White Paper on China's Smart Education

（May, 2025）

Ministry of Education

People's Republic of China

White Paper on China's Smart Education

（May, 2025）

Ministry of Education

People's Republic of China

Contents

Preamble

Throughout history, each technological and industry revolution has profoundly reshaped human productivity and social structures while exerting transformative impacts on education. The current rapid advancement and pervasive application of AI are redefining knowledge dissemination mechanisms and scientific innovation paradigms. With accelerating knowledge creation and shrinking iteration cycles from discovery to invention, and from invention to application, education is undergoing profound reforms in content delivery, pedagogical models, and institutional frameworks.

The Chinese government prioritizes educational digitization as a cornerstone of national development. Since the 18th National Congress of the Communist Party of China, President Xi Jinping has repeatedly emphasized the strategic imperative of digital education, charting the course for systematic reforms. The Ministry of Education

(MOE) has implemented a comprehensive policy framework guiding nationwide efforts to upgrade campus network infrastructure, expand digital resource pools, and pioneer innovative pedagogical practices, achieving effective results.

In 2022, the Chinese MOE launched the National Education Digitalization Strategy Action Plan and the National Smart Education Platform. Committed to the development concept of "3C" (Connection, Content and Cooperation), and oriented to the "3I" (Integrated, Intelligent and International) strategy, the MOE promotes the widespread and normalized application revolving around core scenarios including learning, teaching, school management, education innovation, and international cooperation. In this process, China has explored a path for education digitalization with Chinese characteristics.

As countries around the world hold the universal consensus on education digitalization to provide everyone with inclusive and equal access to high-quality education, and in the face of educational development and reforms,

China is ready to join hands with other countries in promoting mutual exchange between different civilizations, sharing high-quality education resources, constructing a cooperative innovation ecosystem, and guarding the security of AI, for the achievement of lifelong, equal, personalized, open, and flexible education.

This white paper is thereby published to make a comprehensive introduction to China's philosophies, ideas, measures, and achievements in education digitalization and smart education, in the pursuit of deepening international exchanges and cooperation in the field of digital education to jointly draw a new blueprint for the development of global smart education.

Chapter 1: Course of Development

Since the 18th CPC National Congress, President Xi Jinping and the Party Central Committee have attached great importance to education work and have made important instructions on education digitization on several occasions. Extensive efforts have been made by the Chinese government to optimize the digital environment in more schools, enrich high-quality resource supplies, and expand and normalize the application of smart education. Transformed and upgraded, China is advancing towards smart education at accelerated pace and building a modern digital education system oriented at the intelligent era.

I. Proactive Adaptation: Consolidating Education Digitalization

At the First National Teleconference on Education

Informatization held in 2012 by the Chinese government, the initiative of the "Three Accesses and Two Platforms"① project was proposed, propelling China's education informatization to the fast track.

Strengthening Planning and Deployment of Education Informatization. The MOE released the "10-Year Plan for Education Informatization (2011-2020)" in 2012. In 2018, the "Education Informatization 2.0 Action Plan" was issued, introducing the "Three Coverages, Two Enhancements, and One Construction"② objectives to advance the profound development of education informatization. A series of policies addressing issues of digital education resources and online learning

---

① Three Accesses and Two Platforms: access to the Internet for each school, access to high-quality educational resources for each classroom, access to a virtual learning space for each student, a platform for educational resources, and a platform for learning management.

② Three Coverages, Two Enhancements, and One Construction: to make teaching applications cover all teachers, learning applications cover all students of the appropriate age, and the digitalization cover all schools, to enhance the quality of informatization applications and the ability of teachers and students to utilize informatized tools, and to construct a "Internet + education" platform.

spaces were formulated to establish a policy framework for education informatization.

Improving the Informatization Environment in Schools. President Xi Jinping emphasized the need to accelerate the construction of information infrastructure and expand access to digital services, ensuring reachability, affordability and capability for all. The Chinese MOE and the Ministry of Industry and Information Technology (MIIT) jointly conducted the School Internet Access Action, enabling schools at all levels to Internet connection. Through the pilot project of high-throughput broadband satellites, full network coverage was achieved for remote schools in extreme environments such as islands, deserts, and plateaus. By the end of 2020, all previously unconnected schools in China had gained internet access.

Expanding Access to High-Quality Education Resources. President Xi noted that China has persistently advanced education informatization to expand access to high-quality education resources, enabling millions of

children to achieve self-actualization through shared resources. In late 2012, the MOE and the Ministry of Finance launched the "Full Digital Resource Coverage" project, providing all 64,000 teaching points with digital resources without exception. The popularization of "remote classrooms", "excellent teacher classrooms, " and "prestigious school online classrooms" facilitated online teaching in over 60,000 schools. Since 2013, China has launched 97,000 MOOCs, with total course enrollments reaching 1.45 billion. The number and scale of MOOCs in China rank first in the world.

Carrying Out International Exchanges on Educational Informatization. In 2015, the first International Conference on Educational Informatization was held, and President Xi Jinping sent a congratulatory letter. The conference adopted outcome documents such as the Qingdao Declaration, providing action guidelines for global education informatization development. In 2019, the first International Conference on Artificial Intelligence and Education was held, and President Xi Jinping again

sent a congratulatory letter. The conference released the "Beijing Consensus - Artificial Intelligence and Education", forming a common vision of the international community for the development of education in the era of intelligence.

II. Scientific Response: Large-scale Online Education Experiments

In 2020, in reaction to the COVID-19 pandemic, the Chinese Government quickly transformed the pre-deployed education informatization infrastructure into the capacity for "Disrupted classes, Undisrupted Learning" practice through nationwide online education.

Rapidly Building Large-scale Platforms for Online Education. The MOE coordinated IT-supported education. In basic education, the Cloud Platform for Primary and Secondary Schools and the course broadcast on China Education Television enabled integration of curriculum learning and thematic education. In vocational education,

a total of 203 national-level education repositories were open to public to support online instruction. In higher education, 24,000 high-quality courses and 22 online education platforms were free of charge to teachers and students. For employment of college graduates, the "24365 Campus Recruitment" service was introduced. These platforms effectively mitigated the pandemic's impact on education.

Guaranteeing Massive Online Education. For network guarantee, the MOE and MIIT coordinated telecom operators to ensure bandwidth for education platforms. For application guarantee, systematic free digital education resources were developed for teachers and students while local authorities issued online teaching guidelines and organized online training for teachers to enhance their digital pedagogy skills. For security guarantee, the MOE, the Office of Cyberspace Affairs Commission and the Ministry of Public Security (MPS) worked jointly to safeguard platform cybersecurity, protecting users' rights.

Drawing Teaching Experience from Massive Online Education. Through multilateral mechanisms such as the UNESCO, China has repeatedly shared its experience in organizing large-scale online teaching. The MOE collaborated with UNESCO and other organizations to develop the "Reference Manual for Education Response to the Pandemic", sharing experiences and carrying out cooperation with developing countries to promote the transformation of emergency practices in online teaching during special periods into valuable experience for the popularization and deepening of digital technology applications.

III. Strategic Transformation: Heralding the New Era of Smart Education

At the 20th CPC National Congress in 2022, the plan to "advance education digitalization to build a learning society and learning country to support lifelong education for all" was mandated. The MOE initiated the National

Education Digitalization Strategy Action Plan, launching the National Smart Education Platform, which promoted China's transition from education informatization to digitalization.

Charting Blueprint for Education Digitalization. The 2024 National Education Conference outlined plans to further implement the National Education Digitalization Strategy, suggesting enhancing the effect of quality education resources, taking advantage of AI to facilitate educational reforms, and improving the public service for lifelong education. The shift from "coverage" to "effect" signals the development of China's digital education has gone beyond simple expansion to significant optimization. The "Outline of the Plan for Building a Strong Education Country (2024-2035)" was issued, with a special chapter on the deployment of education digitization, proposing to open up new development tracks and shape new advantages through educational digitization.

Grasp the Direction of Digital Development in Education. 2025 has witnessed breakthroughs in AI.

President Xi underscored balancing technological reform and core missions of education, "On the one hand, the emergence of Internet of Intelligence and AI require our tools and methods of teaching and the cultivation of student's competency to advance with the times; on the other hand, education must maintain the focus on fundamental aspects such as enlightening students' mind, nurturing their spirit, and cultivating their ability to understand and solve problems." The MOE casts equal attention to its core missions and innovation, enriching the National Smart Education of Platform with "moral-intellectual-physical-aesthetic-labor" digital education resources to guide students to set up lofty ideals and to foster their well-rounded development.

Cultivating High-Quality Talents for the Intelligent Era. President Xi described AI as "a youthful field for the youth". Therefore, we should integrate AI education into all education stages and general education, cultivating high-quality talents in AI. The MOE is vigorously promoting the cultivation of AI-oriented

talents, developing textbooks and curricula, and solidly advancing the construction of relevant textbooks and courses system. Based on the National Smart Education Platform, the MOE has put AI courses, teaching materials, and AI tools online. The application guidance documents were also issued to comprehensively improve the digital literacy of teachers and students.

Chapter 2: Strategies for Development

President Xi Jinping emphasized that digitalization of education is an important breakthrough for China to open up a new track for educational development and shape new advantages in educational development. Since the adoption of China's National Education Digitalization Action Plan in 2022, the MOE has upheld the "3C" development philosophy prioritizing connection, content and cooperation, focused on the "3I" strategic orientation including integrated, intelligent and international aspects and strengthened the overall planning of education digitalization. The MOE has leveraged the National Smart Education platform, implemented the AI-Empowered Education Initiative, promoted international cooperation and exchanges in digital education, and explored a path of education digitalization development with Chinese characteristics.

I. Enhancing Overall Planning and Establishing Key Pillars of Smart Education

The MOE adheres to the concept of "methods are more important than technology, and institutional innovation outweighs technological innovation", strengthens the design of concepts, systems, mechanisms, and utilizes policy leverage to ensure high-quality development of digital education.

Clarifying the Working Philosophy of the Strategy Action Plan. The MOE adheres to the "3C" philosophy emphasizing on connection, content and cooperation. Prioritizing connection means to build the National Smart Education Platform system, to integrate the four national platforms, namely the Smart Platform for National Basic Education (hereinafter referred to as the Basic Education Platform), the Smart Platform for National Vocational Education (hereinafter referred to as the Vocational Education Platform), the Smart Platform for National Higher Education (hereinafter referred to as the Higher

Education Platform), and the Smart Platform for National Lifelong Education (hereinafter referred to as the Lifelong Education Platform), as well as 32 provincial platforms, to achieve platform interconnection, user interoperability, and resource sharing. Content orientation means to continuously strengthen the supply of high-quality resources and applications, gathering the abilities of excellent schools and teachers to create a "never-ending" classroom, and effectively enhancing the sense of achievement of teachers, students, and social learners. Cooperation facilitation means to strengthen international exchanges and cooperation in digital education, promoting mutual learning, mutual benefit and win-win outcomes. The purpose is to build a new ecosystem for diversified participation in the digital development of education through inter-provincial communication, inter-ministerial coordination, and government-enterprise cooperation.

Improving Strategy Action Plan. The MOE and nine other departments jointly issued the "Opinions on Accelerating the Digitalization of Education", which has

formulated a comprehensive plan for the future development of education digitalization, with a focus on integration, intelligence, and internationalization. Meanwhile, the MOE has introduced a series of measures addressing industry applications, resource development, data governance, security safeguards, etc. to build a policy system for education digitization. Since 2022, the MOE has organized annual specialized events on March 28 to outline key priorities for advancing education digitization each year. Additionally, the MOE convened the National Conference on Advancing Education Digitization in 2023 and the National Conference on Reviewing Education Digitization in 2024, aiming to strategize key priorities for advancing digitization efforts.

Encouraging Mechanism Innovation of the Strategy Action Plan. The MOE actively explores innovative mechanisms for education digitization, in order to foster a robust ecosystem for digital education development. On the basis of the provincial and sub pilot projects of the National Smart Education Platform, the

MOE launched a nationwide pilot program for the National Smart Platform for Basic Education. In Guangdong, Gansu, and Hainan, a full-scope, full-participation, and full-process application was promoted. In western regions such as Qinghai and Ningxia, pilot projects for scaled platform adoption were conducted to establish mechanisms for large-scale, routine platform utilization. The MOE selected exemplary cases of National Smart Education Platform applications and awarded certificates to the most popular courses. A data-driven monitoring mechanism was established to realize "self-management" and "self-evaluation". The National Smart Education Platform integrated social resources such as the National Museum of China, the Palace Museum, and Digital Dunhuang. The Smart Higher Education Platform integrated more than 20 online course platforms from enterprises such as iCourse and Xuetang.com. Thus a diversified resource supply mechanism was built.

II. Promoting Integration and Enhancing National Smart Education Platform

The MOE, focusing on three core scenarios, namely resource services, public services, and lifelong learning, aims to build the National Smart Education Platform into the world's largest and most resource rich digital education platform. In 2023, the National Smart Education Platform was awarded the UNESCO King Hamad bin Isa Al Khalifa Prize for Educational Informatization, in recognition of its outstanding achievements in promoting public access to knowledge. By April 2025, the Platform has over 164 million registered users and 61.3 billion page views, serving visitors from over 220 countries and regions.

Building A Public Resource Platform. The National Smart Education Platform continues to gather high-quality digital education resources, allowing "excellent courses across the entire network to be in your hands". A "Four Horizontal Pillars, Five Vertical Dimensions" Resource Framework has been built, with basic education,

vocational education, higher education and lifelong education as the "Four Horizontal Pillars" and moral, intellectual, physical, aesthetic, and labor education as the "Five Vertical Dimensions". The platform aggregates over 110,000 basic education resources, 11,300 vocational education courses, 31,000 premium online higher education courses, and 2,000 lifelong learning courses. Digital Teaching Assistance Pilot Programs are launched to encourage university teachers and students to utilize platform resources to help rural schools deliver state-mandated curricula comprehensively. Currently, programs are being implemented in 10 provinces and 95 districts and counties, providing 252 rural schools and 60,000 students with more than 10,000 hours of high-quality courses, effectively alleviating teacher shortages. The "MOOCs Westward Initiative" channels high-quality MOOCs and faculty resources from eastern China to universities in western China. To date, 213,000 MOOCs and online courses have been delivered to western institutions, with east-west universities collaborating on

10.3 million blended learning courses, benefiting 720 million students.

Building A Public Service Platform. The National Smart Education Platform integrates 51 services across eight categories into its Service Hub, delivering "one-click access, seamless service delivery". Employment Services for Talent-Job Matching. The Platform aggregates over 20 million job postings annually for graduates. The "Co-Construction and Sharing of Premium Positions Initiative" enhances cross-platform job data sharing. Free livestreamed career guidance courses provide students with master-class courses on employment and entrepreneurship in a multiple manner. Examination Services for Fair Talent Selection. The Platform offers end-to-end services, including policy guidance, online registration, score inquiries, and certificate verification, covering five major exams of National College Entrance Examination, Primary/Secondary School Teacher Qualification Exams, National College English Test (CET-4/6), and Mandarin Proficiency Test. To date, 4.37

million exam-related services have been processed, ensuring efficient and accessible support for candidates. Teacher Services to Empower and Reduce Burdens. The Platform offers training resources, and benefits access to teachers. The mobile app integrates digital work IDs, career development tools, and region-specific features. Academic Credential Services for Efficiency and Accuracy. In 2024, the Platform processed 700 million free verification inquiries, with daily services exceeding 1.9 million, significantly improving public efficiency and satisfaction.

Building A Lifelong Learning Platform. The National Lifelong Education Smart Platform delivers ubiquitous and accessible lifelong learning services. The platform offers practical workplace courses such as "General Digital Literacy and Digital Life with Essential Skills", "Digital Technology and Industry Applications", covering topics like AI, brain-inspired computing, and office software tools. It has served 8 million lifelong learners, fostering sustainable career development. The

"Silver Age Academy" provides 500 courses on ethics, learning, health, recreation, and social engagement. It has served 15 million seniors, enhancing their quality of life. The "Academician Lectures" provide courses by top scientists to enhance scientific literacy for the general public. The "Cultural Literacy" features masterclasses and interviews with renowned scholars, promoting cultural and aesthetic education, benefiting 5 million users. The "Family Education Section" focuses on cultivating family values, nurturing patriotism, and supporting youth mental health and holistic development. The "Social Education Section" provides courses on legal literacy, community activities, and social issues, supporting "lifelong Learning Week" and other campaigns in various places across the nation to build learning-oriented communities and families.

III. Exploring Intelligence and Implementing AI-Empowered Education Initiatives

The MOE actively embraces the transformative role of AI in education, strategically planning on "learning AI, applying AI, innovating AI, and safeguarding AI" to deepen the integration of AI with educational practices.

Learning Knowledge about AI. The National Smart Education Platform continuously launches AI courses, positioning them as essential curricula for all teachers, students, and citizens. The Platform established the "AI Learning" column, offering premium general courses developed by renowned scholars and cooperating with leading tech firms to launch cutting-edge interdisciplinary lectures, providing a "feast of AI knowledge" for educators and learners. 119 AI education resources have been launched on the Primary and Secondary Education Platform and 482 AI literacy and applied scenario courses have been launched on the Vocational Education Platform. The Higher Education Platform provides an AI zone

aggregating 68 general course clusters, 36 interdisciplinary courses, and 12 large-model AI courses. Lifelong Learning Platform features 133 short-form AI video courses. An AI general education system that covers primary, secondary, and social learners were built.

Promoting the Application of AI. The National Smart Education Platform integrates domain-specific large models and intelligent tools to encourage educators and students to explore AI-driven innovations in education. The Platform has developed AI tools enabling knowledge Q&A, smart search, and resource recommendations. The platform's "AI Lab" introduces practical intelligent tools for learning, teaching, governance, and research, including "AI Classroom", "Math Problem Solver", and "Smart Quiz Generator", widely acclaimed by educators. The Higher Education Platform integrates 9 domestically developed general-purpose large models and an AI competency assessment system to facilitate user adoption. The AI Mega-Model Application Demonstration Initiative was launched. The first batch includes vertical models for

mathematics, physics, chemistry, and biology, aiming to set industry benchmarks.

Innovating AI technologies. The MOE is driving AI technological innovation by leveraging schools' talent, data, and scenario advantages. Utilizing e-books, journals, and academic documents from the CADAL (China Academic Digital Associative Library), tiered and domain-specific datasets were constructed. High-quality educational corpora were developed, covering 12 undergraduate disciplines and 19 vocational categories, laying the foundation for training specialized educational AI models. The Smart Teacher Service System for Basic Education was developed, embedding expert pedagogical insights into AI models.

Safeguarding AI Security. According to legal and regulatory requirements, China is carrying out registration and filing of AI algorithms, and evaluating the AI applications launched on the National Smart Education Platform. Platforms undergo integrated inspections to assess infrastructure, data, algorithms, and training

environments, ensuring lawful, high-quality operations. The MOE is strengthening the security testing of output content, establishing a normalized machine detection mechanism, and ensuring that model Q&A does not violate the legal bottom line. Social experiments on AI in education are organized to anticipate, respond, and prepare for future forms of smart education, providing empirical support for handling the relationship between AI and education.

IV. Promoting Internationalization and Deepening Global Collaboration in Digital Education

The MOE actively champions the vision of the community with a shared future for mankind, positioning digital education as a cornerstone of high-level educational openness and cultivating flagship platforms for international exchange and cooperation in this field.

Establishing Cooperation and Exchange Platforms in World Digital Education. Mr. Huai Jinpeng, Minister of

Education of China serves as a member of the 2030 Education High Level Steering Committee and actively participates in the preparation of the United Nations Education Reform Summit, advocating for digital transformation as one of the pillars of global education reform. China serves as the global leading country for the UNICEF "Public Digital Learning Portal" project. Since 2023, the MOE has been hosting the World Digital Education Conference annually, producing landmark outcomes on digital education. The 2023 conference issued the "Cooperation Initiative on Global Digital Education Development", and the 2024 conference released the "Shanghai Initiative on Digital Education Cooperation", urging nations to communicate, enabling digital education benefiting all. In 2024, the international version of the National Smart Education Platform was launched, offering over 1000 high-quality learning resources to learners worldwide for free. At the same year, the World Digital Education Alliance was established, bringing together 115 members from 43 countries and

regions. The 2024 conference premiered "Frontiers of Digital Education (English Edition)", a journal focusing on interdisciplinary research in digital technology and education. Since 2023, relevant research institutions have been releasing the Global Digital Education Development Index on an annual base, assessing each nation's progress in digital education. China hosted the China-Africa-UNESCO Dialogue on Education and Cultural Heritage Protection to promote Global Southern Cooperation, focusing on digital education developments in African countries and prioritizing the support to women's empowerment and youth skills training. China has also launched the Digital Education Alliance of Shanghai Cooperation Organization (SCO) Member States and the China-ASEAN Digital Education Alliance, carrying out digital education cooperation among countries within the region.

Deepening Bilateral and Diversified Cooperation in Global Digital Education. China has signed cooperation agreements with the education departments of

Singapore, Australia, Spain, Italy, Finland and other countries, making digital education an important part of bilateral cooperation. It has convened the China-France Education Development Forum, the China-Italy University Presidents Dialogue, the China-Europe University Presidents Forum, and the China-UK University Presidents Roundtable, with digital education cooperation as an important topic. China is vigorously promoting intercollegiate exchanges, cooperation, and collaborative innovation in digital education. Wuhan University and Paris University of Arts and Sciences jointly established the "China-France Digital Culture and Heritage Research Center" and jointly developed blended courses; Shanghai International Studies University has partnered with the Future Learn platform in the UK to launch an all English international MOOC, through which ways, to share high-quality educational resources with over 200 countries and regions worldwide.

Sharing China's High-Quality MOOC Development and Outcomes. Since 2020, the World MOOCs and Online

Education Conference has been hosted on an annual base, showcasing China's achievements and ideas in developing MOOCS. The conference went out of China to Milan in 2023 and to London in 2024. The 2024 conference introduced the "Inaugural Year of Smart Education" concept and received great attention from the international community. Since 2022, the "Boundless Potential: Global Higher Education Digital Development Report" and the "Global Higher Education Digital Development Index" have been released on an annual base for a consecutive 3 years, offering strategic insights for global policymakers. Since the establishment of the World MOOC and Online Education Alliance in 2020, it has attracted 17 world-renowned universities and 6 international online education institutions from 16 countries to participate, launched 81 globally integrated classrooms, and organized more than 400 Chinese universities to share over 850 multilingual MOOCs overseas. China has launched iCourse and Xuetang.com, two international online platforms for higher education, offering over 1,000

courses in 14 languages, both recognized by the UNESCO Global Education Coalition.

Chapter 3: Practical Exploration

President Xi Jinping emphasized that China attaches great importance to the profound impact of AI on education, actively promotes the deep integration of AI and education, and promotes educational reform and innovation. With the in-depth implementation of the National Education Digitalization Strategy Action Plan, local authorities and schools have introduced a series of measures focusing on the cultivation of AI talent, the widespread application of intelligent technologies, the establishment of mechanisms for smart education, and the construction of foundational infrastructure for smart education. Numerous practices have emerged — creating a vibrant landscape characterized by diverse and dynamic exploration.

I. Deepening AI Talent Cultivation and Strengthening Human Resource Support

The MOE has actively advanced AI education across all educational stages, enhancing students' digital literacy and skills and laying foundation for them to adapt to the intelligent era.

Promoting the Popularization of AI Education in Basic Education. The "Notice on Strengthening AI Education in Primary and Secondary Schools" was released, explicitly stating the goal of achieving the widespread integration of AI education in primary and secondary schools by 2030. Relevant organizations issued the "Guidelines for General AI Education in Primary and Secondary Schools" and the "Guidelines for the Use of Generative AI by Primary and Secondary School Students", aiming to guide students in the scientific and responsible use of AI. Currently, education authorities in 23 provincial-level regions have launched initiatives to promote AI education in primary and secondary schools.

Beijing has introduced the "Work Plan for the Application of AI in the Education Sector of Beijing" and the "Guidelines for the Application of AI in the Education Sector of Beijing", comprehensively advancing AI application. In Guangzhou, Guangdong Province, the local government issued the "Work Plan for the Popularization of AI Education in Primary and Secondary Schools in Guangzhou", promoting the integration of AI courses across all primary and secondary schools within the city.

Cultivating High-Caliber Skilled Talent for the Intelligent Era in Vocational Education. China has revised and issued 758 "Teaching Standards for Vocational Education Majors", incorporating digitalization and AI into curriculum content. It has launched general courses on AI and specialized courses on "AI+" in vocational education. It is dedicated in developing high-quality datasets, teaching-oriented AI agents, and other foundational resources. At present, more than 2,000 vocational colleges offer 97 AI-integrated application-oriented programs. Furthermore, 866 vocational colleges have launched majors such as AI

Technology and Applications (secondary vocational level) and AI Data Engineering Technology.

Cultivating High-Level Talent in the Field of AI in Higher Education. A coordinated plan has been implemented for the layout of AI-related disciplines and programs. Since 2018, a group of universities such as Zhejiang University, Shanghai Jiao Tong University, and Shandong University were supported to establish the first batch of AI majors. In 2022, the "Intelligent Science and Technology" gained approval as a first-level discipline. In 2024, universities such as Beihang University, Capital Medical University, and Jiamusi University, were supported to establish a batch of interdisciplinary majors in AI, to cultivate compound talents in AI. A dedicated section for "General AI Courses" has been launched on the Smart Higher Education Platform, featuring 104 high-quality public and foundational AI courses from 47 universities, with a total enrollment of 1.77 million students.

Supporting the Construction of a Learning Society for the Intelligent Era through Lifelong Education. An AI curriculum system has been launched for the general public. In collaboration with universities and enterprises, 133 high-quality AI learning resources have been developed. These resources are open for learning to the whole society through new media, serving 50 million people. The national senior university system has launched practical courses related to multimedia intelligent software usage, improving the AI literacy of senior citizens. The National Open University is implementing reforms to empower education and teaching elements with artificial intelligence, creating a new paradigm of "AI + education". AI skills courses offered by senior universities in regions such as Shanghai and Fujian, as well as by institutions like Hangzhou Open University, have received widespread acclaim.

II. Promoting Widespread AI Application and Facilitating Innovative Education Development

The MOE is actively advancing the deep and extensive application of intelligent technologies in the education sector. From learning formats to teaching methods, from governance and services to scientific research and innovation, the Chinese education system is undergoing a profound and systemic transformation.

Transforming Student Learning Through AI. China encourages schools to leverage AI to build new types of learning spaces and innovate learning methods. China is making efforts to promote high-quality and equitable education by AI. Luwan No. 1 Central Primary School in Shanghai uses AI to develop customized development plans for each student, thereby enabling personalized learning within the context of large-scale education. China is promoting inclusive education by AI. Changde Special Education School in Hunan Province presents abstract knowledge in more visualized ways to

effectively enhance students' classroom engagement, concentration, and self-confidence, striving to provide every special needs child with higher quality education. China is promoting comprehensive human development by AI. A total of 136 universities, including Chongqing University and Tianjin University, have built intelligent agents for student affairs, creating innovative platforms and tools for student services. Shenzhen Vocational and Technical University has carried out student process evaluation profiling to enhance the pertinence of course teaching. Guangqumen Middle School in Beijing has developed a mental health support system that provides personalized recommendations to students, significantly improving the responsiveness and effectiveness of mental health services.

Transforming Teaching Practices through AI. China encourages schools to integrate AI into the entire teaching and learning process — before, during, and after class. AI are applied to empower teachers' lesson preparation. At Mingde Experimental School in Shenzhen, Guangdong Province, an "AI Teaching and Research

Platform" has been established. The Platform automatically generates lesson preparation resource packages, layered teaching suggestions, and teaching flowcharts, effectively reducing the time for teachers to create courseware. AI is applied in promoting classroom teaching revolution. The MOE has selected 50 exemplary cases under the "AI + Higher Education" initiative. One such example is Central China Normal University's independently developed intelligent teaching platform "Xiaoya," which supports personalized instruction and has been deployed in nine universities, with a total user base reaching 800,000. AI is applied in empowering after-class tutoring. Focusing on mathematics and other subjects at the compulsory education stage, the National Platform for Basic Education dynamically generates personalized study plans and activates a knowledge map based on learning feedbacks.

Transforming School Governance through AI. China encourages local authorities and schools to use AI to improve educational decision-making, management, and

service efficiency. AI makes public services more convenient. In Chongqing, the launch of the "One Matter for School Admission" application has significantly simplified the enrollment process. In Nanshan District, Shenzhen City, Guangdong Province, the implementation of digital governance of education, has provided thoughtful services through the establishment of school and teacher-student files, achieving targeted management. AI makes educational evaluation more comprehensive. The MOE has launched pilot programs for using information technology to support comprehensive student evaluation. A total of 38 regions across 28 provinces, involving more than 8,000 primary and secondary schools and over 4 million students, have been selected to participate. These pilots explore innovative approaches to reform students' entire process and all factors evaluation. AI makes management decisions more scientific. Wuhan University of Technology has built a "Digital Cockpit for University Presidents" and an "AI Assistant for Presidents" to analyze campus operations in a scientific manner.

Transforming the Paradigm of Scientific Research through AI. China encourages universities to embrace a paradigm shift in scientific research empowered by AI. AI Empowering natural sciences: Fudan University has developed the "Fuxi" meteorological foundation model, becoming the world's first meteorological model optimized for new energy. AI Empowering engineering sciences: Tongji University has created a large-scale architectural model that integrates massive automated design capabilities, enabling the rapid transformation of design concepts into 3D models and 2D blueprints, thereby substantially shortening the design cycle. AI Empowering social sciences: China has promoted the establishment of the first group of 30 Philosophy and Social Sciences Laboratories, building a research platform based on big data for major theoretical and practical issues, effectively promoting interdisciplinary integration.

III. Improving Smart Education Mechanism and Building Sound Education Ecosystem

The MOE is improving the system of standards and norms, optimizing guidance mechanisms, and carefully organizing various pilot and demonstration projects. These efforts aim to foster a high-quality, efficient development ecosystem for the digital transformation of education in an all-round and multi-level manner.

Improving the Standards and Norms System for Education Digitalization. China established the Technical Committee for Educational Informatization Standards and released the "Management Measures for Standardization of Education Informatization". Closely aligned with the National Education Digitalization Strategy Action Plan, the MOE has developed 19 industry standards in key areas such as platform tools, data resources, equipment environment, digital literacy, and cybersecurity, of which 8 have been officially released. The Technical Committee for Educational Informatization Standards has been guided

to promote the demonstration of standard application. It released the "Research Report on Digital Education Standards (2024)", and has been actively participating in working groups of the ISO/IEC JTC 1/SC36 international standards, and leading the development of 10 international standards, of which 7 have been officially released. The approval rate of its international standard proposals reached 100%.

Enhancing Digital Literacy and Skills Across the Education System. China released the education industry standard "Digital Literacy for Teachers", which incorporates AI into the scope of teachers' digital competencies. Nearly 610,000 teachers and 3 million students in 24 provincial-level administrative regions received assessment on their digital literacy. From 2013 to 2022, the MOE has implemented the National Program for Enhancing the Application Capacity of Information Technology Among Primary and Secondary School Teachers, benefiting a cumulative total of 23 million teachers. Since 2022, six sessions of teacher training

programs have been conducted in Winter and Summer holidays, involving a total of 83.84 million teachers across a whole range of levels and types. Since 2013, special training sessions on education digitalization have been held consecutively for directors of provincial and municipal education departments, with a total of more than 9,000 participants trained. In 2025, a specialized training program on AI was launched for university presidents, education department directors and staff responsible for college student-related affairs. Combining online and offline modalities to achieve full coverage, the program comprehensively enhanced the development and governance capacities on AI education.

Organizing Pilot and Demonstration Projects for Education Digitalization. China built an "Internet + Education" demonstration zone in the Ningxia Hui Autonomous Region, designated Hunan Province as a pilot province for Education Informatization 2.0, and constructed a pilot zone for education digital transformation in Shanghai. Through two rounds of selection, 18 innovation zones and 2

cultivation zones have been identified to carry out smart education demonstration zone initiatives, resulting in the accumulation of valuable experiences and exemplary cases. Pilot programs are launched for AI-empowered teacher development, supporting educators in applying AI in teaching and learning practices. The first cohort of 184 primary and secondary schools has been designated as AI Education Bases. These schools play a leading and exemplary role in areas including the development of AI-based school curricula and transformation of teaching approaches. Pilot projects for innovation and reform in higher education empowered by AI have been organized and pioneering explorations in areas such as curriculum and textbook system construction and interdisciplinary talent cultivation have been conducted.

Conducting Forward-Looking Research on Education Digitalization. Relevant research bases have conducted large-scale assessments on the development of education digitalization for 11 consecutive years, publishing the annual "China Education Informatization

Development Report". Since 2023, special annual surveys on the National Smart Education Platform have been organized, combining objective monitoring data with subjective user feedback to comprehensively assess the platform's performance and operational status. In 2018, the National Natural Science Foundation of China (NSFC) set up the Education Information Science and Technology direction, introducing natural science research paradigms into educational research and encouraging interdisciplinary basic research to solve urgent scientific problems in educational innovation and development.

IV. Strengthening Smart Education Infrastructure and Consolidating Digital Education Foundation

The MOE continues to advance the upgrading of new types of educational infrastructure, optimize network environments, build the National Education Big Data Center and various types of digital campuses, and reinforce the digital security framework for education — thereby

establishing a high-quality support system to underpin the development of smart education.

Optimizing the Network Environment for Education Digitalization. Focusing on building a robust foundational network environment for education digitalization, China is launching a far-reaching "connectivity revolution" that transcends geographical barriers. China has constructed the China Education and Research Network (CERNET), whose backbone network now covers all 32 provincial-level regions. With an outbound bandwidth of 300 Gbps, CERNET connects over 3,000 universities and research institutions, serving more than 50 million university faculty, students, and researchers. It has become the world's largest national academic internet. On the basis of achieving full coverage of campus broadband network, the deployment of 5G network application in campuses is also accelerating. This provides strong support for the implementation and promotion of smart teaching, online examinations, and safe campus initiatives.

Building the National Education Big Data Center.
China is vigorously advancing the construction of the National Education Big Data Center to ensure that educational data can flow smoothly, be provided accurately, and used effectively. A series of standards such as the "Basic Data for Education" and the "Basic Personnel Data of the Education System" — have been issued to regulate the management of educational data. A shared network that vertically connects 32 provincial-level education administrative departments and over 2000 universities has been established, horizontally integrating data from relevant departments. Educational digital maps have been invented and intelligent applications around educational resource allocation, degree prediction, and other aspects have been developed to effectively support educational decision-making. A University Computing Power Sharing Alliance has been established, enabling unified management and allocation of computing resources across regions and schools. This initiative provides strong support for scientific research and student

practices in universities.

Advancing the Construction of Various Types of Digital Campuses. The MOE has formulated and released documents such as the "Specifications for the Construction of Digital Campuses in Primary and Secondary Schools (Trial)", the "Specifications for Digital Campuses in Vocational Colleges", and the "Specifications for the Construction of Digital Campuses in Higher Education Institutions (Trial)". These documents set forth general requirements and specifications for digital campus construction in fields including infrastructure, information resources, digital literacy, application services, cybersecurity, and support systems. Liaoning Province released the "Implementation Plan for the Construction of Digital Campuses in Primary and Secondary Schools", providing guidance for standardized, regulated, and scientific development of digital campuses in primary and secondary schools across the province. In Wuhan, Hubei Province, a "Star-Rated Smart Campus" initiative was launched for primary and secondary schools,

setting benchmarks for the city's smart campus development and promoting the widespread implementation of smart campuses.

Enhancing Cybersecurity Safeguards Across the Education System. A content review mechanism for digital education resources has been established, ensuring the scientific accuracy, applicability, and regulatory compliance of all educational content. A series of policy documents have been issued to guide the education system in implementing graded protection systems, cybersecurity monitoring and early warning mechanisms, and emergency response management. Local education authorities and schools are establishing personal information protection systems and improving full life-cycle data security mechanisms covering data collection, transmission, storage, sharing, access, and processing. These measures aim to strengthen capabilities in preventing data leakage, tampering, and misuse.

Chapter 4: Future Prospects

The year 2025 marks the inaugural year of smart education. In this new phase, it is imperative to establish new standards for talent cultivation and chart a new path for the high-quality development of education. The Chinese government is actively promoting the integration of intelligent technologies into the entire process of teaching and learning, reforming educational philosophy, systems, models, content, manners and governance, to shape a new form of education.

I. Reforming Educational Philosophy and Advancing into New Stages

Breakthroughs in AI technologies are redefining the boundaries of human and machine capabilities, which profoundly impact social division of labor. They're innovating educational philosophy and expanding the

content of education, presenting boundless possibilities for the development of education.

Shaping Lifelong Education for All. AI is transforming the modes of knowledge production and exchange. With knowledge creation rapidly changing from discovery to invention, traditional school education can no longer meet the demands of social development, making lifelong learning not merely an individual choice but a necessity for growth. It is necessary to create always online classrooms through intelligent learning spaces and to provide high-level lifelong learning public services, supporting to build a learning society where everyone can learn anytime, anywhere. In this way, lifelong learning will shine with new vitality in the intelligent era.

Shaping Equitable Education for All. Large-scale AI models, with their reasoning capabilities, vast knowledge reserves and generalization abilities, are breaking down barriers to knowledge dissemination, resource sharing, and intellectual exchange, which presents a historic opportunity to address educational

inequities. The rational application of AI will effectively narrow disparities in education across regions, between urban and rural areas, among schools, and within different groups, ensuring that every individual has access to more equitable and higher-quality education.

Shaping Personalized Education for All. Smart technologies liberate humankind from repetitive manual labor, providing more opportunities for creative learning activities and better realization of potentials. By leveraging big data technology to comprehensively track students' learning, practice, and daily life situations, establish learner profiles, and develop tailored education plans, large-scale aptitude-based teaching becomes feasible. By holistically evaluating learners' competencies through intelligent technologies, it becomes possible to provide precise recommendations of high-quality educational resources to learners, which will better unleash learners' innate potential and facilitate their well-rounded yet individualized development, ensuring every individual has the opportunity to excel in life.

Shaping More Open and Flexible Education. Intelligent technologies integrate physical, social, and digital spaces to establish a globalized network for knowledge dissemination and mutual learning among civilizations. By enabling student-centered learning environments, intelligent technologies empower public education services to transcend boundaries, borders, and barriers, allowing learners to navigate the vast ocean of knowledge freely. Through the establishment of smart education community that spans schools, regions and nations, digital education resources will flow and converge globally. This ensures that the benefits of educational transformation reach all humanity, thus fostering exchanges and mutual learning among civilizations.

II. Updating Educational Content and Establishing New Standards for Talent Cultivation

The significant advancement of social productivity in the intelligent era is driving changes in production

relations, which compels education to evolve from a knowledge-transfer model to a competency-based approach. It requires us to build a profound quality and standard system for education, meanwhile a future-oriented capability map for education and talents.

Reinforcing Basic Competencies for the Intelligent Era. Regardless of the era, the fundamental mission of education remains to enlightening wisdom, nourishing souls and forming values. To achieve this, it's important to cultivate students' patriotism, enhance their self-awareness, cultivate their sense of social responsibility, noble characters and sound personalities, and make them good at thinking, have valuable pursuits, and possess robust mental and physical fitness. It's also important to enhance students' ability to understand the world through mastering fundamental principles of natural sciences and humanities, and establish their correct views on life, the world, and values, to ensure they become high-quality talents with well-rounded development in morality, intelligence, physical fitness, aesthetics, and

labor.

Nurturing Higher-order Thinking for the Intelligent Era. To improve students' abilities to observe, think independently, make rational judgments, have the courage to innovate, and solve complex problems, innovative thinking should be nurtured through the integration of science and technology education with humanities education. The cultivation of scientific spirit and methodology must be underpinned by humanistic values and cultural literacy, thereby enhancing students' capacity for technological innovation and practical application. Systematic thinking should be cultivated to apply interdisciplinary thinking to solve problems, to consider the complexity and diversity of things comprehensively, and to make scientific decisions. Collaborative thinking should be strengthened to enable students to build trust, coordinate resources, and synthesize diverse perspectives in complex scenarios, thus enhancing their problem-solving capabilities through team collaboration.

Enhancing Future-ready Competencies for the

Intelligent era. To master and harness AI in service of human growth, AI-augmented cognitive capacities that integrate advanced data analysis, systematic inductive reasoning, and rigorous logical deduction should be strengthened, enabling students to extract actionable insights from complex datasets and to apply knowledge transfer to solve problems. Human-machine partnership competencies should be enhanced to guide students in recognizing the complementary strengths of humans and machines, in selecting intelligent tools proficiently, in articulating requirements accurately, and in solving problems collaboratively using AI technologies. Awareness of ethical intelligence should be increased to guide students to utilize intelligent technologies scientifically and responsibly, and to mitigate risks including information isolation and algorithmic bias, ensuring that AI developments are for social good.

III. Building Future Elements and Exploring New Paths for Educational Reform

AI is comprehensively transforming educational content, governance, paradigms and teaching methodologies, creating a historic opportunity to establish a future-oriented education system and realize intelligent education.

Cultivating Future Teachers. AI will provide teachers with new roles and missions. AI-assisted lesson preparation system will automatically generate teaching plans and syllabus as well as precisely recommend high-quality resources, significantly reducing teachers' workload and freeing up their time for more creative instructional activities. AI-powered tutoring system will assist in generating and grading assignments, analyzing student performances, and providing students with interactive guidance to better foster their innovative thinking. With multimodal data system, data-driven teaching research system will evaluate teaching effectiveness and offer targeted improvement suggestions,

helping teachers refine their instructional skills.

Building Future Classrooms. It is important to explore a new classroom model featuring "teacher-student-machine" tripartite collaboration, integrating AI, big data, virtual simulation, and other technologies into the teaching process. Through modular course clusters, agile learning groups, and open outcome assessments, a new teaching model of human-machine symbiosis will be constructed to enrich classroom teaching presentation methods and better inspire students to participate in knowledge construction. By creating immersive learning scenarios, teachers and students can break through cognitive boundaries and experience the world in a more vivid, interactive manner that blends the physical and digital realms.

Creating Future Schools. The deep integration of intelligent technologies into all aspects of school operations including administration, services, and decision-making should be promoted to effectively modernize school governance. Data-driven scientific decision-making mechanisms should be built to analyze

the demand of each industry for talent through AI, in order to scientifically design regional layout of university majors. The mechanisms should also be used to predict the number of children at school age in the region, in order to accurately match educational resources. AI evaluation tools should be innovated to assess students' longitudinal learning progress across grade levels and their multidimensional performances encompassing moral, intellectual, physical, aesthetic, and labor education, providing more comprehensive assessment for students' competencies.

Establishing Future Learning Centers. It's important to adopt student-centered approach, build a group of ability-driven, intelligent-ubiquitous, and multimodal responsive future learning centers, and enhance students' core competitiveness in adapting to the future. Driven by digital technology, learning ecosystems should be refactored to create an interdisciplinary blending learning space that integrates industry and education, science and education. Learning elements should be

restructured by gathering high-quality learning resources such as MOOCs, digital textbooks, and virtual simulation experiments to provide students with targeted and personalized learning services. Based on the laws of education, learning paradigms should be re-constructed by exploring scenario-based and experiential learning paradigms which regard abilities as the core, researches as the guide, and interests as the driving force. In this way, students will be guided to engage in interdisciplinary, project-based, and inquiry-based learning. Through AI technology, more high-quality resources can be brought into society to meet the personalized and diversified learning needs of different types of learners to build a learning society.

Conclusion

Education is a bridge and bond for people-to-people communication and civilizational mutual learning, and smart education is a common pursuit of education by humanity. Currently, the development and transformation of education in the era of intelligence have become a common issue for educators worldwide. China is ready to join hands with countries around the world to promote high-level openness in education through digital education, jointly build a digital education development community, and provide Chinese solutions for the world.

First is to ensure equitable and inclusive access to quality educational resources for all. Educational equity is an important foundation for social equity. Taking advantages of the National Smart Education Platform, the Chinese government will make quality educational resources freely available to learners across the world. Extensive cooperation will be carried out to jointly build a

high-quality World Digital Education Alliance, promote the formation of a digital education standard system, enhance platform connectivity, knowledge exchange and mutual learning, and facilitate the building of an overseas learning center for digital education. Priority will be given to supporting digital skills training in developing countries, as well as strengthening talent training and technical support, in order to bridge the digital divide in education, and remove barriers to educational inequality.

Second is to uphold openness and cooperation to jointly build a collaborative innovation ecosystem. The opening-up of the education sector as well as collaborative innovation is an inevitable path for the global digital transformation of education. At the pivotal moment of global educational transformation, the Chinese government will deepen mutual learning, dialogue, and practical cooperation with countries around the world in the field of digital education and strengthen joint research in critical digital education technologies. A technology service system will be established featuring open language

datasets, open-source models, and shared resources to jointly develop and apply multilingual, cross-cultural, and highly adaptable resource repositories. Through collective efforts, future-oriented teachers will be cultivated, and future-oriented classrooms, schools and learning centers will be built, jointly driving the digital, intelligent, and green transformation of education.

Third is to ensure the good use of AI to jointly safeguard AI security. Intelligent technologies are bringing tremendous opportunities to education while also posing challenges such as the AI divide, privacy protection issues, and algorithmic bias. The Chinese government adheres to the principle of safety and trustworthiness, and will balance technological advancement with humanistic concerns. China supports the establishment of a global system for AI safety assessment standards under the United Nations that takes into account the interests of developing countries, to collaboratively improve ethical guidelines and accountability mechanisms for AI applications in education, and better embrace and harness

AI, ensuring that digital technologies truly enhance educational well-being for all.

Education carries forward the legacy of the past, shapes the present, and opens the path to the future. It is a vital force driving the progress of human civilization. The Chinese government will shoulder the historic responsibility of advancing educational development and transformation. With the effort of developing China's digital education into a practical platform for implementing the Global Development Initiative, the Global Security Initiative, and the Global Civilization Initiative, China will contribute its endeavors to building a more equitable, higher-quality, and smarter modern digital education system that serves lifelong learning for all.