

CHINA'S AMBITIOUS AI STRATEGY: AN IN-DEPTH LOOK AT INNOVATION AND GLOBAL IMPACT

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ABSTRACT

Over the past decade, China has emerged as a major global actor in the field of artificial intelligence (AI), driven by its strategic ambition to become a world leader in AI innovation by 2030. This ambition is strongly supported by state-led policies and long-term planning, most notably the New Generation Artificial Intelligence Development Plan (2017), which assigns the promotion and governance of AI technologies a central role in national development. China's AI strategy prioritizes technological self-sufficiency, the establishment of innovation hubs, and the integration of AI across key sectors such as surveillance, healthcare, manufacturing, and smart cities. This study examines the role of innovation hubs in advancing China's AI ecosystem and enhancing coordination between the state, industry, and research institutions. Furthermore, it highlights China's comprehensive emphasis on AI as a driver of economic growth, governance efficiency, and public development. Through initiatives such as the Digital Silk Road (DSR), China is exporting AI technologies and governance models, thereby influencing AI adoption, standards, and practices in developing countries and expanding its footprint in the global AI landscape. However, external constraints particularly United States-led restrictions on advanced semiconductors pose significant challenges to China's AI ambitions and may impede progress in high-end AI development. This research critically explores the complexities of China's AI strategy by analyzing its policy framework, the impact of domestically developed AI models, and the structural and geopolitical obstacles confronting its pursuit of global AI leadership.

Keywords: Artificial Intelligence Strategy; Innovation Hubs; China; Global Impact; Technological Competition.

INTRODUCTION

The rapid advancement of digital technologies is transforming industries across the globe, reshaping economic structures, governance models, and patterns of innovation. Among emerging technological powers, China has positioned itself at the forefront of this transformation, demonstrating how strategic state intervention and long-term planning can significantly influence technological development and industrial competitiveness.

Over the past decade, China has expanded its influence in the global technology sector with the explicit objective of becoming a leading innovation-driven economy. Through a coordinated policy framework, the country seeks to establish itself as a major global competitor by integrating advanced technologies particularly artificial intelligence (AI) across key sectors of its economy.

China's technological ambitions are not limited to domestic advancement; they also shape technology development in emerging economies through the diffusion of international standards, governance models, and industrial practices. However, these ambitions face substantial challenges, particularly due to restrictions imposed by the United States on advanced semiconductor technologies, which have the potential to constrain China's progress in high-end innovation. Against this backdrop, this study examines the complexities of China's technological strategy by analyzing its policy framework, the impact of domestically developed technologies, and the structural and geopolitical constraints it encounters. It also considers the broader global implications of China's approach to technology governance and innovation.

A defining feature of China's long-term technology strategy is its emphasis on balancing rapid innovation with safety, regulation, and societal stability. By adopting adaptive regulatory mechanisms and investing heavily in digital infrastructure, China has developed a governance model aimed at sustaining technological growth while mitigating associated risks. This approach offers valuable insights for other countries seeking to promote innovation without compromising social well-being. Moreover, China has demonstrated the potential of technology-driven solutions in sectors such as healthcare, manufacturing, and energy, where tailored applications have enhanced efficiency, sustainability, and the large-scale societal impact.

International recognition of these efforts is reflected in initiatives such as the World Economic Forum's Alliance for Responsible AI Governance, which acknowledges China's progress in developing industry-specific technological solutions. Despite ongoing ethical and regulatory challenges, China has successfully integrated AI into multiple sectors. With a rapidly expanding technology market valued at over USD 70 billion and a dynamic ecosystem comprising more than 4,300 technology firms, China presents a compelling model for countries aiming to strategically cultivate innovation ecosystems and unlock the transformative potential of advanced technologies (Zhang & Xinyu, 2022).

China's Strategic foundations for AI growth

China is making significant advancements in the field of technology through a carefully planned and systematic approach. Their Next Generation Development Plan, which was introduced in 2017, sets high targets to make technology a key factor in their economic growth and establish themselves as a leader in innovation by 2030. The plan focuses on creating a balance between long-term planning and safety by implementing adaptive regulations. We believe that innovation is important, but not at the cost of compromising safety. Therefore, our approach is to carefully consider all aspects and make decisions that prioritize the well-being of our employees and customers. To understand the importance of planning for the future, but we also value the present and strive to create a safe and sustainable environment for all involved. These frameworks allow for testing out new ideas and applications while keeping in mind ethical values - something that many countries strive for.

China's Framework for Advancing Artificial Intelligence

Next-Generation Development Plan (2017) puts a strong emphasis on fostering innovation and entrepreneurship. It will be achieved through the creation of entrepreneurial hubs that will provide support and resources for aspiring entrepreneurs. By promoting a culture of innovation and providing necessary resources, the plan aims to drive economic growth and create job opportunities for individuals. These bases are like central locations where people with entrepreneurial ideas can come together and thrive, making a significant impact on the overall development of technology. Along with this, there is a focus on promoting digital financial inclusion, which plays an important role in providing the necessary funding for these entrepreneurs. By incorporating technology into financial services, our goal is to make it easier for people to access and use financial tools. It will not only improve convenience for our users, but also expand the availability of financial services. With the growing use of mobile payments and consumer loans, we are committed to making the process of managing your finances more seamless and accessible. Economic innovations like loans and investments are important for entrepreneurs to have the resources they need to

create and use new technologies. This helps to keep the cycle of innovation and development going. As a result, it is important to have strong financial systems that support entrepreneurs and make it possible for them to use new advancements in technology.

China's ambition of achieving AI self-sufficiency

Building on the foundations of the Next-Generation AI Development Plan, China aims to achieve self-sufficiency in technology and innovation through emphasizing indigenous progress and independence. The goal is a crucial part of China's larger ambition to become a global leader in science and technology by 2049, with a focus on harnessing the power of innovation to drive this transformation. The very program's goal is to improve China's manufacturing capabilities by integrating information technology. It will not only increase productivity but also promote the use of locally produced technology in high-end products. By focusing on upgrading our manufacturing processes, we can create more job opportunities and support the growth of our economy. It is important to invest in our own technology and industry, rather than relying on foreign imports. With this program, we can strengthen our country's position in the global market and promote innovation within our own borders. In order to achieve its strategic goals, China is working towards becoming more self-sufficient in the field of advanced technology. It is especially important in the area of artificial intelligence, where relying on foreign technology could hinder our progress. Made in China initiative aims to decrease our dependence on foreign resources and ensure that we have the ability to independently develop and control critical AI technologies. By doing so, we can confidently move towards a future where we are not reliant on others for our technological advancements. Creating self-sufficiency in advanced technologies is crucial for China to become a world leader in the future. It aligns with the country's goal of gaining dominance in the global tech industry. To achieving strategic autonomy in these areas, China not only strengthens its economic resilience but also increases its influence and impact on the world (Melbourne Asia Review, 2021).

China's Approach to Technological Advancement and Value of Innovation Hubs

Innovation hubs in China are important for the country's technological growth and progress in areas such as big data analytics and gene editing. They serve as centers for collaboration and development and are supported by the government's strategic initiatives. These hubs create a competitive environment that attracts both local and global talents and investments, allowing for innovative solutions and advancements in various industries. The Chinese officials is actively promoting the growth of innovative skills within these important projects. This aligns with their overall goal of boosting self-reliance and decreasing reliance on technology from other countries.

Additionally, the careful planning and unique qualities of these hubs play a crucial role in promoting innovation in various industries, including health sciences. It highlights their significant impact on the overall landscape of advancements in China. China's approach to regulating AI involves creating innovation hubs that are essential for shaping policies and staying competitive in the global market. In order to maintain the growth and success of these hubs, it is crucial for China to provide support through favorable policies and investments, solidifying its position as a leader in technology. These hubs also serve as a hub for collaboration and team building, allowing for face-to-face interactions that can reduce friction in the work process. We highly recommend arriving at the office daily to take advantage of the benefits of in-person communication. However, working from home also has its own benefits such as a stress-free commute and more time for self-care and family. It is necessary to strike a balance between in-person and remote work for the overall success of both individuals and the industry as a whole (Gregory, 2019).

Influence of China's AI Models on present day Society

Deep- seek a growing technology company from China, is proving to be a strong competitor against well-known Western companies like OpenAI, Anthropic, and Meta. They are known for their valuable and groundbreaking technology that is pushing the boundaries of development. One of the main ways that DeepSeek differs from Western companies is its

emphasis on cost-effective operations. It means that it can provide technological solutions at a much lower cost compared to traditional Western models. It is possible because DeepSeek prioritizes efficiency and smart design in its training methods, instead of relying on expensive hardware like many Western companies do. As a result, DeepSeek offers affordable and accessible AI solutions to its clients. As DeepSeek gains popularity, it brings up important conversations about the efficiency and safety of artificial intelligence. By prioritizing efficiency and smarter processes, DeepSeek offers a new approach to AI development that challenges traditional methods and costs. The very raises questions about whether the high expenses associated with AI are truly necessary or if there are more cost-effective and safe ways to develop this technology. These discussions also prompt us to consider the potential risks involved in pursuing AI progress at all costs. The world is constantly evolving, and significant changes are inevitable. One area that is likely to see a major shift is the technology landscape (Lungani, 2021). It could have a significant impact on innovation, market dynamics, and the ethical use of technology. It is important for us to carefully consider the implications of these changes and ensure that ethical practices are prioritized in the development and deployment of new technologies.

Advancements of Technology in Surveillance and Healthcare

The use of technology, especially in healthcare and surveillance, has significantly improved and transformed the way we live. With the help of advanced algorithms and mobile health technologies, we are able to receive tailored therapy and treatments that improve our overall health and well-being. It has also allowed for more personalized and efficient systems, making healthcare delivery more effective and patient outcomes more successful. Gadgets like wearable devices allow us to keep track of our health on a regular basis, providing us with real-time information that can help us detect any small changes in our well-being. This can help us take action early on and prevent potential health issues, saving us money on healthcare in the long run. Additionally, medical imaging relies heavily on AI technology to assist in the detection of

anomalies in X-rays and CT scans. However, it is important to note that human radiologists are still crucial in interpreting these results and their expertise cannot be fully replaced by AI (Hodan, 2024). Human judgement and experience are still essential in ensuring accurate diagnoses and treatment plans for patients. In addition, the ability to predict potential health risks and plan accordingly is vital in the healthcare industry. By identifying those who may be at risk, healthcare providers can improve their services by having the right number of staff and managing patient flow efficiently. The results in shorter wait times and hospital stays for patients. However, it is important to consider privacy and data sharing when incorporating technology into healthcare to ensure smooth and secure operations. The potential for technology to improve and save the U.S. healthcare industry highlights the need for continued investment and advancements. As technology continues to improve, it can provide remote monitoring through telehealth and help detect health issues earlier, showcasing its value in modern healthcare systems. It is crucial to prioritize the development of strong technological systems and incorporate human guidance in order to fully utilize digital interventions and achieve significant advancements in public health (Meng, 2018).

The Importance of Digital Silk Road (DSR) for Exporting Advanced Technologies

The DSR Initiative is an important effort in promoting the export of technology, which aligns with China's strategic goals as outlined in their "Made in China" plan. This initiative not only aims to strengthen China's technological independence, but also seeks to improve global supply chains by incorporating advanced technologies and data analysis. By promoting the export of advanced technologies, the Dual-Use Science and Technology (DSR) program aims to benefit both commercial and military interests. This is supported by research and patent data, which show the integral role of technologies such as Artificial Intelligence and Big Data in shaping the future of supply chains. This initiative not only strengthens our economy but also furthers our strategic objectives. It is important to recognize the close relationship between economics and strategy, as advancements in technology can greatly impact both areas. For instance, developments in

artificial intelligence have the potential to bring about substantial commercial and geopolitical benefits. As we see more and more technology being implemented in markets worldwide, it is crucial for everyone involved to understand the various effects of the digital single market. It requires careful consideration of its impacts on international trade and security, and navigating them with caution.

Challenges, opportunities and Global Implications of China's AI Ambitions

The US restrictions on semiconductor technology have created significant hurdles for China, particularly in their efforts to develop advanced capabilities crucial for their military and technological ambitions. It Poses a strategic disadvantage for the nation, as they are unable to progress and compete with other countries in this crucial area. The Biden administration has taken steps to limit China's access to advanced technology in the design and production of semiconductors. These technologies are crucial for not only civilian use, but also for military purposes. The decision is aimed at protecting the interests of the United States and ensuring its technological superiority. The United States' restrictions on technological cooperation with China has created a major obstacle for the country's efforts to compete in the global semiconductor market. Further complicated by the US working closely with its allies to enforce these restrictions, making it difficult for China to find ways around them and remain competitive. As a result, China may struggle to keep up with the rapid advancements in the semiconductor industry, hindering its economic growth and development. China's technological progress has been significantly hindered by restrictive policies that have been put in place. These policies not only limit economic growth but also raise concerns about national security. As a result, China's journey towards self-sufficiency in this crucial sector has become increasingly complicated. These limitations put Chinese companies at a disadvantage when competing in the global market, especially in vital areas like logic and NAND memory chips. While foreign leaders continue to make advancements, Chinese manufacturers struggle to keep up. As a result, China faces a number of complex challenges that must be addressed in order to achieve its technological and military

goals. In order to overcome the impact of these restrictive measures, China must focus on developing its own domestic capabilities and exploring alternative strategies. This will require determination and innovation, as well as a deep understanding of the multifaceted issues at hand. With hard work and perseverance, China can overcome these challenges and continue to advance in the global arena (Lizzi, 2024).

China's progress in developing artificial intelligence technology has not been without its challenges. Some of the obstacles facing the country include difficulties with sharing data, differences in capabilities between different regions, and a shortage of skilled individuals in the field. The issues continue to pose ongoing challenges for China's AI development. This issue cannot be solved by one person or sector alone. It needs collective efforts from various industries and countries. The experience from China also emphasizes the significance of promoting collaboration and building partnerships in order to successfully implement AI on a large scale. For people around the world, China's experiences serve as a guide, rather than a strict rule. They show us how having a clear plan, supportive resources, and industry-specific creativity can unleash the full potential of any endeavor. Nonetheless, it is important to recognize that progress in technology must be balanced with responsible development and international cooperation. It involves understanding the impact of technology on society and establishing effective governance systems to guide its use. The AI Governance Alliance is committed to promoting the responsible and ethical development of AI to drive sustainable and inclusive growth. By fostering collaboration between all stakeholders, we can ensure that AI is used for the betterment of society while addressing the world's most pressing challenges. Moving forward, it will be important to find a balance between embracing new ideas and technology while also being responsible and mindful of their impact. It requires open communication and collaboration, as we can learn from each other and work together towards a better future. Let's strive to make ethical and sustainable choices, as individuals and as a society, for the betterment of all (Ulrich, 2017).

China's Impact on Shaping Developing Economies' AI Standards

China's approach to establishing AI standards in developing countries is heavily influenced by its focus on promoting innovation while maintaining social stability. This means finding a balance between pushing for technological advancements and considering the impact on society. China recognizes the importance of considering the potential consequences of AI and aims to create ethical and responsible guidelines for its development and use. This approach ultimately aims to benefit society as a whole, rather than just prioritizing economic gain.

Many developing nations are looking to embrace advanced technology, while also maintaining stability and order within their societies. One example of this is China, which has invested heavily in creating strong AI infrastructure and implementing strict measures for controlling content. This highlights their determination to become a leader in the global development of technology, particularly in these emerging economies. (William & William, 2019). China is taking steps to improve standardization efforts in various regions through initiatives such as the Belt and Road Initiative (BRI). The approach involves working together with other countries to establish common standards, while also promoting their own standards through bilateral cooperation and investment projects. It not only helps to strengthen international relationships, but also showcases China's commitment to high standards and cooperation with other nations. As developing countries aspire to achieve the same economic success as China, they may follow in its footsteps and adopt similar strategies. It could result in economic growth and technological progress in these regions, but it is important to monitor these developments carefully to ensure that they do not infringe on the privacy rights and civil liberties of individuals. As China's influence grows, it presents opportunities for developing economies. However, it is important to approach this growth with balance and consideration for ethical implications and local contexts in order to achieve sustainable integration. This means taking into account the well-being and values of the people in these economies and respecting their unique

situations. It also requires thoughtful decision-making that prioritizes the long-term benefits for all involved. Ultimately, a humanistic approach is necessary to ensure the positive impact of China's influence in these developing economies (MOFAPROC, 2024).

Prospective Effects on a Global Scale of China's Models for Governing AI

China's approach to governing AI has the potential to greatly impact the world, as it prioritizes safety and ethical considerations. It's shed light in their human-centered AI development strategy, which is in line with the goals of international cooperation. The Shanghai Declaration on Global AI Governance emphasises the importance of working together to use AI for the betterment of humanity, further highlighting the value of China's approach. China's new Provisional Administrative Measures for Generative Technology Services could have a significant impact on the future of international policy discussions surrounding technology. As the first regulation of its kind, it develops a precedent that other countries may look to for guidance in shaping their own governance frameworks. The pioneering move has the potential to influence how technology is used and regulated around the world, highlighting the importance of responsible and ethical decision-making in this rapidly evolving field. Although implementing these measures may encourage a worldwide, unified approach to governing technology, it also runs the risk of creating uncertainties in responsibility throughout the entire process, potentially weakening the impact of services for people all over the world. As China becomes a major player in the development of technology, it is important for international stakeholders to actively engage with their models. This will ensure that global technology governance evolves in a way that benefits everyone and is effective in addressing potential concerns. It is crucial for all parties to work together in creating a fair and inclusive approach to technology governance. However, the barriers presented by the semiconductor restrictions imposed by the United States reveal a major vulnerability in China's plan. The suggests that while it may be ambitious, the road to becoming a global leader in technology is filled with political obstacles. Furthermore, China's governing approach,

which prioritizes stability and innovation, presents both advantages and moral dilemmas for developing nations who may adopt similar strategies (Hanna, 2024).

Conclusion

In conclusion, China's approach to the development and promotion of advanced technologies demonstrates a strategic vision that extends beyond mere technological advancement to the creation of a sustainable foundation for innovation and self-reliance. This orientation is clearly reflected in key initiatives such as the Next-Generation Artificial Intelligence Development Plan and the Made in China strategy, which emphasize indigenous innovation, reduced dependence on foreign technologies, and long-term technological sovereignty. Central to this strategy is the establishment of innovation hubs, which play a pivotal role in fostering collaboration among government agencies, academic institutions, and private enterprises. These hubs facilitate knowledge sharing, attract skilled human capital, and mobilize investment, thereby accelerating innovation in critical sectors such as healthcare, manufacturing, and smart governance.

By bringing together diverse expertise and resources, innovation centers enable the development of solutions to complex societal challenges and support breakthroughs that contribute to both economic growth and public welfare. However, the rapid advancement and widespread application of AI technologies also raise important ethical, social, and regulatory concerns. As China's influence in shaping global technological norms and practices continues to expand, questions regarding data governance, surveillance, accountability, and ethical AI deployment have become increasingly significant.

Therefore, future research should examine the broader implications of China's AI policies for global standards, regulatory frameworks, and international technological governance. Equally important is a deeper exploration of the ethical dimensions associated with the integration of AI across various industries. Such inquiry will contribute to a more comprehensive understanding of the evolving global AI landscape and the far-reaching consequences of China's technological ambitions.

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