

**“AI+” empowers
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and becomes a key
engine for new quality
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The *Government Work Report* was released on 5 March 2024, proposing to strive to modernize the industrial system and develop new quality productive forces at a faster pace. The report also points out the need to accelerate in the research and development (R&D) and application of big data and artificial intelligence (AI), launch of an “AI+” initiative and to build digital industry clusters with international competitiveness. At present, a new round of scientific and technological revolution and industrial transformation is underway, exhibiting distinctive features of the modern era, as the new quality productive forces emerges. AI is an important engine for new quality productive forces. Accelerating the development of a new generation of AI is of great significance in seizing the opportunities of the digital economy and accelerating the formation of new quality productive forces.

As the new generation of technological innovation and application represented by AI enters an active period, China has also launched various policies and actions to promote and advance the development of the new generation of AI. We will interpret “AI+” from the dimensions of computing power, safety and application.

“AI+” computing power: The future demand for intelligent computing power continues to rise, optimization of both hardware and software to ease the computing shortage

The demand for intelligent computing power for AI productization and industrial AI continues to rise, and China has accelerated the construction of intelligent computing power centers. AI industrialization is the industrialization of AI products, using AI technology to yield products and form related industries, with a market scale of hundreds of billions. Industrial AI refers to the integration of AI with traditional industries, a prime example of AI’s key role in the development of various industries. In this process, computing power becomes an important production factor, with the computing center as the core infrastructure. According to the Action Plan for the High-Quality Development of Computing Power Infrastructure jointly issued by the Chinese Ministry of Industry and Information Technology and six other departments in October 2023, it is planned that, “By 2025, in terms of compute, our compute scale will exceed 300 EFLOPS, the proportion of this that is intelligent compute will reach 35%”.

Through the optimization of both hardware and software, the “impediments” of the computing shortage that restricts China’s AI innovation will be removed. The industry is concerned about the direction of software-hardware optimization, including: 1) software-hardware decoupling to adapt to a variety of homegrown technologies; 2) higher interconnection bandwidth between the chips; 3) improve the fault tolerance of the cluster; and 4) flexible computing services to meet the complex needs. There are more and more computing solutions around the performance and cost requirements of AI companies, including: algorithm and chip adaptation, algorithm innovation, mixing domestic and foreign chips for training in different scenarios, and flexible computing services to meet complex demands. There are many other directions to improve computing performances based on “software-hardware co-optimization”, and exploring more effective paths to improve domestic computing will help alleviate the computing shortage.

“AI+” security: In the security field, AI is showing its application capabilities and the need to prevent the govern cybersecurity risks

AI automatically identifies possible vulnerabilities and cybersecurity risks through big data analysis and machine learning technology, changing the traditional reactive response mode to active defense and solving the problem of insufficient cybersecurity manpower. By analyzing the pattern of network attacks and predicting possible threats, it assists security experts to respond appropriately to specific events in advance.

At the same time, AI faces multiple cybersecurity risks. For example, “data poisoning” risk: putting malicious data into AI training data, interfering with the normal operation of the data analysis model, such as “poisoning” in the automatic driving system, which may lead to traffic accidents; cyber-attack risk: based on the machine learning features of AI, the attacker can more easily implement hidden, targeted cyber-attacks; and risk of data theft: AI requires substantial amounts of data for learning and training, which may contain a large amount of sensitive user information. If this information is abused or leaked, it may cause serious harm to personal privacy, national security and more. Attention must be given to the prevention and management of AI cybersecurity risks from various aspects, such as policies and regulations, hardware and software technologies, and the construction of security protection systems.

“AI+” application: AI empowers thousands of industries, and the era of “embodied AI” has begun.

AI continues to penetrate various industries, helping transformation and upgrading: AI is becoming a transformative technology, triggering revolutionary changes in various industries globally. As shown in the table below, it has been widely applied and has empowered thousands of industries. “AI+” strengthens demand pull, accelerates the empowerment of key industries, builds a number of industrial multimodal high-quality datasets and creates a large model enabling industrial ecology from infrastructure, algorithmic tools, intelligent platforms to solutions.

AI+ Healthcare

Applied for automated diagnosis, personalized treatment planning, drug discovery, and nursing, helping doctors analyze medical images faster and provide more accurate diagnoses.

AI+ Transportation

Applied to self-driving cars, logistics optimization and traffic flow management. AI technology can improve road safety, optimize cargo routes and reduce traffic congestion.

AI+ Finance

Applied to risk management, fraud detection, automated trading, and providing customized financial services to customers.

AI+ Entertainment & Media

AI can assist content recommendation systems to better personalize, advancing changes in the content creation process and forwarding the use of VR and AR technologies.

AI+ Retail and E-Commerce

Applied to inventory management, personalized recommendations and price optimization. By analyzing consumers' shopping habits and preferences, it can help retailers optimize inventory, enhance the shopping experience and improve customer satisfaction.

AI+ Manufacturing

Applied to predictive maintenance, supply chain optimization, quality control and automated production. AI can predict equipment failures, reduce downtime, optimize production processes, and improve efficiency and product quality.

AI+ Education

Applied to personalized learning, automated grading systems and intelligent tutoring. Customized content can be provided based on students' learning progress and comprehension, helping teachers assess students' performance more effectively.

AI+ Agriculture

Applied to crop monitoring, pest and disease prediction, precision farming and automated harvesting. By analyzing soil and climate data, AI can help farmers manage their crops more efficiently, increasing yields and sustainability.

With breakthroughs in basic AI models, embodied AI is expected to lead the next wave. Embodied AI is an intelligent system combining AI, robotics and sensor technology, which can learn, think and make decisions autonomously like a human being. At the same time, embodied AI can also realize physical operation by means of robotic arms. Compared with traditional robots, embodied AI focuses on the interaction and collaboration with humans, injecting a “soul” into robots, which is expected to better serve individuals in the future in private nursing care, education and healthcare.

Conclusion

This year’s Government Work Report proposed the concept of “AI+” for the first time, which indicates that AI will be more widely used in various fields. The report also promotes the deep integration of scientific and technological innovation and industrial innovation, and the acceleration in shaping new momentum and new strengths for high-quality development. At the same time, the development of AI cannot be separated from the support of the underlying computing and the safeguarding for the security system. AI will become an important force to promote economic transformation and upgrading, high-quality development and a key engine for new quality productive forces.

Source:

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Contacts



Ben Kwan

EY Greater China Partner, Strategy and Transactions
Ernst & Young (China) Advisory Limited
+86 10 5815 2325
ben.kwan@parthenon.ey.com



Sarah Chang

EY Greater China Partner, Strategy and Transactions
Ernst & Young (China) Advisory Limited
+86 10 5815 2089
sarah.chang@cn.ey.com

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