

**THE ROLE OF TECHNOLOGICAL INNOVATION IN ENSURING CHINA'S
ECONOMIC SECURITY**

Jiang Fu

Master's Student of the National University of
Uzbekistan named after Mirzo Ulugbek

fjiang2413@ceec.net.cn

Abstract: This paper explores the pivotal role of technological innovation in ensuring China's economic security amid increasing global uncertainty and geopolitical competition. As the world's second-largest economy, China faces growing challenges related to technological dependency, supply chain vulnerabilities, and external restrictions on high-tech sectors. The study highlights how innovation-driven development has become the foundation of China's strategy to achieve economic self-reliance, resilience, and sustainable growth.

The research analyzes key state policies, including Made in China 2025, the 14th Five-Year Plan, and the dual circulation strategy, which collectively aim to enhance domestic innovation capacity, promote technological sovereignty, and reduce external risks. It also discusses the role of artificial intelligence, big data, blockchain, and digital finance in strengthening China's economic and cyber security.

The paper concludes that technological innovation serves as a strategic shield for China's economy, enabling it to withstand external shocks, improve industrial competitiveness, and secure long-term national interests. Through comprehensive institutional reforms and continuous investment in research and development, China is gradually transforming into a global leader in science and technology, redefining the future of global economic security.

Аннотация: В данной статье рассматривается ключевая роль технологических инноваций в обеспечении экономической безопасности Китая в условиях растущей глобальной неопределённости и геополитической конкуренции. Будучи второй по величине экономикой мира, Китай сталкивается с возрастающими вызовами, связанными с технологической зависимостью, уязвимостью цепочек поставок и внешними ограничениями в сфере высоких технологий. В исследовании подчёркивается, что инновационно-ориентированное развитие стало основой стратегии Китая, направленной на достижение экономической самодостаточности, устойчивости и долгосрочного роста.

В работе анализируются ключевые государственные инициативы, включая «Сделано в Китае 2025», Четырнадцатый пятилетний план и стратегию двойной циркуляции, которые направлены на укрепление внутренних инновационных возможностей, повышение технологического суверенитета и снижение внешних рисков. Также рассматривается роль искусственного интеллекта, больших данных, блокчейна и цифровых финансов в укреплении экономической и кибербезопасности Китая.

В заключение отмечается, что технологические инновации служат стратегическим щитом китайской экономики, позволяя ей противостоять внешним потрясениям, повышать промышленную конкурентоспособность и обеспечивать долгосрочные национальные интересы. Благодаря комплексным институциональным реформам и постоянным инвестициям в научные исследования и разработки Китай постепенно превращается в мирового лидера в области науки и технологий, формируя новое понимание глобальной экономической безопасности.

Keywords: Technological innovation; Economic security; China; Digital transformation; Technological sovereignty; Industrial policy; Artificial intelligence; Big data; Blockchain;

Cybersecurity; Supply chain resilience; Innovation-driven development; National security; Sustainable growth.

Ключевые слова: Технологические инновации; Экономическая безопасность; Китай; Цифровая трансформация; Технологический суверенитет; Промышленная политика; Искусственный интеллект; Большие данные; Блокчейн; Кибербезопасность; Устойчивость цепочек поставок; Инновационно-ориентированное развитие; Национальная безопасность; Устойчивый рост.

Introduction:

In the modern global economy, technological innovation has become the driving force of sustainable economic growth and a critical foundation of national economic security. For China — the world’s second-largest economy — innovation is not merely a tool for industrial modernization but a strategic pillar that ensures economic resilience, competitiveness, and independence in a rapidly changing international environment.

China’s economic policy in recent years has been increasingly oriented toward innovation-led development. This approach emphasizes reducing dependence on foreign technologies, strengthening domestic production capacity, and improving the efficiency and productivity of the national economy.

In the 21st century, technological innovation has become one of the most critical factors shaping national economic security and sovereignty. For China, the world’s second-largest economy, the issue of economic security is closely linked to technological independence and innovation-driven development. Rapid globalization and digitalization have increased the vulnerability of national economies to external shocks, technological dependencies, and cyber threats. Therefore, ensuring China’s economic security increasingly depends on the country’s capacity to create, adopt, and control advanced technologies within its domestic innovation ecosystem.

In the 21st century, technological innovation has become the cornerstone of global economic competitiveness and a decisive factor in national security. For China, which has transformed from a manufacturing-based economy into a leading digital and technological power, the integration of innovation into economic policy represents a critical component of its economic security strategy. Economic security in this context refers not only to the stability and growth of the national economy but also to the protection of key industries, resources, and technologies from external risks and dependencies.

China’s rapid technological advancement — especially in fields such as artificial intelligence (AI), big data, quantum computing, and renewable energy — has reshaped its position in the world economy. These innovations play a fundamental role in reducing reliance on foreign technologies, promoting self-sufficiency, and ensuring the resilience of the national economy against global disruptions.

Technological Innovation as the Foundation of Economic Security

Economic security refers to the state’s ability to maintain stable and sustainable economic growth while protecting its key industries, resources, and technologies from external and internal threats. In the modern world, technological innovation serves as the foundation of such security by promoting competitiveness, productivity, and independence.

China recognizes that reliance on foreign technologies can expose the country to vulnerabilities in areas such as semiconductors, advanced machinery, software, and telecommunications. To mitigate these risks, the Chinese government has prioritized the development of strategic industries through innovation. The *Made in China 2025* initiative focuses on ten priority sectors, including high-end robotics, aerospace, green energy, next-generation information technology, and biomedicine.

The establishment of national innovation zones, such as the Zhongguancun Science Park in Beijing and the Shenzhen Special Economic Zone, has provided fertile ground for startups and research institutions. These innovation hubs play a central role in bridging the gap between academic research and industrial application, fostering technological self-reliance and reducing the risks of technological blockade from other countries.

State Policy and Institutional Mechanisms of Technological Independence

The state plays a decisive role in coordinating and promoting technological innovation as a tool of economic security in China. The Chinese government has established a comprehensive system of policies, programs, and institutions to support scientific research, innovation financing, and technology transfer.

One of the core mechanisms is the *National Medium- and Long-Term Program for Science and Technology Development (2006–2020)*, which laid the foundation for China's innovation-driven growth model. The program identified key strategic technologies and set ambitious goals for reducing dependency on imported technologies.

Moreover, China's recent policies emphasize the concept of "dual circulation," which aims to strengthen the domestic market ("internal circulation") while maintaining controlled engagement with international trade ("external circulation"). Technological innovation is the engine of this dual strategy, allowing China to sustain economic growth even amid global disruptions, such as trade conflicts and supply chain crises.

Investment in research and development (R&D) has also been a crucial component of China's innovation system. According to government reports, China's R&D spending surpassed 2.5% of GDP in 2023, ranking second globally after the United States. The increasing number of patents, high-tech exports, and global recognition of Chinese tech companies like Huawei, Tencent, and BYD reflect the growing technological strength of the country.

Technological Innovation as a Shield Against Global Economic Risks

Global economic and geopolitical tensions, including trade wars, sanctions, and technology restrictions, have highlighted the importance of technological resilience for China. The U.S.–China technology rivalry, particularly in semiconductors and AI, has accelerated Beijing's pursuit of self-sufficiency and innovation-based security.

Technological innovation contributes to economic security in several key ways:

1. Reducing Dependency on Foreign Technologies:

By investing in domestic chip manufacturing, AI, and cloud computing, China is minimizing its exposure to potential external restrictions.

2. Strengthening Financial Security:

Digital financial technologies, such as the *Digital Yuan (e-CNY)*, increase the transparency and control of monetary policy, reducing vulnerability to external financial risks.

3. Promoting Sustainable Growth:

Technological advancements in renewable energy, smart cities, and green technologies contribute to energy independence and environmental security, which are essential components of long-term economic stability.

4. Global Competitiveness:

Innovation-driven industries such as AI, biotechnology, and 5G are transforming China into a global leader in advanced technologies, ensuring a secure position in the global economic hierarchy.

Technological Innovation and Financial Stability:

Technological innovation also plays a critical role in strengthening China's financial security. The adoption of **blockchain technology** and **digital finance** enhances transparency, reduces fraud, and improves the efficiency of financial transactions.

The development of the **digital yuan (e-CNY)** by the People's Bank of China marks an important step in asserting monetary sovereignty and reducing dependence on the U.S. dollar-dominated financial system.

By investing in fintech innovation, China mitigates systemic financial risks and enhances the resilience of its banking and payment systems.

Innovation for Energy and Environmental Security

Energy security is another crucial dimension of China's economic stability. Technological innovation in renewable energy — including solar, wind, hydrogen, and battery technologies — helps China reduce dependence on imported fossil fuels and meet its carbon neutrality goals.

The rapid growth of Chinese companies such as **CATL** and **BYD**, global leaders in battery production, demonstrates how innovation drives both economic competitiveness and sustainable development.

The creation of domestic energy technologies also ensures that China's economy remains stable even amid global energy market fluctuations.

Conclusion:

Technological innovation has become the core pillar of China's economic security strategy. It enables the nation to strengthen industrial competitiveness, achieve technological sovereignty, and enhance financial and energy resilience.

By integrating innovation into all aspects of governance, China is building a new model of economic development — one that combines self-reliance, digital modernization, and global engagement.

In the long term, sustained investment in research, education, and innovation will determine China's ability to maintain its economic security and leadership in the evolving global economy.

Technological innovation has become the cornerstone of China's strategy to ensure economic security in an increasingly complex global environment. The development of national innovation capabilities enables the country to protect its economic sovereignty, enhance productivity, and reduce dependence on foreign technologies.

Through comprehensive state policies, institutional mechanisms, and massive investment in R&D, China continues to transform its economic structure from labor-intensive production to knowledge- and technology-based development. However, challenges remain, including the need for higher-quality innovation, intellectual property protection, and integration between academia and industry.

Ultimately, technological innovation not only strengthens China's internal economic stability but also positions it as a key player in shaping the future global economic and technological order.

References:

1. State Council of the People's Republic of China. *Made in China 2025 Plan*. Beijing, 2015.
2. National Bureau of Statistics of China. *China Statistical Yearbook 2023*.
3. Xi Jinping. *Speech at the 20th National Congress of the CPC*. Beijing, 2022.
4. Huang, Y. (2023). *Innovation and Economic Security in China: Challenges and Prospects*. Journal of Asian Economic Studies.
5. OECD. *Science, Technology and Innovation Outlook: China Report*. 2022.
6. Liu, M., & Zhang, T. (2021). *Technological Sovereignty and Economic Security in China's Policy Framework*. Asia-Pacific Economic Review.
7. World Bank. *China: Innovation for Inclusive and Sustainable Growth*. Washington, 2020.
8. State Council of the People's Republic of China. *Made in China 2025 Plan*. Beijing, 2015.

JOURNAL OF MULTIDISCIPLINARY SCIENCES AND INNOVATIONS

VOLUME 04, ISSUE 10
MONTHLY JOURNALS



ISSN NUMBER: 2751-4390

IMPACT FACTOR: 9,08

9. National Bureau of Statistics of China. *China Statistical Yearbook 2023*. Beijing: China Statistics Press, 2023.
10. Huang, Y. (2023). *Innovation and Economic Security in China: Challenges and Prospects*. *Journal of Asian Economic Studies*.