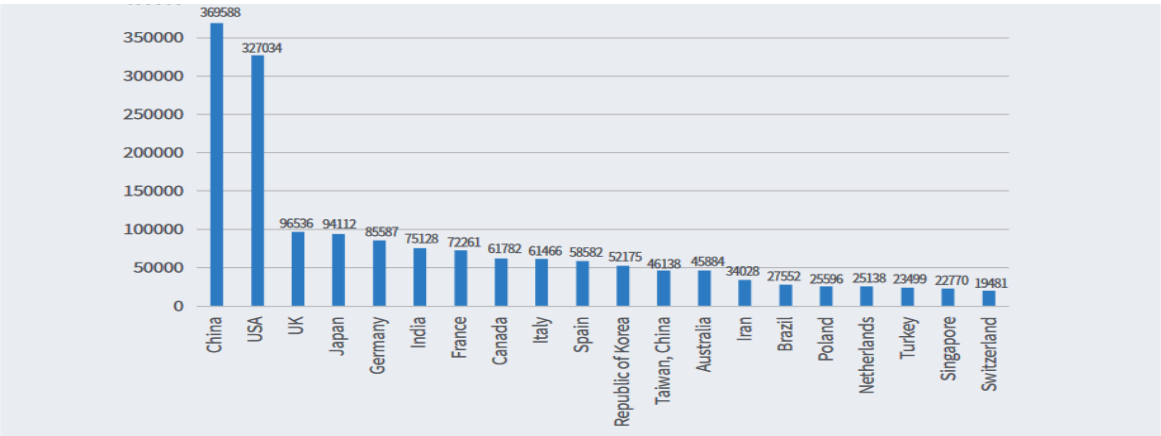
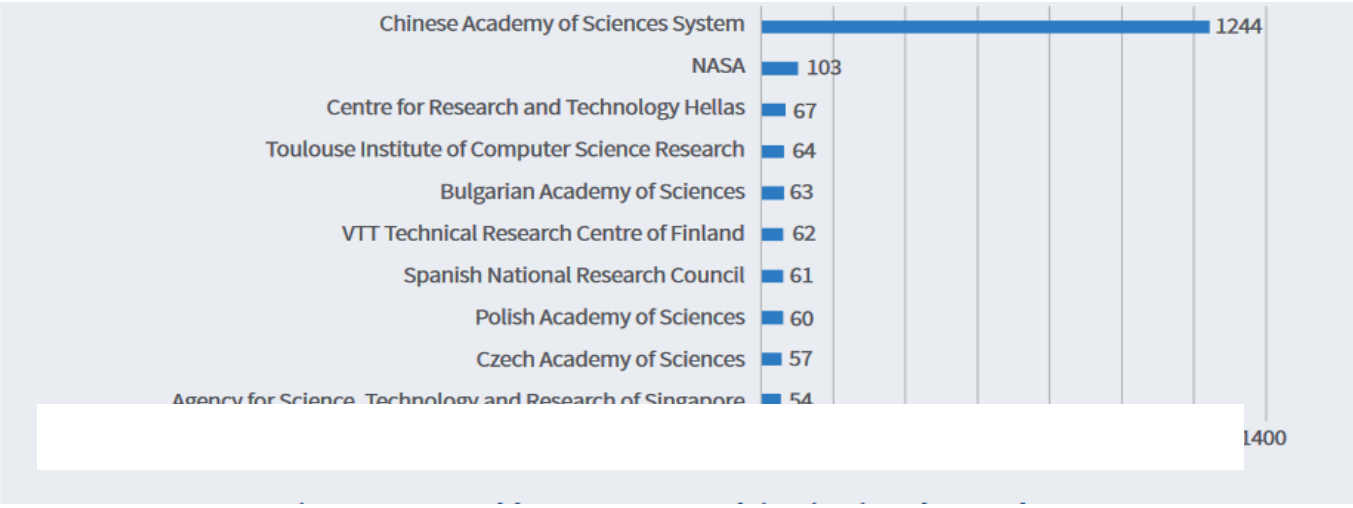


Fig 4 Source: [82].

Figure 5: World's top ten research institutions by AI talent



It can be seen clearly from the graph that the majority of the countries participated in the race for AI basic research. China and the US are in the first and second ranks, respectively, along with other countries on the list [83].

Fig 5 Source: [84]

When we look in terms of AI talent institutions it is clearly visible that the Chinese Academy of Sciences is the largest institution in the world with 1244 AI talents with its affiliated research institutions and systems [84].

[83] Ibid, 19.

[84] Ibid, 41-42.

Figure 6: AI enterprises by country

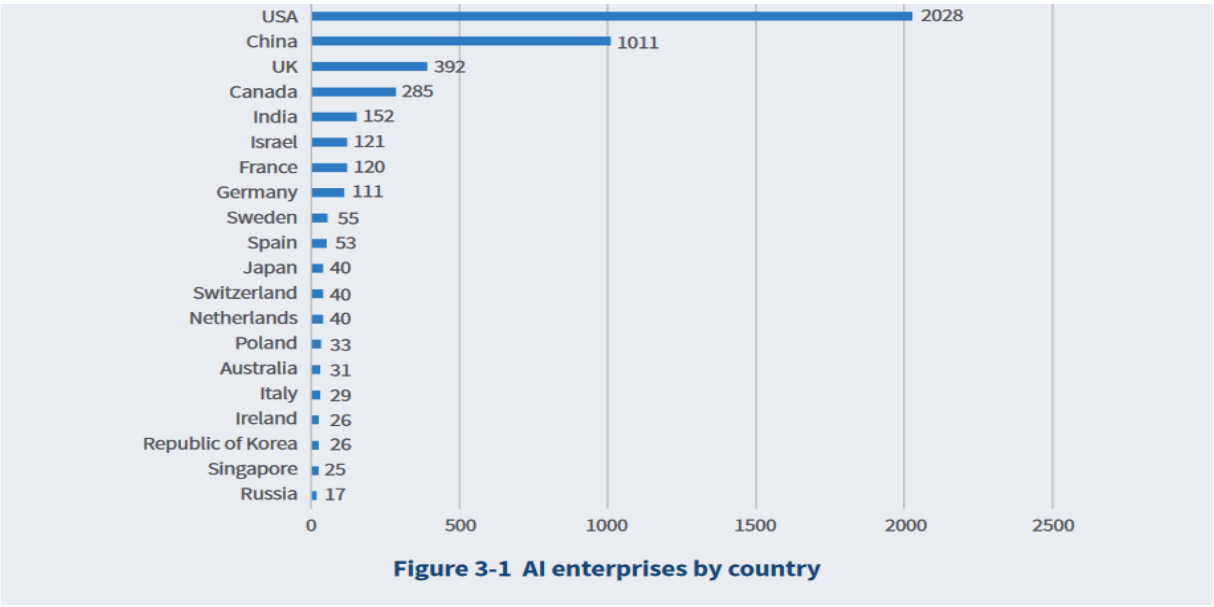


Fig 6 Source [85]

In 2018, the total number of AI enterprises were 4925 in which the US was having the greatest number of AI enterprises in 2028 while China got second position with 1011 followed by the United Kingdom, Canada and India. Besides among the top 20 cities in the world that hosted AI enterprises, the US was having nine cities and China was having four cities[85].

Structure of the AI Market

China's AI market reached RMB 23.74bn in 2017. The graph shows that the computer vision segment with technologies such as image recognition, video recognition and biometric represents 34.9% of the AI market with RMB 8.28bn [86]

85 Ibid, 50.

86 Ibid, 56.

Figure 7: Structure of the Chinese AI Market

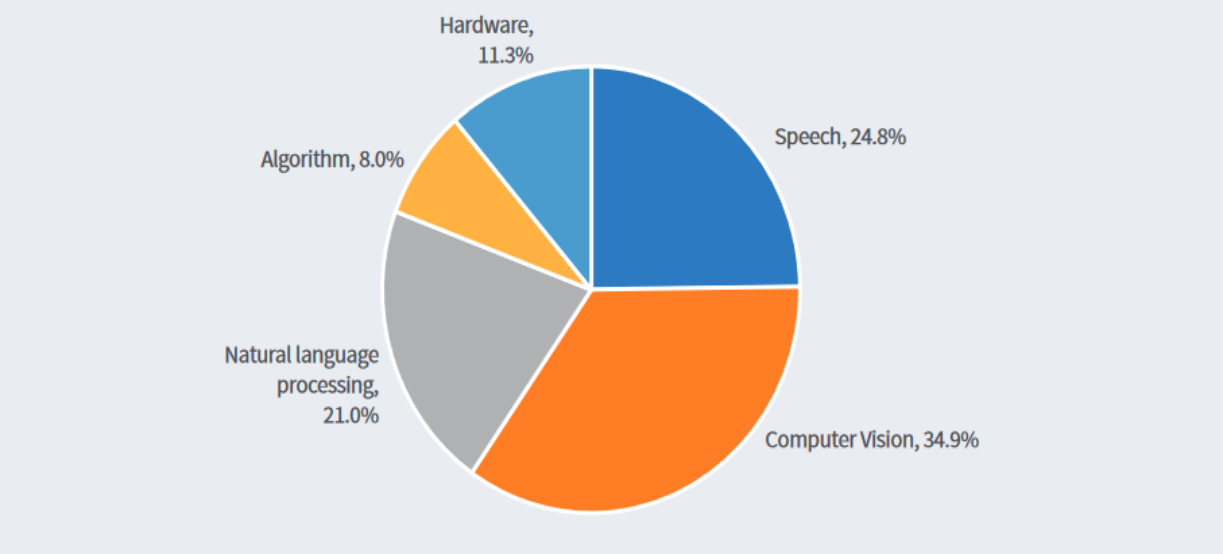


Fig 7 Source [86].

The white House established "Select Committee on Artificial intelligence" and concluded summit on "Artificial Intelligence for American Industry"

Heading US National Security and AI Initiatives

The research and development budget focuses on unmanned and autonomous systems especially national defense and homeland security. Furthermore, AI applications have been widely applied in different sectors in the US such as medical imaging, homeland security including wearable alarm systems and face recognition and national defense and the military [87].

For the development of the AI industry, the development of AI in China is guided by the 1+N system in which the major focus is on interdisciplinary research, key technologies and basic theories. China highlighted the importance of AI application in extensive fields such as smart agriculture, smart manufacturing, smart finance, smart logistics, smart pension, smart healthcare, smart home, smart education, smart commerce, urban management, judicial management, administrative management, underwater space exploration and environmental protection. AI applications and research have been driven by the pursuit of sustainable social and economic development and comprehensive AI industry development [87].

China issued the Next Generation Artificial Intelligence Development Plan through a State Council Notice in which the core keyword was AI policy, followed by intellectual property and intellectual rights. There was a strong emphasis on the policies to leverage AI to improve public safety, promoting sharing and mutual trust in social interaction, civil military two-way transformation and development of efficient intelligent services [88]

87 Ibid, 70-71.

88 Ibid, 81-83.

Figure 8: keyword co-occurrence analysis of provincial and national AI policy documents of China

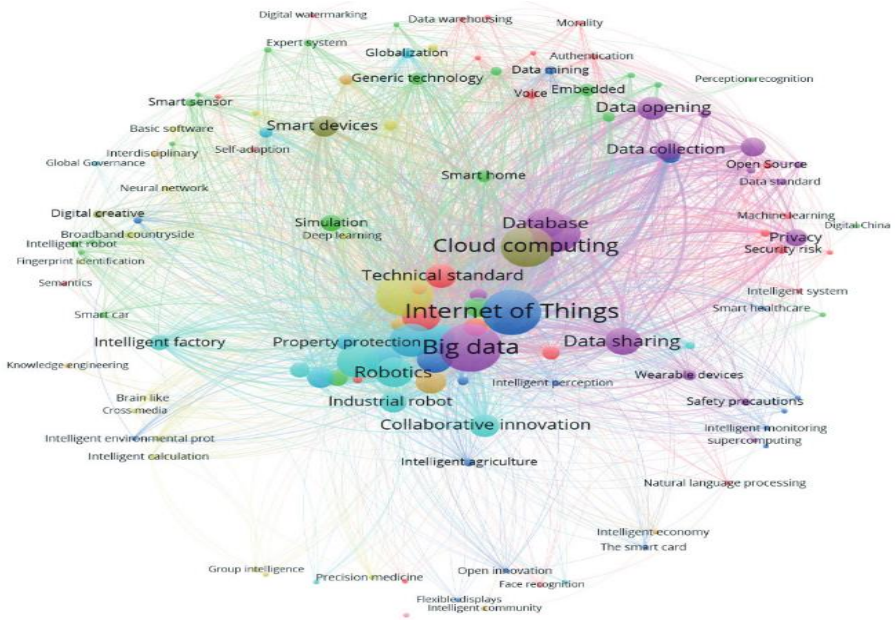


Fig 8 Source [88].

The figure of keyword co-occurrence analysis of provincial and national AI policy documents of China shows relevance in contents, direction and goals in both provincial and national AI policy documents. The contents of the policies mostly focus on three aspects including technology, application and industry [88].

People can live a happier and rich life with the full development of AI, liberation from conventional intellectual and manual labor and utilize their energies for the betterment and prosperity of humankind. Currently, the rapid development of artificial intelligence has transformed many sectors including agriculture, healthcare, logistics, education, finance and commerce, retail and reshape the processes of production, distribution, exchange and consumption. The IDC2 data shows that artificial intelligence is bringing major transformation in these four sectors 71% for retail, 82% for education, 58% for the finance and 64% for the manufacturing.

A lot of visionary people such as Stephen Hawking, Norbert Wiener, the father of automation, Yuval Noah Harari and Tesla founder Elon Musk warned that AI development is making the human lives better as well as it can create risks and challenges for the human race and exiting social values [89]

89 Ibid, 95-96.

Figure 9: Efficiency Improvement brought by AI to major industries

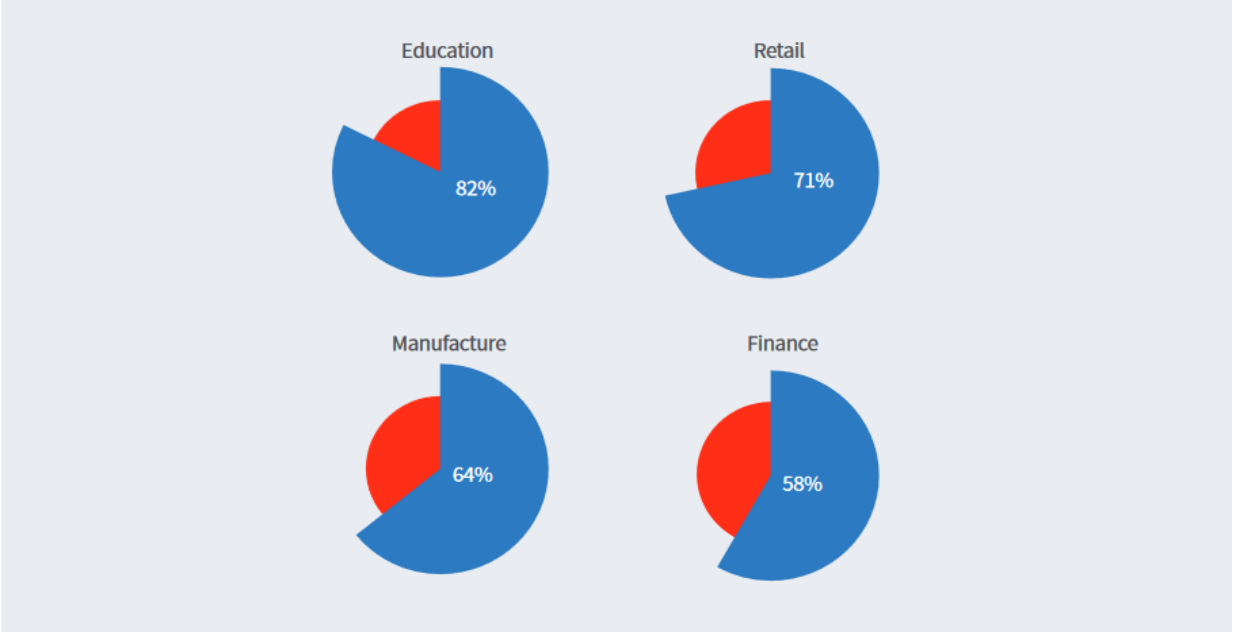


Fig 9 Source [89].

Artificial intelligence is also affecting the education and employment sectors through issues such as the widening wealth gap, rising unemployment and social instability. Therefore, it is necessary to explore the employment and educational mechanisms that match and adapt to the technological revolution.

Along with employment and education AI affects the system and privacy. The irreversibility and unpredictability of time and space and reality and virtual reality can trigger a series of potential risks such as important information leakage, fraud and other criminal activities. Furthermore, autonomous cars, drones and intelligent robots are vulnerable to fraudulent purposes and intrusion. The technologies of artificial intelligence should work on the principles of equality which pave the way for the provision of conveniences to the majority of people. Therefore, amid the rapid development of artificial intelligence, it is necessary to develop such methods for the use of AI which ensure the building of an efficient, livable and developed intelligent society, sustainable development and advanced social inclusiveness and the benefits of technology for all citizens [90].

Artificial Intelligence Risks to National Security

The Chinese people are aware of the positive as well as negative impacts of the artificial intelligence. The China's government has recognized that AI might pose serious challenges to the national security and China has taken steps to improve the AI governance system by incorporating AI ethics and norms. As it is believed commonly by the people that the governance of artificial intelligence is power competition oriented rather than cooperation which ultimately leads to the fragmented global governance [91]

Guidelines on the Construction of Pilot Zone Work

The purpose of constructing Pilot Zones is to promote in-depth integration of social and economic progress with the adoption of artificial intelligence. As local stakeholders play an important role in the social and economic development of any country. China is committed to fully support local institutions for AI promotion and development. Besides, the major focus in constructing Pilot

[90] Ibid, 98-99.
[91] Ibid, 7-8.

Zones is on the formation and development of AI policies, standards, regulations and social and industrial policies. The new AI development models are being introduced by combining both social and economic perspectives and such strategies can be formed in AI models which empower the rural and urban economies. China also carried out policy-based trials which focused on intellectual property, data protection and openness, social security, global cooperation, security management, talent introduction and policy systems to create a healthy environment for AI technological development, scientific research, industrial development, social application and product innovation. China also protected the organizational role by strengthening the coordination between all the departments and supported the social forces and enterprises for active participation in Pilot Zone Construction and to enhance the capital investment. The most important thing is mainstreaming the major developments and breakthroughs of artificial intelligence to encourage people for active participating in the overall betterment of society and the nation [92].

Shanghai is a very important international metropolis in China which has gained enormous success through China's initiatives of openness and new reforms. Shanghai through collaboration with other cities is not only playing a vital role in the progress of China but also for the whole Asia-Pacific region. This city has become a hub for international trade, business, shipping and foreign investments because of its institutional reforms and policies grounds on openness, inclusiveness, win-win cooperation, innovative industries, professional competencies, working platforms and a friendly business environment [93].

Five Year Plan and China's Rise in the East

The Five Year Plan embarks on the new journey of building China into a modern socialist China and includes strategies for showing China as a rising power in the East. The objective of this plan aimed at spreading the spirit of Mao Zedong's thoughts, Marxism-Leninism, Deng Xiaoping Theory, Xi Jinping's conventions on socialism, the Scientific Development Concept and the Three Represents. China has planned to enhance the per capita income of both rural and urban cities and to make China a modernized socialist country by 2030. Furthermore, a modernized economy can be achieved through informatization, industrialization, agricultural upgradation and urbanization [94].

The national cultural soft power can be increased through cultural revitalization, socialist principles as well as public support. All strategies and actions are functioning on the principles of win-win cooperation in projects like the Belt and Road and other affairs of the global market. The second major objective focuses on human development which consists of improved human capital, an optimized structure of the population, a high-quality education system, an improved public

[92] Ministry of Science and Technology 科技部 . (2019). Ministry of Science and Technology Notice on the Publication of the Guidance on National New Generation Artificial Intelligence Open Innovation Platform Construction Work 科技部关于印发《国家新一代人工智能开放创新平台建设工作指引》的通知.

[93] Shanghai Municipal Commission of Commerce. (2020). 2020 White Paper On Environment for Foreign Investment in Shanghai.

[94] Xinhua News Agency 新华社. (2021). Outline of the People's Republic of China 14th Five-Year Plan for National Economic and Social Development and Long-Range Objectives for 2035 中华人民共和国国民经济和社会发展第十四个五年规划和 2035 年远景目标纲要.

service system, social governance system, promotion of common prosperity and an increase people sense of happiness, security and economic gain [95].

The actors use different means of power to influence other states, including symbolic, economic, military, and diplomatic means. The symbolic means consist of discourse, identities, propaganda, narrative and framing, etc. The economic means have a long history in global politics in which services or goods are enhanced or decreased. The most attention-seeking means is a military threat in international relations. Lastly, diplomatic means encompass a wide pool of practices including bargaining, representation and negotiation [96]. If someone does not include the element of power politics in international study then it could be termed international law, international sociology, or international economics rather than world politics. Except for power politics, the definitions of realism in the contemporary era contain a combination of the primacy of material capabilities, the centrality of states, rationality, and interests in survival. It can be seen a clear lineage from the core realist notion of power politics though they show little tendency toward the ideas they derive from [97].

National Security and Defense

The national security concept encompasses national security strategies implementation, shaping and preserving security, the integration of non-traditional security and traditional security and to mitigate the risks which create barricades in the pathway of China to become a modernized country [98]

China's leadership, led by Xi Jinping believes that China is becoming a rich country by modernizing its national defense system and military power which includes the development of intelligentization and informatization, the rule of law, mechanisms, education policies for the military, personnel modernization and the upgradation of military weapons and equipments [99]

The political system can be strengthened by merging socialist principles and implementing them countrywide. Overall, socialist democracy is the part of political actions and the trust of overseas Chinese get stronger through the policy affairs of China [99].

The ethical norms and principles are being implemented in all artificial intelligence activities. The major six ethical norms are the promotion of justice and fairness, the advancement of humans' betterment, safety of security and privacy, accountability, assurance of trustworthiness and cultivation of ethical norms [100].

In the modern era, data is the most important element of production which is considered as a vital national strategic resource. Big data includes fast speeds, high value, high accuracy and large

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[95] Ibid, 119.

[96] Carlsnaes, Walter, Beth A. Simmons, and Thomas Risse. "Handbook of international relations." (2012): 1-904.

[97] Paul, T. V. "Realist Constructivism: Rethinking International Relations Theory, J. Samuel Barkin, Cambridge: Cambridge University Press, 2010, pp. 194." *Canadian Journal of Political Science/Revue canadienne de science politique* 44, no. 4 (2011): 980-981.

[98] Ibid, 129.

[99] Ibid, 136-137.

[100] MOST, P. M., 科学技术部, & 科技部). (2021). Ethical Norms for New Generation Artificial Intelligence Released 《新一代人工智能伦理规范》发布.

capacity. It works as a driving force to improve the governance system, economic development and to reshape the competitive advantage of the country [101].

The national strategies can be further strengthened through the training of artificial intelligence in the education system. For this, the universities are tasked with promoting AI teaching through collaboration with the industry. The government of China also suggested that the Ministry of Industry and Information Technology (MIIT), the Ministry of Science and Technology (MOST) and the Ministry of Education to establish Artificial Intelligence Talent Training Expert Committee. The purpose of the Artificial Intelligence Talent Training Expert Committee was to prepare AI talent training on a national level while encompassing all stages of schooling and the universal education system. In the early stages of schooling the children are imparted basic programming skills while in undergrad and graduation education students are learning cutting-edge AI methods and other technological frontiers of AI subfields such as speech, science and natural language processing [102].

It is believed that there are going to be major breakthroughs in computer power and algorithm through the 14th Five Year Plan period between 2021-2025. Artificial Intelligence is being used widely used across all walks of life and it demands quality, trustworthiness and safety and it is hoped that the 14th Five-Year Plan may give fruitful results through healthy development in artificial intelligence applications and industry over the next five years [103].

China Policy Thematic Analysis through Nvivo 14

The pictorial representation of thematic analysis of the national policies of China on AI done by the Nvivo 14 shows major themes including data, security, intelligence, technology and system from which several inferences can be made.

The national policy of China on artificial intelligence heavily relies on the concept of "system," which may indicate an effort to create a unified framework for AI research and application. This also shows the priorities of China to establish a supportive ecosystem which includes ethical regulatory processes, policy frameworks and institutional structures to foster the growth of AI [104].

The prominence of the 'technology' theme in China's national policies on artificial intelligence (AI) suggests that the country places a strong emphasis on technological progress as a primary factor in the progress of artificial intelligence. Furthermore, AI is crucial for the economic growth with the increasing population. According to the report of the McKinsey Global Institute the China's GDP could be boosted by 0.8 to 1.4 percentage points each year by AI-led automation [105].

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[101] Ibid, 3.

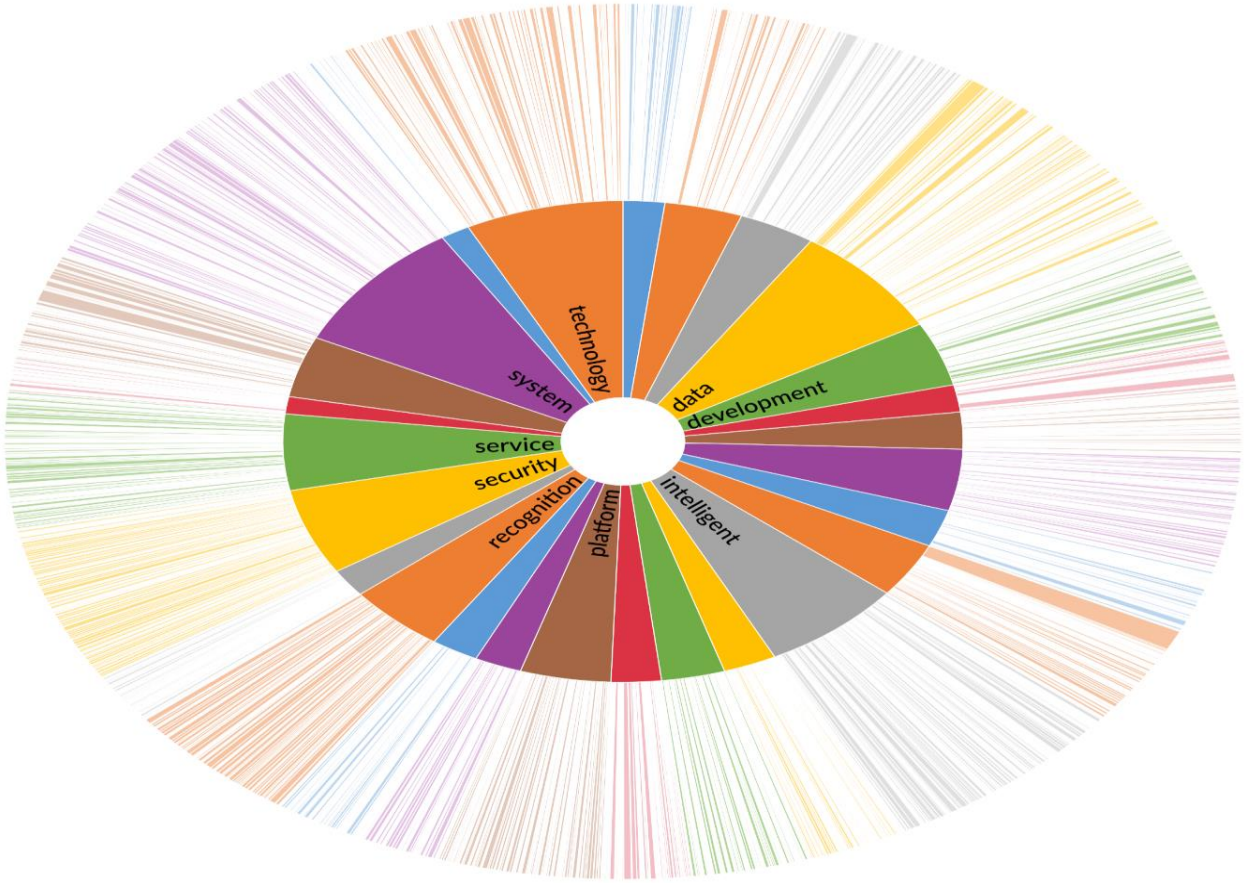
102 China Artificial Intelligence Talent Training Report 中国人工智能人才培养报告 学中国科教战略研究院)

103 Technology, T. C., 中国信息通信研究院, & 国信通院), 中. (2022). Artificial Intelligence White Paper 2022 人工智能白皮书.

104 Saveliev, Anton, and Denis Zhurenkov. "Artificial intelligence and social responsibility: the case of the artificial intelligence strategies in the United States, Russia, and China." Kybernetes 50, no. 3 (2021): 656-675.

[105] McKinsey Global Institute (MGI). (2017). Artificial Intelligence: Implications for China.

Figure 10: Thematic Analysis of the China's National Policies on AI



The National Science Foundation study shows that spending on research and development in the United States climbed by around 4% annually from 2010–2015 whereas China raised its R&D investment by 18% over the same period [106].

China's enterprises are expanding globally rapidly and some countries are labeling the China's as a threat to their national security. The Chinese firms are facing acute issues which hurt their global expansion. Data is only partially excludable, nonrival and easier to transfer than physical goods. Chinese IT enterprises are therefore vulnerable to foreign national security inquiries. Such as U.S is doing a national security investigation into TikTok by considering it a sensitive issue. In order to deter all the internal and global political issues related to data handling China has made major developments in digital transformation [107]

The New Generation Artificial Intelligence Development Plan (AIDP) in 2017 treated artificial intelligence as the key drivers for the economic transformation and industrial upgradation of China. Similarly, AIDP aimed at making China a global AI leader by 2030. The plan advocated for increasing government support for research and development and using AI-based technologies

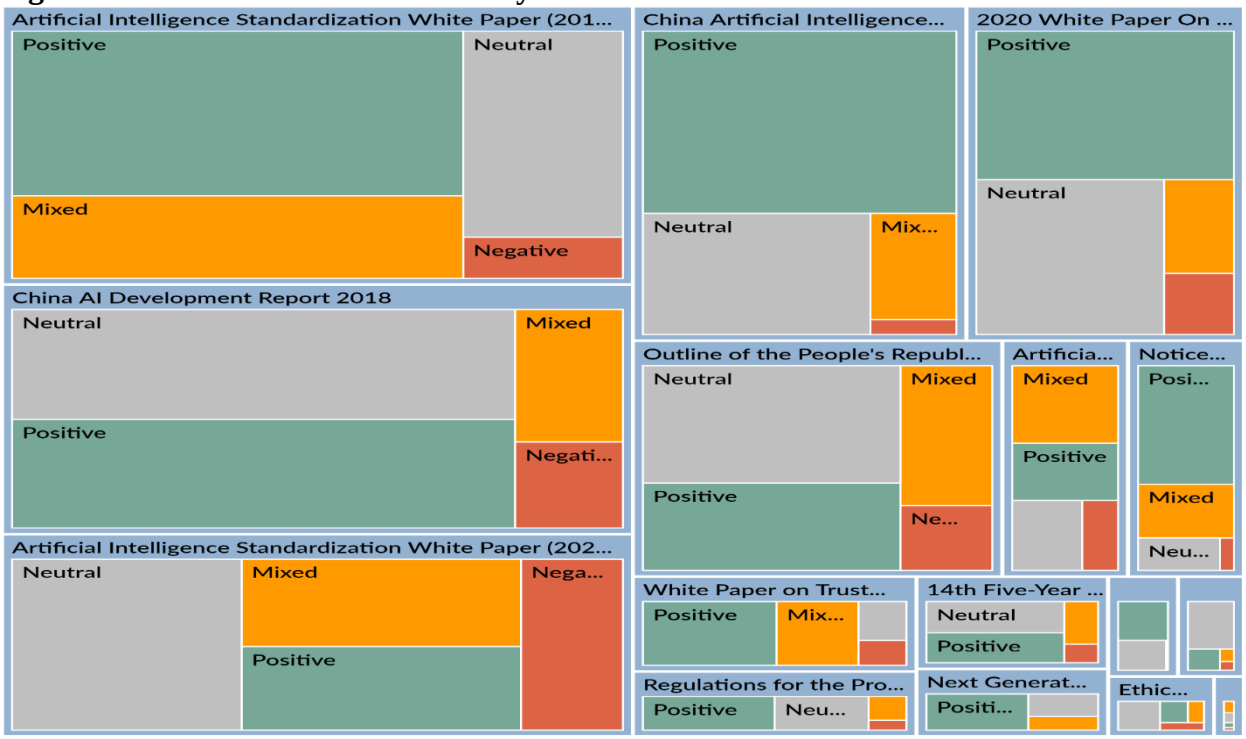
[106] U.S. National Science Foundation. (2018). The Rise of China in Science and Engineering. *National Science Board Science and Engineering Indicators*. Retrieved from https://www.nsf.gov/nsb/sei/one-pagers/China-2018.pdf

[107] Liu, Lizhi. "The rise of data politics: digital China and the world." *Studies in Comparative International Development* 56, no. 1 (2021): 45-67.

in healthcare, social governance, transportation and defense. It also laid down laws, regulations, and ethical standards to minimize social and economic disruptions [14] [108].

Auto Code Sentiment Analysis of National Policies of China on AI

Figure 11: Auto Code Sentiment Analysis of National Policies of China on AI



The autocode sentiment analysis of China's national AI policies shows sentiments of positive, neutral and mixed which has many implications. In China's national policies on AI there is a significant portion of positive sentiments which suggests that the country has a positive view of AI growth in general and the government of China regards AI as a strategic tool for technological innovation, societal progress and economic prosperity. The positive sentiments also attribute to the efforts of China's government in advancing Artificial intelligence through investments, incentives and policies.

Whereas one notion of realist constructivism is that everything is socially constructed, and one can only comprehend international politics if he examines the social relations among the actors [109] [110]. The material factors and ideas matter but ideas are paramount for understanding world politics. The realists prioritize military capabilities, the liberals go in favor of economic prosperity and the Marxists discuss inequality between the classes. The constructivists, in contrast, claim that ideas are more important than material power because ideas contribute more to the items mentioned earlier including military potential, economic wealth and bifurcation between the classes. Furthermore, the structural characteristics of ideas are that they "define the limits of what is cognitively possible and impossible for the individuals" [111].

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[108] Bal, Ravtosh, and Indermit S. Gill. "Policy approaches to artificial intelligence based technologies in China, European Union and the United States." (2020).

109 Koslowski, Rey, and Friedrich V. Kratochwil. "Understanding change in international politics: the Soviet empire's demise and the international system." International organization 48, no. 2 (1994): 215-247.

110 Zehfuss, Maja. "Constructivism and identity: A dangerous liaison." In Constructivism and International Relations, pp. 92-116. Routledge, 2005.

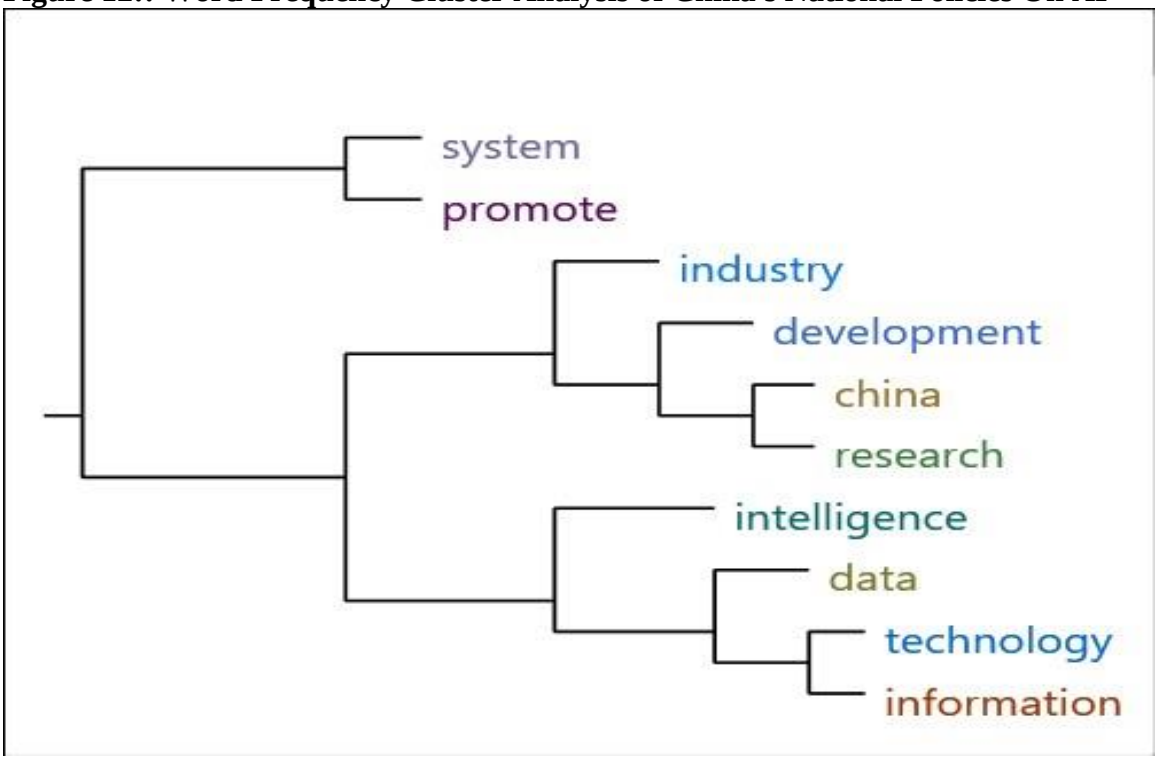
[111] Adler, Emanuel. "Seizing the middle ground: Constructivism in world politics." *European journal of international relations* 3, no. 3 (1997): 319-363.

The mixed sentiments in the graph of China's national policies on AI suggest that China's national policies on AI may contain pros and cons. This can reflect the fact that China's stance on AI is more complex while taking into account both the benefits and risks associated with artificial intelligence development and deployment. The mixed sentiment may reflect multifaceted and complex policy approaches addressing the security, ethical, social and economic concerns related to AI.

Thirdly, the neutral sentiments in the national policies of China on AI show a clear lack of negative or positive sentiment. This could also mean that some of China's AI policies are more factual or descriptive in nature. The neutral sentiments reflect policy statements which provide guidelines, information and rules for the development of artificial intelligence without showing any strong feelings or opinions.

Word Frequency Cluster Analysis of China's National Policies On AI

Figure 12:: Word Frequency Cluster Analysis of China's National Policies On AI



The top twenty words in China's national policy on AI were analyzed for word frequency cluster analysis using Nvivo, and the results showed that "system," "industry," and "Intelligence" were most frequently used. Several implications can be drawn from these findings. China is emphasizing on system by building a unified infrastructure for research, development, and deployment of AI. The prominence of the system' cluster also indicates that China understands the need for a well-coordinated and organized set of regulatory processes, infrastructure, policy frameworks and institutional arrangements to foster the growth of AI.

Secondly, China is also giving more importance to industry which can be idealized through 'industry' cluster in the national policies on AI. China intends to use AI as a strategic instrument to speed up the modernization and expansion of its healthcare, manufacturing, agricultural, transportation and finance etc. The Industry-focused policies of China may encourage AI research, integration and adoption in critical industries to boost competitiveness, productivity and economic growth.

Thirdly, the national policies of China on AI emphasize AI systems that can replicate human intellect and execute jobs like pattern recognition, problem-solving, and decision-making. This suggests that China is prioritizing advanced AI applications which have broad societal implications, such as smart cities, healthcare, education, autonomous systems.

Triangulation of the Findings

The researcher identified the common themes, goals, national security policy perceptions and public and stakeholders' sentiments drawn by the Nvivo and document analysis which helped to increase the incredibility of the study. The comparison and contrast of the China AI policy documents by document analysis and NVivo 14 showed the findings mentioned below:

1. Artificial intelligence and its technological development has a major strategy to increase the national competitiveness and national security of China.
2. AI has transformed the economic structure by introducing new technologies, new models and new industries.
3. Artificial Intelligence has played a significant role in maintaining social stability through active decision making, maintaining social control, handling security infrastructure and operations and effective forecasting and perceiving.
4. The development of artificial technology is raising concerns among the public because of uncertainties such as violation of individual privacy, social and ethical challenges and disruption of employment structure.
5. China aims at achieving the 'two hundred years' goal manifested by the leaders of the National Congress of the Communist Party by incorporating artificial intelligence in the defense apparatus, economy and society. All these measures will play a role not only for the great rejuvenation of China as a nation but also in creating an intelligent economy, an intelligent society and the safety of China's national security interests.
6. China is encouraging the leading national and global artificial intelligence research institutions, think tanks to collaborate in the development and deployment of artificial intelligence in the One Belt and Road sphere and other initiatives include the publication of scientific papers on the use of artificial intelligence and open source sharing for the integration of civilian and military innovations and resources.
7. China aims at becoming modernized socialist country and the rising power of the East by 2030 which can only be achieved through industrialization, informatization, urbanization and agricultural upgradation. Besides, policies and strategies will function on the principles of win-win cooperation in global market affairs and in the projects of the Belt and Road Initiatives.
8. China is becoming powerful by modernizing its military power and national defense system, implementing socialist principles, ethical norms, handling data and reformation of incentives and tax reforms for the safety of the intellectual property of artificial intelligence technology.
9. However, there are risks and mistrust in the minds of the public for social, ethical and economic concerns while using artificial intelligence and this social trust can only be achieved by forming certain laws and policies on the use of artificial intelligence.