Guiding Opinions on Accelerating Scenario Innovation to Promote the High-Quality Development of the Economy Through High-Level Applications of Artificial Intelligence

In order to implement the decisions and arrangements of the Party Central Committee and the State Council on advancing artificial intelligence (AI) development, coordinate the promotion of AI scenario innovation, address major challenges in the application and industrialization of AI, comprehensively enhance the quality and level of AI development, and better support high-quality development, these *Guiding Opinions* have been formulated in accordance with the requirements of the *Outline of the People's Republic of China 14th Five-Year Plan for National Economic and Social*

Development and Long-Range Objectives for 2035[1] and the *New Generation Artificial Intelligence Development Plan.*[2]

I.   Overall Requirements

Scenario innovation is a process that is guided by the creative application of new technologies and directed by supply-demand linkages, and is one that enables the iterative upgrading of new technologies and rapid industrial growth. Promoting AI scenario innovation has great significance for advancing the higher-level application of AI, and for better supporting high-quality development. China's rapid AI technology development, increasingly abundant data and computing resources, and constantly expanding application scenarios have laid a solid foundation for AI scenario innovation. Challenges remain, however, including insufficient understanding of scenario innovation, inadequate design of major scenario systems, limited openness of scenario opportunities, and an incomplete scenario innovation ecosystem. It is therefore necessary to strengthen coordination and guidance of AI scenario innovation.

1. Guiding Ideology.

Guided by General Secretary Xi Jinping's series of important speeches on AI, and implementing the new concept of development (新发展理念), we will: Take the deep integration of AI with the real economy as the main theme, and take the promotion of scenario resource openness and the enhancement of scenario innovation capabilities as the main directions; strengthen entity incubation, enlarge application demonstrations, innovate mechanisms and systems, and improve the scenario ecosystem; accelerate AI technology breakthroughs, product development, and industry incubation; and explore new models and pathways for AI development, using high-level application of AI to promote high-quality economic development.

2. Basic Principles.

— Enterprise-led. Adhering to the mainstay status of enterprises throughout the scenario innovation process, while giving full play to the guiding role of government, push for enterprises to become the main entities in proposing scenario innovations, developing scenario designs, opening scenario resources, and demonstrating scenario applications.

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[1] Translator's note: CSET's English translation of the 14th Five-Year Plan Outline is available online at: https://cset.georgetown.edu/publication/china-14th-five-year-plan/.

[2] Translator's note: For an English translation of the New Generation Artificial Intelligence Development Plan, see:
https://www.newamerica.org/cybersecurity-initiative/digichina/blog/full-translation-chinas-new-generation-artificial-intelligence-development-plan-2017/.

— Innovation-driven. Employ new models and methods to drive AI application scenarios to fruition, focusing on creative application of new technologies, and starting with forward-looking concepts and pioneering practices.

— Openness and integration. Encourage all innovation entities to open up scenario opportunities, accelerate convergence around scenario innovation for factors of production (要素) such as capital, talent, technology, data, and computing power ("compute"), and promote deep integration between the AI innovation chain and production chains.

— Coordinated governance. Respect the underlying principles of AI development, leverage the initiative of both government and the market so they jointly provide institutions for scenario innovation, and promote mutually complementary regulatory standards and AI innovation development.

3. Development Goals.

Scenario innovation will become a new pathway for AI technology upgrading and industrial growth, with continuous emergence of innovative outcomes driving the development of new generation AI to higher levels.

— More rapid emergence of major application scenarios. In areas such as economic and social development, scientific research and discovery, and safeguarding major events (重大活动保障), a group of major application scenarios will be formed with strong demonstration effects, high visibility, and broad driving force.

— Significant results from scenario-driven technological innovation. Through scenario innovation, key AI technologies and system platforms will be optimized and upgraded, forming sustained innovation momentum with technology supply and scenario demand evolving together.

— Initial formation of a collaborative ecosystem for scenario innovation. A collaborative AI scenario innovation system involving those in government, industry, and science and technology (S&T) will begin to form, with closer cooperation among innovation entities and significantly enhanced innovation capabilities.

— Widespread application of scenario-driven innovation models. Scenario-based open innovation will become an important approach for local governments and industries to promote AI development, resulting in a series of scenario openness policy measures and institutional achievements.

II.   Focus on Building Major AI Scenarios

4. Cultivate major scenarios centered on fostering a high-end and high-efficiency intelligent economy.

Encourage in-depth exploration of AI application scenarios in key sectors such as manufacturing, agriculture, logistics, finance, commerce, smart homes, and other key industries, so as to promote the intelligent economy's high-end and high-efficiency development. In the manufacturing sector, prioritize exploring intelligent scenarios including Industrial Brain (工业大脑), robot-assisted manufacturing, machine vision-based industrial inspection, and interconnected equipment management. In the agricultural sector, prioritize exploring intelligent scenarios such as satellite navigation-based autonomous agricultural machinery operation, geographic information engines (地理信息引擎) for agriculture, app-based agricultural machinery sharing (网约农机), rubber tapping, smart farms, digital supply chain management, UAV-based crop protection, agricultural production monitoring based on the internet of things (IoT), and agricultural product quality and safety control. In the logistics sector, prioritize exploring intelligent scenarios such as robotic sorting and distribution, material handling, intelligent 3D warehousing, and traceability terminal devices (追溯终端). In the financial sector, prioritize exploring intelligent scenarios such as big data-driven financial risk control, intelligent credit reporting for enterprises, and intelligent anti-fraud scenarios. In the commerce sector, prioritize exploring intelligent scenarios such as multi-person online collaborative meetings, virtual exhibitions, and inventory and settlement of accounts. In the home sector, prioritize exploring intelligent scenarios such as smart home interconnectivity, intelligent building monitoring, and online product design. In the consumer sector, actively explore emerging scenarios such as smart vending machines for retail, unmanned supermarkets, and smart shopping assistants. In the transportation sector, prioritize exploring intelligent applications of autonomous driving and smart shipping technologies in scenarios such as transport within industrial parks, shuttle services, smart delivery, tractor trailer convoying, port container transport, intelligent port operations, and autonomous ship navigation.

5. Build major scenarios centered on building a safe, convenient, fast, and intelligent society.

Taking smarter cities and a more caring society as the orientation, continuously identify AI application opportunities in urban management, transportation governance, ecological and environmental protection, healthcare, education, and elder care, and carry out demonstrations of intelligent society scenario applications. In urban management, explore scenarios such as city brain (城市大脑), urban IoT sensing, government data that is usable but not visible (可用不可见), and digital procurement. In transportation governance, explore scenarios such as traffic brain (交通大脑), smart

roads, smart parking, autonomous driving and mobility, smart ports, and smart waterways. In ecological and environmental protection, prioritize scenarios such as intelligent environmental monitoring and autonomous inspection using UAVs. In the smart communities field, explore scenarios such as future communities, unmanned delivery, community e-commerce, and digital restaurants. In healthcare, actively pursue scenarios such as AI-assisted medical imaging diagnosis, clinical decision support systems, medical robots, virtual hospitals, intelligent medical device management, smart hospitals, and intelligent public health services. In education, actively explore scenarios such as online classrooms, virtual classrooms, virtual simulation training, virtual teaching and research rooms, new kinds of teaching materials, educational resource creation, and smart campuses. In the elder care sector, actively explore scenarios such as home-based intelligent monitoring and smart wearable device applications. In the villages and rural areas sector, actively explore scenarios such as smart rural governance, digital farmhouses, and online government services.

6. Create major scenarios centered on high-level scientific research activities.

Push for AI technology to become a new paradigm for solving major scientific problems in mathematics, chemistry, earth sciences, materials science, biology, and space science. Give full play to the role of AI in literature data acquisition, experimental prediction, and result analysis. Focusing on areas such as new drug development, genetic research, biological breeding R&D, new materials R&D, and deep space and deep sea exploration, plan AI technology application scenarios based on demand, and integrate AI model algorithms with domain-specific data and knowledge to achieve breakthroughs in major scientific problems and discoveries.

7. Create major application scenarios centered on major national events and projects.

Expand AI applications during the holding of major events like the Asian Games, National Games, China International Import Expo, and China International Fair for Trade in Services, so as to provide testing and validation opportunities for AI technologies and products. Encourage the use of AI technology in major engineering projects like strategic backbone routes (战略骨干通道), high-speed railways, port and shipping facilities, and modernized airports, thereby enhancing the efficiency of major engineering project construction.

III. Increase AI Scenario Innovation Capacity

8. Strengthen the mainstay role of enterprises in scenario innovation.

Encourage industry-leading enterprises to develop AI application scenarios directed towards major national strategic requirements and critical issues for [the Party's] ruling stratagem (国计) and the people's livelihoods. Develop opportunities for AI technology application scenarios centered on intelligent management of enterprises, key technology R&D, and new product incubation, and carry out joint scenario innovation efforts. Vigorously support professional, precision, specialized, and innovative (专精特新) "little giants," unicorns, and AI startups in actively conducting scenario innovation, participating in urban and industrial scenario development, and achieving business growth through scenario innovation. Encourage local governments to help enterprises achieve breakthroughs in scenario innovation by compiling catalogs of recommendations for scenario innovation accomplishments.

9. Encourage colleges and universities to participate in scenario innovation.

Support universities, research institutes, and new-style R&D institutions (新型研发机构) in exploring the use of AI technology in application scenarios involving major scientific research and technological development. Encourage proactive linking with urban and industrial AI technology requirements during the process of conversion of S&T achievements into practical applications (成果转化), and engagement in industry-academia-research institute collaborations for scenario innovation, and heighten the market orientation of scientific research work, so as to activate the innovation potential of researchers. Encourage researchers to engage in scenario-based entrepreneurship, uncovering scenario creativity in AI scientific research achievements, and accelerating the industrialized application of AI technologies.

10. Incubate and expand specialized institutions for scenario innovation.

Encourage industry-leading enterprises, S&T industry giants, S&T-oriented social organizations, and new-style R&D institutions to carry out AI scenario innovation practices guided by innovation in integrating AI technology with industries. Focusing on the requirements of industry intelligentization scenario innovation, and building AI scenario innovation support environments, introduce industry scenario resources, jointly carry out scenario creation, and incubate new enterprises and new lines of business. Encourage the development of service institutions for market-oriented AI scenario innovation promotion. Actively conduct theoretical research and practical work in areas such as AI scenario discovery, publication, link-up, promotion, and incubation, and explore new scenario innovation mechanisms based on collaboration between diverse types of entities.

11. Build bastions of AI scenario innovation.

Push for national new generation AI innovation and development pilot zones (国家新一代人工智能创新发展试验区) and national AI innovation and application pioneering zones (国家人工智能创新应用先导区) to conduct innovation trials organized around scenarios, and conduct demonstrations of scenario innovation in areas such as AI technological innovation breakthroughs, deep integration of AI with industries, and AI social experiments. Push for innovative cities, national independent innovation demonstration zones (国家自主创新示范区), and national high-tech industrial development zones (国家高新技术产业开发区) to carry out scenario incubation, and to innovate work models for infrastructure construction, conversion of AI achievements into practical applications, enterprise incubation, and industrial upgrading.

IV. Accelerate Promotion of AI Scenario Openness

12. Encourage the regularized publication of AI scenario lists.

Encourage various kinds of entities to establish regularized mechanisms for collecting, selecting, and publishing AI scenario lists. Push for local governments, leading enterprises, industry associations, and professional service institutions to solicit scenarios centered on the requirements of economic and social development and S&T-based innovation. Establish mechanisms for listing scenario opportunities using multiple approaches such as holding press conferences and scenario conferences, and building scenario publication platforms. Regularly publish scenario opportunities for AI enterprises, and encourage a shift in AI incubation from "providing policies" and "providing projects" to "providing opportunities."

13. Support the hosting of high-level AI scenario events.

Encourage localities to host high-level scenario innovation events, publish scenario innovation accomplishments and collaboration opportunities, and provide high-end exchange platforms for scenario suppliers, research institutes, enterprises, and investment institutions, so as to enhance collaboration among scenario innovation entities. Encourage the organization of AI scenario-themed innovation competitions for conducting scenario innovation centered on social governance and industrial innovation needs, and thereby develop a set of solutions that can be demonstrated and popularized. Encourage the construction of scenario demonstration environments, such as scenario innovation experience zones and exhibition halls, that integrate testing, displays, roadshows, and hands-on experience. Regularly host scenario showcase events for the public, enhancing AI's hands-on S&T experience and sense of achievement.

14. Expand channels for AI scenario innovation collaboration and link-up.

Encourage local governments, central enterprises,[3] and industry-leading enterprises to promote link-up and collaboration between scenario supply and demand sides through methods such as winner-takes-all open competition,[4] joint innovation, and promotion of outstanding scenarios. Strengthen policy and funding support to promote the implementation of benchmark scenario projects of a pioneering and demonstrative nature. Explore new market-oriented mechanisms for scenario collaboration. In areas such as business models, project procurement, and funding partnerships, create new systems tailored to the characteristics of scenarios. Encourage cross-regional scenario cooperation. Encourage urban agglomerations such as Beijing-Tianjin-Hebei, the Yangtze River Delta Economic Zone, and the Guangdong-Hong Kong-Macao Greater Bay Area to establish AI scenario innovation communities, give full play to the S&T diffusion and driving roles of central cities,[5] and carry out collaboration among cities on scenario innovation.

V. Strengthen the Supply of AI Scenario Innovation Factors of Production (要素)

15. Promote access to scenario compute facilities.

Encourage the open sharing of AI infrastructure resources such as compute platforms, general purpose technology platforms, industry training datasets, and simulation training platforms, so as to provide compute and algorithm resources for AI enterprises conducting scenario innovation. Encourage local governments to reduce infrastructure usage costs for AI enterprises through methods such as open sharing, service procurement, and innovation vouchers (创新卷), and increase compute power support for AI scenario innovation.

16. Aggregate data resources for AI scenarios.

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[3] Translator's note: The term "central enterprises" (中央企业; 央企) refers to state-owned enterprises (SOEs) directly under the Central People's Government of the People's Republic of China (aka the State Council) whose leaders are appointed by the State Council or the Chinese Communist Party (CCP) Central Committee, either directly or by the CCP Central Organization Department, the State-owned Assets Supervision and Administration Commission (SASAC), or another central Party or government department.

[4] Translator's note: The idea behind "winner-takes-all open competition" ("揭榜挂帅"), in the context of Chinese science and technology projects, is that the government openly lists the technological breakthrough(s) it desires. Any individual or group in society, not just a select few, are then eligible to win a cash award if they succeed in making the breakthrough.

[5] Translator's note: As of the publication date of this translation, the Chinese government had granted the label of "national central city" to Beijing, Tianjin, Shanghai, Guangzhou, Chongqing, Chengdu, Wuhan, Zhengzhou, and Xi'an, holding these up as China's most important cities. These cities all boast large populations as well as enormous political, economic, and historical significance.

Promote the construction and openness of AI "data foundations" ("数据底座") at the city and industry levels. Utilize new technologies like blockchain and privacy-preserving computing to provide data access services for typical AI application scenarios while ensuring data security. Strengthen security protection for "data foundations," and provide protection of personal information, trade secrets, and important industry data in accordance with law.

17. Carry out scenario innovation talent development through multiple channels.

Encourage universities and vocational colleges to set up specialized scenario innovation courses in curricula for AI disciplines and majors, so as to stimulate the scenario imagination of AI majors and enhance students' scenario innovation literacy and abilities. Promote scenario innovation talent training. Through offering workshops, holding scenario-based practice exchanges, and organizing specialized scenario training programs, develop professional talents with scenario innovation awareness and capabilities.

18. Strengthen the supply of market resources for scenario innovation.

Encourage financial institutions such as banks and insurance companies to research and develop financial products directed towards scenario innovation by small and medium-sized enterprises, and thereby provide such enterprises financial support for promoting scenario project construction. Encourage market-oriented investment institutions (市场化投资机构) to focus on scenario innovation enterprises, and foster a pool of "patient" capital to provide financing support for S&T companies to carry out scenario innovation. Encourage large enterprises in industries to provide supply chain support for scenario project implementation and achievement popularization during the process of collaborating with S&T companies on scenario innovation, prioritizing the incorporation of scenario innovation achievements into their supply chain systems. Encourage incubators and service providers to organize activities such as scenario roadshows to help enterprises look for potential scenarios.