## Beijing Municipal Implementation Plan for Promoting the Innovative Development of Future Industries

Based on the *Outline of the Beijing Municipal 14th Five-Year Plan for National Economic and Social Development and Long-Range Objectives for 2035*, this plan has been formulated in order to thoroughly implement the innovation-driven development strategy, seize the opportunities of the new round of scientific and technological (S&T) and industrial transformation, promote the innovative development of future industries, promote the transformation of Beijing's advantages in education, technology, and talent into industrial advantages, and better serve the high-quality development of the capital in the new era.

I) **General Requirements**

## (i) Guiding Ideology

Guided by Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, we will fully implement the spirit of the 20th Party Congress, thoroughly implement the spirit of General Secretary Xi Jinping's series of important speeches on Beijing, better implement the strategic positioning of the capital city, adhere to high-level coordination, systematic planning, and forward-looking layout, guide new scenarios and create new demands through the supply of cutting-edge technological capabilities, promote "technology–product–standard–scenario" linkage and iteration in an engineering manner (工程化), systematically build a full-chain industrial ecosystem of the future covering technology productization, product industrialization, and industrial scaling, target the six major fields, implement the eight major initiatives, seize opportunities for future industrial development, and build Beijing into the world's leading source and high ground (策源高地) of future industries.

## (ii) Basic Principles

Adhere to an innovation-driven and forward-looking layout. We will focus on the cutting edge in global S&T, rely on national strategic S&T strength, top scientist teams, the "X laboratories" of leading enterprises, and other innovation forces, accelerate disruptive technological breakthroughs, enhance "zero to one" original innovation capabilities, and make good opening moves in the chess game of the strategic layout of future industries.

Adhere to the leading role of the market and guiding role of policy. We will strengthen the leading role of corporate innovation entities, respect the laws of industry the market, strengthen industrial planning, improve industrial policies, and improve industrial services, break through institutional barriers that restrict industrial development, further promote pilot trials, and achieve the industry-academia-research institute-user (产学研用) multi-entity linkage.

Adhere to digital empowerment and green and low carbon. We will give full play to the role of data factors of production (要素), promote the green and low-carbon development of industry through industrial digitalization, use digital empowerment to build a new track for green and low-carbon industries of the future, promote the in-depth integration of the digital economy and the real economy, and assist in industry optimization and upgrading.

Adhere to open collaboration, security, and order. We will strengthen the division of labor and cooperation in the international S&T industry, promote cross-field and cross-organization collaborative innovation, promote the efficient integration of the production chain, innovation chain, capital chain, and talent chain, and build the

industrial innovation and entrepreneurship ecosystem for the future. We will coordinate development and security, speed up compensation for shortcomings, and improve the resilience and security level of production and supply chains.

**(iii)Development Goals**

By 2030, we will form a number of disruptive technologies and major original achievements, build a number of application scenarios, pilot-scale platforms, and technical standards, cultivate a number of industry leaders and unicorn enterprises, build a number of innovation centers and innovation alliances, and cultivate and introduce a group of strategic scientists, industry-leading talents, industry managers, and outstanding engineers.

By 2035, we will bring together a group of innovative entities with international influence and clout (话语权), continuously open up new fields and new tracks in industry, shape new drivers of development and new advantages, form a number of world-leading future industrial clusters, build a bastion of talent that opens up the cutting edge of the global S&T industry, and become a leader in global future industry development.

**II) Focus on the six major fields and create a source and high ground of future industries**

**(i) Information of the Future**

Confronting the needs of future information communications and advanced computing, we will focus on the development of general purpose artificial intelligence (general AI),[1] sixth-generation mobile communications (6G), the metaverse, quantum information, optoelectronics, and other sub-industries in areas such as Haidian, Chaoyang, Shijingshan, Tongzhou, and Beijing Economic-Technological Development Area (hereinafter referred to as the BDA).

1. General AI. Focusing on AI computing power and algorithm data as well as the general AI layout, we will promote human-centered human-computer-physical fusion (人机物融合) and help the new round of S&T revolution accelerate the

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[1] Translator's note: The Chinese term 通用人工智能 can be translated into English either as "artificial general intelligence" (AGI) or "general purpose artificial intelligence" ("general AI," for short). This translation opts for "general AI" because when Chinese writers use the term 通用人工智能, they are usually referring to a broadly capable form of AI, rather than to AI that resembles human cognition, as AGI implies. For a more thorough discussion of this term, see Wm. C. Hannas, Huey-Meei Chang, Daniel H. Chou, and Brian Fleeger, "China's Advanced AI Research: Monitoring China's Paths to 'General' Artificial Intelligence," Center for Security and Emerging Technology, July 7, 2022, https://cset.georgetown.edu/publication/chinas-advanced-ai-research/, pp. 1-3.

evolution towards intelligentization (智能化), networkization (网络化), and integration. We will guide new research and development (R&D) institutions in the AI field to increase technology output and give full play to the leading role of "chain leader" ("链主") enterprises.

2. Sixth-generation mobile communications. We will make breakthroughs in research on key and core technologies such as 6G network architecture, terahertz communications, network coverage expansion and space-ground integration, microchips and supporting hardware and software, and test instruments. We will build a collaboration network for the formulation of application standards and specifications and seize the strategic high ground in global patents and standards innovation. We will create a network and application integration test platform to proactively explore and lay out typical application scenarios.

3. Metaverse. We will focus on making breakthroughs in the cutting-edge underlying technologies of the metaverse, such as nanostructural metalenses, virtual avatars, true 3D displays, high-performance computing chips, and virtual reality operating systems, to determine the development route of Internet 3.0. We will promote AI to empower the metaverse and promote the innovative application of key metaverse technologies in smart cities, film and television entertainment, digital creativity, and other fields.

4. Quantum information. We will focus on quantum state science, quantum communications, quantum computing, quantum networks, quantum sensing, and other directions and carry out research on core technologies such as quantum material processing, core devices and measurement and control systems, quantum cryptography, quantum algorithms, and quantum computers and operating systems. We will develop superconducting quantum computers, cultivate an industrial ecosystem and user groups for quantum computing technology, accelerate innovative breakthroughs such as quantum key distribution and quantum secure direct communications, and expand the application of quantum communications in high-security industries such as national defense and finance.

5. Optoelectronics. We will accelerate R&D of core equipment and complete sets of processes for silicon photonics production lines, build basic support capabilities such as heterogeneous integration technology and silicon photonics wafer testing systems, make breakthroughs in core technologies such as photonic matrix computing, optical network-on-chip, and inter-chip optical networks, and promote the demonstration application of high-performance photonic computing chips in data centers, financial transactions, biomedicine, cutting-edge new materials, autonomous driving, and other application scenarios.

**(ii) Healthcare of the Future**

Facing the life, health, and medical needs of the future, we will focus on the development of gene technology, cell therapy and regenerative medicine, brain science and brain-computer interface, synthetic biology, and other sub-industries in areas such as Haidian, Shijingshan, Tongzhou, Changping, Daxing, Pinggu, Miyun, and the BDA.

6. Gene technology. We will strengthen innovation in gene sequencing technologies such as high-throughput gene sequencing and single-molecule sequencing and promote efficient, safe, and controllable industrial applications in the life and health field in an orderly manner. We will support the holding of clinical trials and application promotion for advanced genetic diagnosis and treatment technologies and drugs in the fields of disease risk screening, prevention, and targeted therapy.

7. Cell therapy and regenerative medicine. We will strengthen R&D of somatic cell reprogramming, artificial tissue and organ generation, organoids, and other technologies and support the clinical applications of cell technologies such as stem cell repair of pathological damage and tissue and organ regeneration. We will deepen R&D of underlying technologies such as stem cells, 3D cell culture, tissue engineering, and microfluidic chips, build highly accurate human in vitro pathophysiological models, promote applications in the fields of new drug R&D, personalized and precision medicine, and regenerative medicine, and accelerate the formation of an organically integrated production chain ecosystem covering fields such as biological reagents and companion diagnostics.

8. Brain science and brain-computer interface. We will carry out cutting-edge research in brain science and brain-inspired (类脑) technology, accelerate R&D of brain-inspired cognition and neural computing, brain-inspired multimodal perception and information processing, and brain-inspired chip and system technologies, and promote the application of new technologies, devices, drugs for the treatment of brain diseases. We will conduct research on brain-inspired intelligent technologies such as brain-computer interface chip and electrode development, information encoding and decoding, and bidirectional brain modulation (脑调控). We will build a platform for brain science and brain-computer interface innovation to accelerate the conversion and industrial application of brain-computer interface innovation achievements in the fields of clinical medicine, aerospace, and smart lifestyle.

9. Synthetic biology. We will accelerate technological breakthroughs in underlying synthetic biology technology, quantitative synthetic biotechnology, and biological fabrication (生物创造), build a research platform for artificial biology (人造生物) and artificial biological devices, and promote R&D and industrialized application of

cutting-edge synthetic biology key technologies such as artificial life components, biological system design and reconstruction, and artificial multicellular system design, construction, and regulation. We will promote the application of cutting-edge and innovative synthetic biology technologies in areas such as drug R&D and production, disease treatment, environmental protection, energy supply, and new materials development.

**(iii) Manufacturing of the Future**

Facing the needs of the increasingly high-end, smart, green, and integrated manufacturing of the future, we will focus on developing humanoid robots, smart mobility, and other sub-industries in areas such as Shijingshan, Fangshan, Shunyi, Changping, and the BDA.

10. Humanoid robots. We will focus on supporting the integrated development of robot technology and multimodal large models, promote the evolution of robots from "imitating humans" to "humanoid," use the integration of perception and cognition of humanoid robots to achieve autonomous repair and self-iteration capabilities, make breakthroughs in the development of autonomous adaptation and inference and decision-making capabilities for new environments and new tasks, and be the first to lay out the field of embodied intelligence (具身智能) research. We will support research on general coordinated motion and control (通用型协同运动与控制) algorithms for precise control in dynamic, open, complex, and interference-filled environments and support the R&D and manufacturing of general purpose hardware platforms for humanoid robots used for handling high explosives or engaging in highly dexterous actions. We will continue to promote the reduction of product costs, promote the use of humanoid robots as a new type of labor force to provide personalized assistance services, and achieve large-scale commercialized applications.

11. Smart mobility. We will focus on new energy freight-carrying flying vehicles (新能源飞行汽车载运工具) and self-driving technology and support the integration of industrial technologies such as intelligent connected vehicles, general aviation, and unmanned aircraft (无人驾驶航空器). We will conduct research on multi-vehicle collaboration technology based on vehicle-road-cloud integrated systems, focus on key urban traffic intersections, successive intersections along main roads, expressway ramps, and other key scenarios, and achieve the multiple optimization goals of alleviating traffic congestion, improving traffic safety, and reducing carbon emissions.

**(iv)Energy of the Future**

Centered around the needs of new energy system construction, we will focus on the development of hydrogen energy, new energy storage, carbon capture, utilization, and sequestration, and other sub-industries in areas such as Fangshan, Tongzhou, Changping, Daxing, Huairou, Yanqing, and the BDA.

12. Hydrogen energy. We will strengthen R&D of advanced hydrogen energy technology, materials, and equipment and conduct research on core technologies for hydrogen energy preparation, storage, transportation, and refueling, hydrogen fuel cell stacks, and system integration. We will promote a number of forward-looking technological breakthroughs such as proton-exchange membrane electrolysis hydrogen production, solid oxide fuel cells, liquid-state and solid-state hydrogen storage, and hydrogen-ammonia gas turbines and achieve full-scenario demonstration and application promotion for hydrogen energy in transportation, industry, power generation, heating, and other fields.

13. New energy storage. We will strengthen R&D of advanced energy storage technology, materials, and equipment, develop core technologies for key stages such as new flow battery energy storage and advanced compressed air energy storage as well as system integration technology, and achieve commercialized application along the entire production chain. We will make breakthroughs in a number of forward-looking technologies such as superconducting energy storage, liquid metal energy storage, solid-state battery energy storage, and hydrogen energy storage to achieve full-scenario application promotion of new energy storage on the power generation side, grid side, and demand side.

14. Carbon capture, utilization, and sequestration. We will accelerate the development of key carbon capture materials such as high-performance absorbents, adsorbents, and membrane materials, promote R&D of carbon-negative technologies such as biomass energy carbon capture and sequestration, direct air carbon capture and sequestration, and make breakthroughs in carbon dioxide conversion and utilization technologies such as carbon dioxide production of fuels and olefins, photoelectrocatalytic conversion, and biological fixation conversion (生物固定转化), and promote demonstration applications in thermal power, steel, chemicals, cement, and other industries in the Beijing-Tianjin-Hebei region.

**(v) Materials of the Future**

Facing the needs of cutting-edge new materials, we will focus on developing graphene materials, superconducting materials, ultra-wide bandgap semiconductor

materials, new generation biomedical materials, and other sub-industries in areas such as Haidian, Fangshan, Shunyi, Daxing, and the BDA.

15. Graphene materials. We will promote breakthroughs in key technologies such as graphene flexible electronic device manufacturing, optoelectronic detection, and radio frequency and electromagnetic shielding as well as general purpose technologies such as high-performance graphene preparation and graphene composite material preparation and application. We will develop key technologies for the application of graphene medical devices and graphene materials in the fields of drug and gene delivery, bioimaging, electrochemical sensors, and tumor photothermal therapy and promote the large-scale application of graphene in the fields of electronic information, medicine and health, new energy, aerospace, energy conservation and environmental protection, modern agriculture, and petrochemicals.

16. Superconducting materials. We will achieve breakthroughs in high-performance superconducting wire material structure design and batch processing control technology and promote wider application of superconducting magnets in accelerators, single-crystal silicon manufacturing, and other fields. We will achieve breakthroughs in precursor preparation and texturing technology for low-cost bismuth-based high-temperature superconducting tapes and yttrium barium copper oxide (YBCO) coated conductors and promote wide application of low-cost kilometer-scale coated conductors. We will achieve breakthroughs in key technologies such as electromagnetic design, ultra-high voltage insulation, assembly structure, and grid-connected operation of high-capacity superconducting cables and high-voltage superconducting current limiters and promote large-scale demonstration applications of superconducting cables and superconducting current limiters.

17. Ultra-wide bandgap semiconductor materials. We will increase R&D of ultra-wide bandgap (fourth-generation) semiconductor material preparation technology as represented by gallium oxide, focus on breakthroughs in key technologies such as single-crystal growth, cutting, and polishing, homoepitaxy, and carrier control (载流子调控), and promote the application of gallium oxide materials in fields and directions such as photovoltaics, wind power, power inverters for industrial power sources, and new energy vehicle-grade power devices.

18. New generation biomedical materials. We will develop new orthopedic, oral, cardiovascular, and cerebrovascular repair and material manufacturing technologies, develop a new generation of bone implant materials, dental repair materials, artificial blood vessels, and artificial heart systems, develop bioactive

materials for tissue and organ regeneration that can regulate stem cell function, induce directed differentiation, and have controllable factor release (可控因子释放), and achieve the regeneration and repair of bones, skin, blood, nerves, muscles, and other tissues and organs.

**(vi) Space of the Future**

Facing the needs of space exploration in the future, we will focus on developing commercial aerospace, satellite networks, and other sub-industries in Haidian, Fengtai, Shijingshan, Daxing, and the BDA.

19. Commercial aerospace. We will accelerate the development and production of medium and large commercial strap-on boosters, 3D-printed rockets, high-thrust reusable full-flow staged combustion cycle engines, and commercial payload return capsules and make breakthroughs in key technologies such as vertical recovery of rockets, manned suborbital travel, and space debris cleanup and their industrialized applications. We will focus on promoting projects such as rocket engines, key components of rocket control systems, and reusable and recoverable rocket assembly and general testing and the construction of generalized and standardized test platforms. We will research and apply near-space hypersonic and ultra long-haul aircraft technology.

20. Satellite networks. We will develop commercialized relay measurement and control communication satellites, flat-panel satellites, software-defined satellites, and standardized satellite platforms and achieve R&D progress in the interconnection and integration of satellite-ground heterogeneous networks as well as laser communication components, high-precision radar and optical imaging devices, low-cost phased array antennas, multimodal handheld terminals, and other components. We will promote the construction of high-precision, rapid-revisit, full-coverage optical and radar remote sensing constellations, low earth orbit Internet of Things constellations, and enhanced low earth orbit navigation augmentation constellations and effectively improve satellite application service capabilities.

**III) Implement the Eight Major Initiatives and Build an Industrial Innovation and Development Ecosystem for the Future**

**(i) Initiative of Breakthroughs in Original Achievements**

Relying on the national laboratories, national scientific research institutes, high-level research universities, and leading S&T enterprises in Beijing, we will take the lead or participate in the construction of national-level innovation platforms,

accelerate the formation of original achievements in cutting-edge, cross-field, and disruptive technology and achieve more "from zero to one" breakthrough. We will focus on the fields where Beijing is well-positioned, build Beijing into a scientific high ground in AI, quantum information, life sciences, and other fields, fully promote R&D efforts in materials, components, high-end chips, basic software, scientific instruments and equipment, and achieve independent controllability (自主可控) of software and hardware for future industries.

### (ii) Pilot Incubation Acceleration Initiative

We will build a full-chain industrial public service network of the future covering verification centers, pilot platforms, and technical standards. We will build a pilot platform for quality verification and a platform for process verification and establish mechanisms for industrialization and rapid iteration for the "simultaneous R&D and conversion" ("边研发、边转化") of S&T achievements. We will explore the establishment of a center for the conversion of advanced technology achievements into practical applications (先进技术成果转化中心), build a full-process, one-stop service platform, and provide overall solutions for "engineering," "standardization," and "industrialization." We will encourage the development of standardized pilot demonstrations, guide enterprises to actively carry out benchmarking and standards compliance, and create a high ground for technology and product creation for future industries.

### (iii) Initiative of Joint Progress in Industry Gradients (产业梯度)

We will encourage and guide enterprises to increase investment in R&D, select and bring in a group of large enterprises with strength and potential for focused cultivation and support, improve upstream and downstream collaboration facilities along the supply chain, and vigorously support the conversion of cutting-edge technologies and their relocation to Beijing. We will increase support for technology-driven small and medium-sized S&T enterprises and cultivate and expand the scale of "gazelle" enterprises. We will support the conversion of S&T achievements into practical applications (成果转化) and project incubation for university S&T parks and national laboratories in Beijing and accelerate the construction of a hard S&T (硬科技) startup company system. We will accelerate the construction of an industrial echelon (产业梯队) centered on Beijing's leading advantages, the focus points of international competition, and disruptive cutting-edge technology and encourage all districts to integrate their industrial planning and actively undertake the development of future industries.

**(iv)Initiative of Collaboration Among Innovation Partners**

We will promote the opening up and sharing of large-scale scientific research facilities and instruments to future industry entities. We will promote the establishment of an industry-academia-research institute-user collaborative innovation mechanism and community of interest for "scientists + engineers + entrepreneurs + investors" and support the establishment of future industry alliances. We will encourage leading enterprises to unite supporting enterprises along the production chain through mergers, acquisitions, reorganizations, and strategic partnerships, enhance competitiveness in technology, patents, standards, and brands, and cultivate enterprises that are leaders of their industry ecosystems. We will support "chain leader" ("链主") companies as they take the lead in establishing innovation alliances such as industrial innovation centers and promote the cultivation of a number of unicorn enterprises and professional, meticulous, specialized, and innovative (专精特新) "little giant" enterprises.

**(v) Application Scenario Construction Initiative**

We will strengthen the construction of future industry application scenarios, explore the full-cycle scenario design mechanism of "future scenarios + pilot demonstrations + promotion and application," and carry out real-world testing and market verification of application scenarios. We will hold new scenario press conferences and supply and demand matchmaking meetings and promote the effective linkage and precise application of new technologies, new products, and new services. We will strengthen the construction of technology-driven, business-driven, integrated application-type, and other scenarios, support cross-border demonstration applications for underlying technologies (底层技术), and achieve collaborative linkages in different scenarios. We will build a number of pilot testing zones for future industries and actively build a world-leading future industry innovation and development demonstration base.

**(vi)Initiative of Financial Empowerment for S&T**

We will increase funding support for future technologies and focus on supporting "zero to one" basic research and applied basic research. We will strengthen support for the conversion and implementation of technological achievements and include future industries in the scope of financial support for high-grade, precision, and advanced (高精尖) industries. We will give full play to the role of the municipal and district

governments' industrial investment guidance funds and channel social capital[2] to participate in future technology innovation and industrialization. We will encourage seed-stage investment, angel investment, venture capital, and other small-scale and early investment and give full play to the role of "patient capital." We will improve the service functions of the Beijing Stock Exchange and cultivate and support the listing of a group of small and medium-sized enterprises that feature S&T innovation on the New Over-the-Counter Market[3] and the Beijing Stock Exchange. We will support financing guarantee institutions at all levels as they provide financing guarantee services to enterprises.

**(vii)    Initiative for Gathering Innovation Talents**

Confronting the urgently needed technical fields in future industry strategies, we will continue to implement municipal-level talent plans, recruit a group of elite S&T talents with global influence, and strengthen service guarantees in education, employment, housing, healthcare, and other areas. We will select and support a group of leading S&T talents, young S&T talents, and outstanding engineers, fully empower scientists with autonomy and decision-making authority, and cultivate and nurture talents in front-line free exploration. We will increase efforts to cultivate management talents for future industry enterprises and stimulate entrepreneurs' enthusiasm for innovation and entrepreneurship. We will accelerate the introduction of specialized talents such as legal experts, intellectual property experts, industrial investors, and technical managers.

**(viii)   International Exchange and Cooperation Initiative**

We will strengthen international S&T industry cooperation, increase efforts to introduce global future industry innovation resources, and encourage joint efforts by global innovation entities in technological research, the conversion of S&T achievements into practical applications, and project implementation. We will encourage enterprises and social capital to jump at the opportunity to lay out future industries at home and abroad and ensure the security of production and supply

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[2] Translator's note: The Chinese term 社会资本, translated literally as "social capital," and its synonyms "social funding" (社会资金), "social investment" (社会投资), and "social financing" (社会融资), refer to any source of funding outside of government budget outlays. These terms encompass investment by private individuals and private institutions. However, investment from state-funded entities such as state-owned enterprises (SOEs), including state-run banks, also falls under the umbrella of "social capital."

[3] Translator's note: The New Over-the-Counter (OTC) Market (新三板) is a board of the Shanghai Stock Market that acts as platform for trading equity in non-publicly listed Chinese companies, mostly micro-, small-, and medium-sized enterprises.

chains. We will promote leapfrog upgrading through cutting-edge technology competitions and build future industry exchange and cooperation platforms. We must strengthen practical exchanges in the field of future industries with "Belt and Road Initiative"[4] countries and regions and member states of the Regional Comprehensive Economic Partnership (RCEP) and promote high-level international cooperation in future industries.

### IV) Assurance Measures

### (i) Strengthen Organization and Implementation

We will establish and improve mechanisms for promoting future industry work and strengthen support and assurances such as resource alignment, talent services, land use, and regulatory policies. We will strengthen overall planning and coordination, promptly coordinate and resolve major cross-regional, cross-field, and cross-departmental issues, and strengthen the integrated deployment of the entire "science—technology—production—industry" chain. We will research and formulate an industrial resources list, a list of businesses and talents we will attract (招商引智清单), and a key projects list, and accelerate the implementation of various tasks.

### (ii) Promote Mechanism Innovation

We will actively seek support from national ministries and commissions, promote collaborative cooperation among universities, institutes, and scientific research institutions in the Beijing-Tianjin-Hebei region, use a "winner-takes-all open competition"[5] approach to implement major projects in cutting-edge fields such as general AI, quantum information, and brain-computer interfaces, and guide innovation by diverse elements and entities. We will support private enterprises (民营企业) as they focus on future industries and continuously improve their quality of development and promote the growth, improvement, and strengthening of the private sector (民营经济). We will empower S&T innovation with institutional innovation, further delegate authority, increase empowerment, and strengthen innovation fault tolerance, loosen constraints and remove obstacles, and ensure that scientific researchers boldly explore the cutting-edge frontiers of the future.

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[4] Translator's note: The "Belt and Road Initiative" ("一带一路"), abbreviated BRI, refers to the Silk Road Economic Belt (丝绸之路经济带) and the 21st Century Maritime Silk Road (21世纪海上丝绸之路).

[5] 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. This concept is also known as the "bounty system" (悬赏制).

**(iii) Strengthen Strategic Leadership**

We will establish an expert consultation mechanism for future industry development, build a high-level future industry strategic think tank, and conduct in-depth research on future industry development trends, strategic paths, and work measures. We will infuse S&T ethics throughout the entire process of industrial development, including in scientific research and technology development, and promote coordinated development and positive interaction between future industries and S&T ethics. We will give full play to Beijing's resource advantages such as strategic scientists, industry-leading talents, and young S&T talents, strengthen technology foresight research, and enhance our ability to seize hold of the direction of future industries.

**(iv) Dynamic Monitoring and Evaluation**

According to future industry development trends, we will carry out research on future industry dynamic monitoring, evaluation, and assessment systems that are in line with Beijing's characteristics, comprehensively grasp industry development dynamics, and provide scientific support for the development of Beijing's future industries. We will strengthen organization, coordination, and supervision, carry out dynamic monitoring and evaluation of the implementation situation, scientifically allocate public service resources, broadly mobilize the strength of all sectors of society, and work together to promote the smooth implementation of this plan.