

CHINA'S ARTIFICIAL INTELLIGENCE POLICY

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Abstract: Since the beginning of the 21st century, the development of artificial intelligence has become one of the main driving forces of global technological, economic, and geopolitical transformation. In this process, China occupies a leading position not only in terms of technological achievements but also through its state-level strategic governance of artificial intelligence. China's AI policy encompasses diverse components, ranging from the promotion of scientific research to issues of national security, data protection, and ethical regulation. The relevance of this topic is determined by the fact that, first, artificial intelligence is already influencing China's social structures and forms of governmental administration - including education, healthcare, urban management, and law enforcement. Second, the impact of China's AI policy significantly transcends national borders, positioning it as a global force in the redistribution of technological and politico-economic order. Moreover, in 2017 China adopted its AI strategy - *New Generation Artificial Intelligence Development Plan* - which aims to transform China into a global leader in artificial intelligence by 2030. This document outlines the state's priorities: stimulating innovation, cultivating talented professionals, establishing an ethical framework, and developing national data standards. Notably, China seeks to use artificial intelligence to shape a model of "optimal governance," which implies the integration of technological progress with governance instruments.

China's AI policy demonstrates how technology can become a profound strategic instrument of the state, influencing not only the economy and industry but also transforming governmental structures and introducing new forms of social control. Against this backdrop, the analysis of the topic is important both for technological research and for political science and global governance.

Keywords: Artificial Intelligence, China, Security, Defense, Strategy, Development, Policy, Governance, Leadership, Technology.

[China's Strategy for the Development of New Technologies](#)

China is a country of global significance, well known for its history and culture, but in this case the focus must be on its technological achievements. In 2017, China published the strategic plan *New Generation Artificial Intelligence Development Plan - 2030*, which explicitly states that leadership in artificial intelligence technologies is crucial for the country's military and economic advancement. China's technological achievements are growing daily, and it is possible that the country may become the number one global leader in this field.

It is well known that China is working on new legislation to regulate recommendation algorithms - forms of artificial intelligence already widely used on the internet. These regulations will influence how technologies are built and deployed across China and internationally, implying the export of Chinese technologies. The

regulations developed are often considered unacceptable or incompatible by the United States and Europe. However, despite this, the field is so multifunctional that exceptions may still be possible.

Three major regulations already introduced by China should be highlighted:

- 2021 – *Regulation on recommendation algorithms*;
- 2022 – *Rules on deep synthesis (synthetically generated content), including regulations covering the dissemination of images and videos, as well as generative systems such as OpenAI's ChatGPT and others*;
- 2023 - *Draft rules on generative artificial intelligence*. (Sheehan, 2023)

What do these regulations and rules include? They consist of numerous provisions and clauses, all sharing the common goal of information control. For example, the regulation on recommendation algorithms prohibits discriminatory treatment and protects the rights of workers subject to algorithmic scheduling. The deep synthesis regulation requires labeling of synthetically generated photo, video, or audio material. The draft rules on generative artificial intelligence demand that training and model data outputs be accurate, which represents a significant challenge for chatbots working with AI technologies.

All three regulations obligate Chinese developers to register in the algorithm registry, enabling information collection and the establishment of security self-assessments. The algorithm registry has the potential to positively influence the introduction of new regulations and facilitate their development. This is a crucial issue for China, as it is working on an AI legislative project involving direct participation from the Cyberspace Administration of China (CAC), the Ministry of Science and Technology, the Academy of Information and Communications Technology, and Tsinghua University's Institute for International Governance of Artificial Intelligence.

China is the world's largest producer of AI research. Consequently, its regulations will also affect Europe and apply to all Chinese technologies containing AI elements. It is well known that the United States and China compete in the field of AI systems, financial markets, and international airspace. Therefore, the development of regulations in these countries is a significant matter for creating a stable environment. China is shaping its regulations in an interesting way, which may even serve as a learning model for other countries, including Georgia - for example, in areas such as technical performance standards, audit mechanisms, customs requirements, and more.

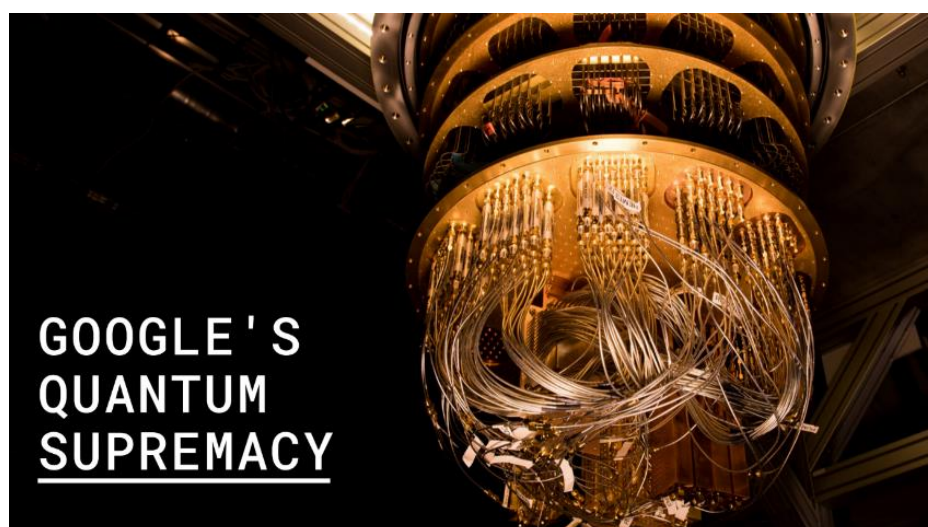


Image 1. Google's 53-Qubit Processor (Supercomputer). Source: <https://towardsdatascience.com/google-has-cracked-quantum-supremacy-cd70c79a774b?qi=ed3b6f5989f1>

In 2019, Google's 53-qubit¹ processor *Sycamore* completed a task in 3.3 minutes that would have taken a traditional supercomputer more than two days. Meanwhile, a research team from the Chinese Academy of Sciences' Center for Quantum Information and Quantum Physics, together with the Shanghai Institute of Technical Physics and the Institute of Microsystems and Information Technology, developed the 66-qubit quantum processor *Zuchongzhi 2*, which accomplished the same task even faster.

Former Google CEO Eric Schmidt stated that in the field of artificial intelligence, China lags behind the United States by approximately one year; therefore, the U.S. is highly likely to lose its leading position in artificial intelligence.



Image 2. The Three Fundamental Layers of Superchips: Qubit, Readout, Wiring. Source:

<https://www.notebookcheck.net/IBM-announces-433-qubit-quantum-processor-Bosch-taps-IBM-s-quantum-computers-in-search-for-alternative-EV-metals.667799.0.html>

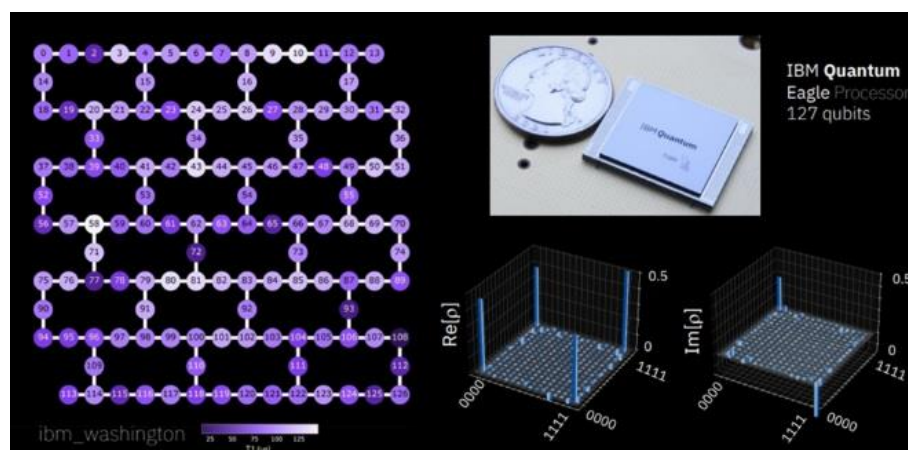


Image 3. The Internal Visual Aspect of 127 Quantum Bits. Source:

<https://www.forbes.com/sites/moorinsights/2021/12/02/ibm-rolls-out-a-game-changing-127-qubit-quantum-computer-that-redefines-scale-quality-and-speed/?sh=5796fed83f40>

¹ A qubit is the unit of quantum information. A quantum bit is the quantum analogue of the classical bit. A qubit describes two-state quantum systems, such as the polarization of a photon or the spin of an electron. In a classical system, a bit must be in one of two states. However, according to quantum mechanics, a qubit can exist in a superposition of both states. This property of quantum information has significant applications for quantum computers. A classical bit is the basic unit of information and is used to record data in computers. Regardless of its physical realization, a classical bit has two possible states, usually denoted as 0 and 1, or true and false. The difference is that while the state of a classical bit is always either 0 or 1, the state of a qubit can also be a superposition of these two states. One classical bit can be stored using one quantum bit, but a qubit holds more information than a classical bit. For example, with one quantum bit and one pre-prepared Bell pair, it is possible to transmit two classical bits. Another difference is that the complete description of an n -component (bit) system in classical physics requires only n bits, whereas in quantum physics, describing such a system requires $2n - 1$ complex numbers.

In 2020, the University of Science and Technology of China announced that the *Jiuzhang 2* processor could complete a task in one millisecond that a conventional computer would require 30 trillion years to finish. This achievement set a new global speed record for a quantum processor, whose qubits are based on light. China is funding this field with 10 billion USD, which is 7 percent more than the previous year's investment. Most quantum computers are capable of operating sequentially with 50 qubits.



Image 4. 127-Qubit Superchip (Superconducting) Quantum Computer. Source: <https://wccfttech.com/move-over-ai-the-age-of-quantum-computing-approaches-as-ibm-demonstrates-useful-application-of-its-quantum-tech/>



Image 5. 400-Qubit Superchip Quantum Computer. Source: <https://www.forbes.com/sites/moorinsights/2022/11/09/ibm-announces-new-400-qubit-quantum-processor-plus-plans-for-a-quantum-centric-supercomputer/?sh=de0ae81eaa99>

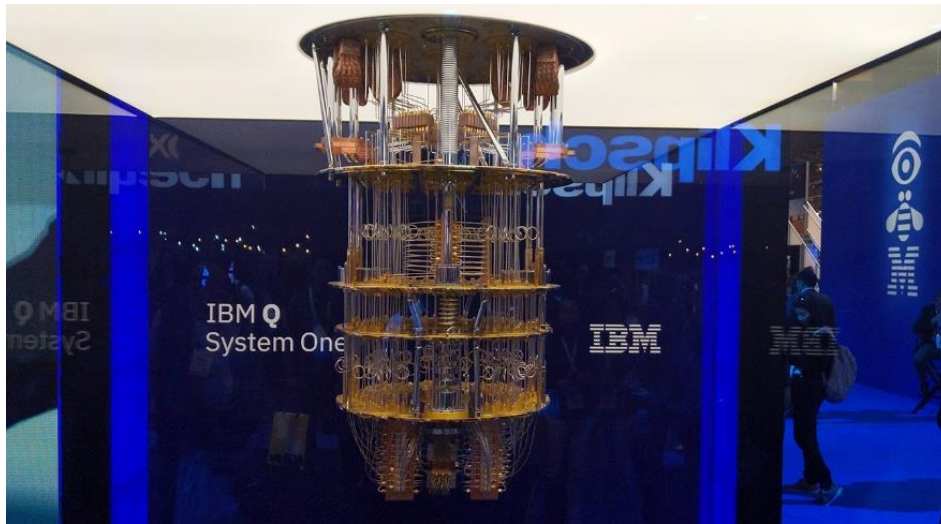


Image 6. 1000-Qubit Superconducting Quantum Computer. Source:

<https://www.forbes.com/sites/moorinsights/2022/11/09/ibm-announces-new-400-qubit-quantum-processor-plus-plans-for-a-quantum-centric-supercomputer/?sh=de0ae81eaa99>

In the United States, China is accused of stealing encrypted government and commercial data, which is said to give it greater advancement in quantum technology. As a result, the Department of Commerce placed seven supercomputers on a blacklist, claiming they were connected to the People's Liberation Army. However, the technology company IBM released a 127-qubit superchip-based (superconducting) quantum computer in 2021, a 400-qubit quantum computer in 2022, and a 1000-qubit superconducting quantum computer in 2023. (Corbett & Singer, 2022) This all points to the fact that, given the immense strategic potential of quantum computing, competition will only intensify further. Whether China, the United States, and other advanced countries can maintain such a pace remains a question for the future.

China possesses several important advantages in the field of artificial intelligence that drive its success. It processes vast amounts of data both online and in real-world contexts. The Chinese population relies heavily on smartphones for payments, generating enormous amounts of data from each transaction. Chinese AI startups create a highly competitive environment, constantly engaged in rivalry and innovation. According to China's AI plan, the government directs companies toward specific technologies, encouraging them through subsidies, public contracts, and similar mechanisms.

Of course, there are challenges and shortcomings that require improvement. For example, the Chinese government acknowledges a shortage of talented and knowledgeable professionals in AI-related fields. In 2018, the government introduced an AI innovation action plan for universities and colleges, aiming to retrain 500 teachers and 5,000 students within five years. Since 2020, more than 100 non-university AI research institutions and over 200 universities and colleges have been operating in China. Nevertheless, the government continues to state that there is still a lack of skilled professionals in AI.

Globally, the production of microchips – semiconductors - is a priority issue, as they are central to AI development. China is experiencing a crisis in this area. Moreover, none of the popular AI software platforms (such as PyTorch, Caffe, TensorFlow) were created in China. Major Chinese companies like Alibaba and Tencent are active in AI, but they still lag behind U.S. tech giants. China has more than ten privately owned AI startups valued at around 1 billion USD each, but this does not significantly alter the overall picture; a larger startup ecosystem is needed.

China continues to improve its technological position daily. Chinese researchers in AI and robotics note that large-scale competition in AI systems related to weaponry may soon begin, potentially leading to wars where robot battles would result in far fewer human casualties. China's Academy of Information and Communications Technology published an Artificial Intelligence Security *White Paper* (Tellez, 2021) to analyze these threats. Where it is expressed that international cooperation is now of critical importance, the use of these technologies must be regulated at the planetary level, as is the case with nuclear weapons.

Conclusion

In conclusion, it can be stated that China's artificial intelligence policy represents one of the most complex and strategic directions in the modern global technological and political space. The "*New Generation Artificial Intelligence Development Plan*," adopted in 2017, clearly demonstrates the state's goal - to become the world leader in artificial intelligence by 2030. To achieve this objective, China employs multiple instruments: stimulating innovation, cultivating talented personnel, establishing ethical frameworks, and developing data security standards.

The regulations developed by China - on recommendation algorithms, deep synthesis, and generative artificial intelligence - emphasize the priority of information control and security. This approach, on the one hand, strengthens the state's ability to manage technological processes, while on the other hand, it generates international discussion regarding the adoption of regulations and their compliance with global standards.

Particularly significant is China's rapid progress in quantum technologies, which grants it a strategic advantage in global competition. Although the United States still maintains leadership, China's investments and achievements indicate that the balance of power may change considerably in the future.

Thus, China's artificial intelligence policy is not merely a matter of technological development - it constitutes the state's strategic vision, integrating economic, military, social, and ethical dimensions. This policy creates a new model in which technology becomes an instrument of governance and global influence.

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