

Opportunities and Challenges of AI Industrialization

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The industrialization of AI marks the transition of AI technology from theoretical research to commercial practice, encompassing the development of AI technologies, the establishment of specialized companies, and the research of algorithms and platforms with hardware support. This process has facilitated the application of AI technologies in critical sectors such as finance, healthcare, and transportation, enhancing the precision of these industries. The progress in AI relies on in-depth data analysis, reliable algorithms, and robust computing power, which together drive the continuous advancement of the technology. Industrialization not only transforms the interaction between humans and technology but also reshapes the global industrial structure and lifestyles, particularly in emerging markets where infrastructure limitations are lesser, allowing faster adoption and application of AI technologies, thereby enhancing their competitive edge. Over the next decade, the AI market is expected to see significant growth, driving the development of new business models.

AI technology is propelling transformations across multiple industries, notably in finance, healthcare, and transportation. In recent years, the rise of generative AI, especially AI-generated content (AIGC), has had a significant impact. In finance, generative AI has improved service efficiency, precise risk management, and the development of innovative products. AI's ability to swiftly process large datasets facilitates accurate risk assessments and shows potential in fraud detection, automated trading, and the automation of customer services. In healthcare, AI significantly enhances diagnostic accuracy and surgical techniques through deep learning and big data analysis, providing precise diagnostics and personalized treatment plans, while telemedicine breaks geographical barriers. In transportation, the development of autonomous driving technology not only changes the way goods are transported but also improves operational efficiency. Generative AI plays a crucial role in analyzing traffic data, planning optimized routes, and adjusting responses to unexpected events, significantly enhancing the speed and accuracy of logistics.

The United States, the United Kingdom, and Singapore, as key players in AI industrialization, have each developed proactive strategies to maintain their global technological leadership. The U.S. government has enhanced domestic and

international collaboration and investment to promote the development of AI technologies and industries, focusing on responsible innovation and global governance of AI. Through initiatives like the Partnership for Global Inclusivity on AI, it supports the application of AI in sustainable development. The UK focuses on reconfiguring industrial strategies to utilize AI in enhancing productivity, improving economic structures, and enhancing global competitiveness, including setting up technology departments within the government and promoting cross-departmental collaboration. Singapore's AI strategy includes nationwide participation and international cooperation, emphasizing AI's role in addressing global challenges and advancing economic and social welfare, and enhancing national acceptance and application capabilities through enterprise AI transformation and comprehensive AI education programs.

In promoting AI industrialization, Taiwan could adopt strategies such as investing in high-performance computing centers and cloud infrastructure to enhance computing power; expanding AI application testing platforms to provide more opportunities for small and medium-sized enterprises; establishing specialized AI funds to attract private capital; setting up national data centers and standardizing big data usage while reducing bureaucratic procedures to lower the barriers for small and medium-sized enterprises; opening market work visas to address shortages of technical personnel; viewing procurement as industrial policy; promoting AI applications in energy management; and encouraging technology companies to share low-cost computing resources. These measures would help Taiwan secure a place in the global AI arena and promote economic and technological progress simultaneously.

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