Empowering the development of new quality productive forces through deep integration of Alenabled sci-tech and industrial innovations

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The deep integration of sci-tech and industrial innovations, a strategy put forward at the 2025 NPC and CPPCC annual sessions, signifies a pivotal juncture in China's innovation-driven development. Amid the intensified global technological competitiveness and accelerated industrial transformations, the enhances convergence of sci-tech industrial innovation stands as a fundamental mandate for China's innovation-driven trajectory. It is also a pressing imperative to accelerate the development of new quality productive forces and build a modernized industrial system. At the center of this strategy lies the enhancement of high-quality technology supply, whereby the quality of technology supply fundamentally shapes the extent of industrial innovation.

1. Reframing the sci-tech innovation framework

In 2024, China's Ministry of Science and Technology launched six major national science and technology projects and 82 national key research and development programs¹, aiming to bolster the industrial innovation as a driving force. Increasing the commercialization of sci-tech achievements is a key step to leap from sci-tech achievements to industrialization. Due to supportive policies including tax and fee cut, system and mechanism reform, the sales from services for the commercialization of sci-tech achievements in China grew by 27.1% year-on-year (YOY), 14.3 percentage points higher than the growth of high-tech services².



Figure: YOY sales growth in 2024

Source: China Daily

¹ Ministry of Science and Technology

² China Daily, https://cn.chinadaily.com.cn/a/202502/13/WS67ad449fa310be53ce3f52aa.html

In 2025, China will continue in advancing disruptive sci-tech innovations and promptly applying breakthroughs in specific industries to create fresh momentum and competitive edges for development. The strategic focus will broaden to encompass integrated circuits and micro & nano systems, artificial intelligence (AI) and information systems, life sciences & wellness, energy & resources and environment³ sectors. Generative AI (GenAI) is poised to emerge as a key sector for the commercialization of sci-tech achievements. In 2024, there was a substantial global surge in GenAI patents, with China contributing 61.5% of the newly registered patents, securing the top position worldwide⁴. This year, the government is expected to introduce a raft of supportive policies on patent commercialization and GenAI applications across industries to accelerate the transformation of sci-tech achievements.

2. Al-driven industrial transformation

Empowering industries through AI

Al applications are permeating various industries, revolutionizing traditional processes and enhancing efficiency. In the medical sector, Al-driven diagnosis systems are now operational in thousands of health care facilities nationwide, assisting doctors in identifying patients at risk⁵. Additionally, Al-powered compound analysis is accelerating the research and development of new drugs among pharmaceutical businesses⁶. In the manufacturing industry, Al-based intelligent systems are playing a pivotal role in cost reduction and operational improvement⁷. In agriculture, a robust Al-driven management system for agricultural resources is optimizing resource allocation⁸, further enhancing productivity. The automotive industry is experiencing a surge in Al development and implementation, catalyzing industrial intelligence⁹ and facilitating the widespread adoption of autonomous driving solutions at a more economical rate as Al evolves¹⁰. These examples illustrate how Al is significantly enhancing sector-specific efficiencies, optimizing resource allocation and accelerating industrial advancement.

Breakthroughs in embodied intelligence

Embodied agents have achieved initial success across various sectors, representing a new paradigm that integrates multimodal perception and technology. In the logistics sector, there has been a notable improvement in efficiency as intelligent robots are increasing utilized for warehousing and distribution in large logistics centers and e-commerce warehouses¹¹. In the automobile manufacturing sector, the deployment of embodied robots enables more precise production while reducing labor costs and shortening production cycles¹². In the medical field, rehabilitation robots offer patients with personalized rehabilitation programs to expedite their recovery¹³. These examples illustrate that embodied intelligence is transitioning from the laboratory to practical applications, making service robots more human-like.

³ Guidelines for the application for key projects of disruptive technological innovation under the national key R&D program 2025

⁴ World Intellectual Property Organization (WIPO), https://baijiahao.baidu.com/s?id=1824353209483122672&wfr=spider&for=pc

⁵ Ministry of Industry and Information Technology, https://wap.miit.gov.cn/ztzl/rdzt/gytxyfgfcgz/mtbd/art/2020/art_65c7476a899f4744b0180fdbd7775044.html

⁶ China Industry News, https://www.cinn.cn/p/383308.html

⁷ CCTV.com, https://jingji.cctv.com/2024/08/18/ARTIdFY5C8obQRIU0V72Bp8y240818.shtml

⁸ Harbin Municipal People's Government, https://www.harbin.gov.cn/haerbin/c104696/202408/c01_1006175.shtml

⁹ Xinhuanet.com, https://www.news.cn/auto/20250103/217969021c2a496ea41191ea9ed09986/c.html

¹⁰ People's Daily, http://paper.people.com.cn/rmrb/pc/content/202503/12/content_30061510.html

¹¹ People's Daily, http://paper.people.com.cn/zgcsb/pc/content/202503/17/content_30062313.html

¹² China Daily, https://cn.chinadaily.com.cn/a/202501/09/WS677f70afa310b59111dad044.html

¹³ Mianyang Municipal People's Government, http://www.anzhou.gov.cn/anzhou/c106067/202501/edccaed794c440ee90a052f6708669c0.shtml

Iterative infrastructure upgrades

At the end of 2024, intelligent computing centers have been constructed or are under construction in various cities nationwide¹⁴. Domestic technology for AI chip manufacturing has developed rapidly, narrowing the performance gap with global leaders¹⁵ while reducing the costs associated with training large models as infrastructure is optimized¹⁶. Industry-level data trading platforms have made significant strides in data aggregation across multiple sectors, including manufacturing, finance, Internet, healthcare, transportation and education¹⁷. These iterations are paving the way for AI industrialization.

3. Crafting a strategic framework for AI-driven innovation

Leveraging AI is pivotal for improving short-term efficiency and establishing long-term competitiveness. The application of AI goes beyond process optimization, reaching deep into the business cores and even sparking new business models. In light of this, we have identified three key focal points for AI-driven innovation to help unlock business value and uphold competitiveness.

Optimizing operating model

As the cost of using AI has dropped significantly, many early adopters focused more on improving operational efficiency. However, solely relying on "low-hanging fruits" may limit the potential to build long-term competitiveness.

Reshaping core businesses

Industry leaders are using AI to reshape fundamentals of their core businesses, revolutionizing business rather than improving gradually. Actions include creating AI-driven products and leveraging AI for reshaping customer experience.

Creating new businesses

Forward-looking companies are using AI to create new business models and revenue streams. New business ventures are typically incubated through corporate venture capital (CVC) initiatives or strategic mergers and acquisitions (M&A) to accelerate innovation and establish market leadership.

¹⁴ National Data Bureau, https://www.szzg.gov.cn/2024/szzg/xyzx/202501/t20250124_4968272.htm

¹⁵ Chinese Academy of Engineering, https://www.toutiao.com/article/7481593090994815526/?upstream_biz=doubao&source=m_redirect

¹⁶ Guangdong Science and Technology Department, https://gdstc.gd.gov.cn/kjzx_n/mtjj/content/post_4660312.html

¹⁷ China Academy of Information and Communications Technology, http://www.caict.ac.cn/kxyj/qwfb/ztbg/202408/P020240816544947002101.pdf

Al opportunity point identification framework



4. Ensuring confidence in leading Al-driven change

Despite the pressing need to transform the business environment through AI, companies face myriad challenges in realizing their AI strategies, such as formulating strategies, mitigating risks and bridging technology and capability disparities. In navigating the business strategy, management must proactively address these gaps to propel their organizations into the AI era. According to the EY CEO Outlook Pulse Survey, 99% of CEOs are considering investing in generative AI, with 70% recognizing the necessity of immediate actions to assuage concerns about lagging behind¹⁸.

In this context, we have developed the AI Innovation Strategy Framework, a three-tiered approach that helps management plan for AI adoption.

Set strategy	Deliver value	Build capacity	
AI strategy and development blueprint	Creating business value through AI	Building AI related capacity, including data, technology, organization, operation and governance	
Core issues	Core issues	Core issues	
 What are the top three priorities for AI development? What does the future-oriented 	 How can businesses adapt to the rapid iteration of AI technology? 	 Has an enterprise-level data platform been developed to support ongoing Al optimization? 	
vision start with?How can AI strategy align with	 How can businesses identify potential AI pilot projects? 	 Is the AI capability readily available or is it necessary to engage AI expertise? 	
other strategic priorities?	 How can businesses create value from pilot to scale-up? 	 Is AI compliant with regulatory requirements and how can legal risks be mitigated? 	

¹⁸ https://www.ey.com/en_gl/board-matters/how-boards-can-confidently-steer-an-ai-enabled-future

On top of these three dimensions, businesses need to orchestrate the change for the transition from pilot to scale-up.

Set strategy	Overall AI strategic objectives				
Deliver value	Endogenous business drivers		င္လဲတိုင္ External leverage		
Build capability	Dedicated data assets and models	C= Talent and organizational strategy	Operational model and system	Governance and risk management	
Orchestrate change	Change management and ongoing empowerment				

Conclusion

The deep integration of Al-enabled technology and industrial innovations is reshaping the fundamental framework of China's economy. Through the synergy of policy guidance, technological breakthroughs and industrial practices, China is accelerating the cultivation of new quality productive forces and taking a proactive role in reshaping the global value chain. Going forward, those who continuously refine the innovation ecosystem, strengthen investment in foundational research and enhance mechanisms for commercializing achievements can distinguish themselves in the era of digital economy's high-quality development. To achieve this, collaboration between businesses, governments and scientific research institutes is essential to drive the seamless integration of sci-tech innovation with industrial advancement, infusing lasting momentum into high-quality economic development.

For more information, please contact us:



Ben Kwan

Partner, EY-Parthenon Ernst & Young (China) Advisory Limited +86 10 5815 2325 ben.kwan@parthenon.ey.com



Sarah Chang

Partner, EY-Parthenon Ernst & Young (China) Advisory Limited +86 10 5815 2089 sarah.chang@cn.ey.com



Roy Liu

Senior Manager, EY-Parthenon Ernst & Young (China) Advisory Limited roy.mr.liu@cn.ey.com

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