

Countermeasures and Suggestions for Accelerating the Cultivation of World-Class Innovative Enterprises in Beijing

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Abstract

The Third Plenary Session of the 20th CPC Central Committee emphasized the accelerated development of more world-class enterprises. Cultivating world-class innovative enterprises is essential to achieving high-level scientific and technological self-reliance and promoting high-quality development. By analyzing the development patterns of typical world-class innovative enterprises domestically and internationally, and evaluating the current state of Beijing's existing world-class and "quasi-first-class" enterprises, this paper proposes pathways for cultivating such enterprises in Beijing. These include strengthening strategic planning, improving the policy system, enhancing the dominant role of enterprises, and integrating innovative talents from both within and outside the system.

Keywords

World-Class Innovative Enterprises, Innovation Ecosystem, Industry-University-Research Integration, Gradient Cultivation, R&D Investment, Beijing

1. Introduction

World-class innovative enterprises represent a critical subset of world-class enterprises. Operating within specific industries or sectors, they consistently conduct forward-looking and fundamental innovation, lead global industry development and technological progress, achieve a high degree of autonomy in core technologies, and possess first-class capabilities in innovation, resource allocation, market competitiveness, and corporate governance (Clarivate, 2025). They encompass both innovative enterprises that rank among the world-class and world-class enterprises that

are highly innovative, representing the intersection of these two categories.

From the perspective of the modern industrial chain, world-class innovative enterprises should demonstrate the ability to serve major national needs, effectively coordinate resources, and lead and drive the development of upstream and downstream enterprises (BCG, 2025). From the perspective of the systematic innovation chain, they should exhibit strengths in leading original technologies, tackling “bottleneck” technologies, fostering deeply integrated “consortia,” and maintaining high R&D investment. A clear vision and mission for scientific and technological innovation, effectively aligned with the national goal of high-level sci-tech self-reliance, is a key characteristic that distinguishes world-class innovative enterprises from general innovative and sci-tech enterprises (Liu & Zhao, 2025; Wang & Chen, 2025). The strategic positioning of these enterprises determines their role within the modern industrial chain and systematic innovation chain.

2. Growth Patterns of World-Class Innovative Enterprises

The growth of world-class innovative enterprises is a dynamic process. Grounded in the “Corporate Life Cycle Theory” by American scholar Ichak Adizes, and through examining enterprises such as Google, Microsoft, Amazon, Huawei, and Alibaba, alongside collaborative discussions with over 50 entrepreneurs, experts, scholars, and media professionals, this study identifies four fundamental growth drivers: strategic leadership, R&D-driven development, a first-class innovation ecosystem, and digital empowerment (TrendPulse Finance, 2025). These elements collectively form the core of world-class innovative enterprises, serving as the internal drivers of their global competitiveness and the essential foundation for Beijing’s enterprises to transition from excellence to preeminence.

2.1. Strategic Leadership

Forward-looking and pioneering innovation strategies are a hallmark of world-class innovative enterprises. Adhering to strategic leadership facilitates exemplary central-local collaboration. Examples include:

- 1) China Mobile’s strategy to deepen the construction of a world-class “Power Tower” and strive to become a “world-class information service technology innovation company”;
- 2) BOE’s vision to become “the most respected great enterprise on earth” (BOE, 2025);
- 3) Jiaxun Feihong’s goal to be “a leader in industrial communication and information, providing advanced products and system solutions for industries such as rail transit, national defense, and customs”;
- 4) Naton Technology’s aspiration to “become a prestigious medical industry cluster in human health and a respected, desirable enterprise family.”

2.2. R&D-Driven Development

Statistics indicate that leading global tech enterprises typically maintain R&D

investment exceeding 10% of revenue, e.g., Google (12.2%), Microsoft (12.3%), Amazon (11.9%), Huawei (22.4%), and Baidu (20.0%) (Clarivate, 2025). World-class innovative enterprises explicitly commit to high-intensity R&D investment in their strategic planning, which is a necessary, though not sufficient, condition for their growth.

Enterprises in Guangdong Province have led in R&D investment in recent years, with sustained rapid growth. Huawei's significant advancements and leadership in 5G technology stem from its sustained investment in R&D and basic research (Siliu, 2024). As a leading domestic enterprise, Huawei's standards offer a valuable reference for Beijing in cultivating world-class innovative enterprises.

2.3. First-Class Innovation Ecosystem

A first-class innovation ecosystem is characterized by interactive symbiosis among diverse, multi-level innovation entities. Essential components include the capacity to connect global top-tier innovation resources, coordinate system members, accommodate reasonable trial-and-error costs, attract outstanding talent, ensure robust intellectual property protection, and maintain a fair market competition environment (BCG, 2025).

World-class enterprises prioritize ecosystem building, demonstrating large scale, strong leadership, and extensive knowledge access. For instance:

Siemens established three knowledge interchange centers with the Technical University of Munich, RWTH Aachen University, and the Technical University of Denmark;

Google promotes innovation and knowledge exchange through organizational design, environmental shaping, IT knowledge management systems, and motivational culture, forming an innovation ecosystem with startups and consumers to enhance knowledge value.

2.4. Digital Empowerment

In the digital era, technologies such as cloud computing, high-speed internet, IoT, and big data are primary productive forces enabling enterprises to gain global competitive advantages and evolve innovation capabilities (TrendPulse Finance, 2025). Market demand orientation is key to enterprise technological innovation. Digital empowerment enhances innovation and management efficiency by:

Facilitating automated and intelligent production transformation, reducing costs, and shortening production cycles;

Optimizing management processes and improving operational efficiency.

For example, Huawei launched the Euler OS, building a computing ecosystem integrating hardware, software, and platform, supported by digital infrastructure. Its "Pangu model + industry models" platform system empowers digital and intelligent transformation across industries.

3. Achievements in Cultivating World-Class Innovative Enterprises in Beijing

Recent efforts by departments overseeing state-owned assets, economy and information technology, and science and technology have accelerated the cultivation of world-class innovative enterprises. Beijing has nurtured numerous enterprises with strong innovation, resource allocation, market competitiveness, and governance capabilities:

1) 48 enterprises including State Grid, JD.com, and BAIC were listed in the Fortune Global 500 (Fortune, 2024);

2) 113 enterprises including Baidu, Meituan, and Xiaomi were included in the EU Industrial R&D Investment Scoreboard Global Top 2000 (European Commission, 2024);

3) 7 enterprises including Douyin, JD.com, and Xiaomi were selected in the “Global Top 100 Tech Brands” (Brand Finance, 2024);

4) 5 enterprises including Xiaomi, ByteDance, and Lenovo were repeatedly listed among the “World’s 50 Most Innovative Companies” (Sohu, 2025).

Additionally, Beijing hosts 28,300 national high-tech enterprises, 8754 specialized and sophisticated “Little Giant” enterprises, 1035 national-level “Little Giants,” 116 enterprises listed in the 2024 National Top 500 Sci-Tech Innovative Enterprises, and 475 A-share listed enterprises, all ranking first among Chinese cities. The number of newly established sci-tech enterprises has exceeded 100,000 for two consecutive years.

Leveraging science to promote enterprises and enterprises to revitalize industries, Beijing has formed two trillion-yuan clusters (new-generation IT and sci-tech services) and eight hundred-billion-yuan clusters (e.g., medical health, integrated circuits), providing a solid foundation for cultivating world-class innovative enterprises.

4. Evaluation of Innovative Enterprises in Beijing

Guided by the goal of cultivating world-class innovative enterprises, an evaluation index system was constructed using four first-level indicators (strategic management capability, innovation foundation, innovation input, innovation output), 12 second-level indicators, and 23 third-level indicators (Siliu, 2024). Beijing’s enterprises were categorized into three tiers:

Advantageous enterprises (score ≥ 90): e.g., Baidu, Xiaomi, BOE, ByteDance, CRRC; representing $< 1\%$;

Growing enterprises (score > 80): e.g., Datang Telecom, Jiaxun Feihong, Huazhuo Jingke, Venustech, Qi An Xin; representing $\sim 18\%$;

Potential enterprises (score ≤ 80): e.g., Beijing Hutao Computer Technology, Beijing Zhangshang Xianji Network Technology, BOE Regenerative Medicine Technology, Beijing Huacheng Zhiyun Software, Beijing Wanxiang Rongtong Technology, Zhongke Shitong Hengqi (Beijing) Technology; representing $> 80\%$.

Beijing’s enterprise structure presents a pyramid:

Base (80%): predominantly SMEs, including first-class and specialized/ sophisticated enterprises (10%), classified as Potential;

Middle (10%): includes specialized/sophisticated enterprises (<5%), Little Giants, hidden champions, and unicorns, likely to advance to world-class, classified as Growing;

Top (10%): world-class enterprises, with world-class innovative enterprises (<3%) and sci-tech leaders (<1%), classified as Advantageous.

Beijing has formed an innovation echelon led by high-tech enterprises, with specialized/sophisticated firms and unicorns as benchmarks, driving sci-tech innovation and economic growth. However, Beijing lacks world-class innovative enterprises in core hard technology sectors and enterprises that can act as “chain leaders” like Huawei or BYD. While numerous “quasi-first-class” enterprises exist, a gap remains to true world-class status.

5. Problems and Constraints

Compared with developed countries, Beijing faces challenges including insufficient enterprise R&D investment, financing difficulties, inadequate supply of key generic technologies, imperfect innovation incentives, and weak industry-university-research integration.

5.1. Low Enterprise R&D Investment and Weak Basic Research

Although total R&D investment has grown rapidly ($\geq 10\%$ annual growth in intensity over 5 years for Scoreboard enterprises), Beijing’s level remains low internationally:

1) R&D intensity of Beijing enterprises (including central enterprises) was 2.5% (2023 Scoreboard), below the national average (3.8%), and far below the U.S. (7.9%), EU (3.8%), and Japan (3.8%);

2) Enterprise basic research investment comprises only 2.66% of R&D funds, lagging behind developed economies;

3) Domestically, enterprise R&D funding (43.6%) is below the national average (77.6%), and significantly below Guangdong (87.1%) and Jiangsu (87.6%);

4) Fewer than 20% of large-scale industrial enterprises have R&D institutions.

Current R&D intensity insufficiently supports enterprises’ innovation mission.

5.2. High External Dependency on Key Core Technologies and Products

Low self-sufficiency in core technologies hinders advancement in the global value chain. Survey findings include:

1) 40% of “quasi-first-class” enterprises heavily depend on foreign advanced equipment; 46.7% face “bottleneck” technology risks (Zhang et al., 2025; Zhou & Xin, 2025);

2) Most innovation occurs downstream, increasing vulnerability;

3) One IC enterprise reported 35% of core components from the U.S., 17% from

Japan, only 12% domestic;

4) Key technologies (e.g., high-end chips, analog chips, EDA software) remain external-controlled; CPU self-sufficiency is <1%, dominated by Intel and AMD.

5.3. Ineffective Industry-University-Research Cooperation

In the government-led national innovation system, research institutes and universities dominate; enterprise participation in sci-tech planning and policy is limited. Mechanisms are weak:

1) Cooperation lacks long-term vision, often based on single projects, raising concerns over ROI, profit distribution, and data security;

2) Divergent goals and assessment standards hinder coordination, reducing motivation and resource commitment from universities and research institutes.

5.4. Financing Difficulties and Inadequate Sci-Tech Financial Services

Private enterprises face persistent financing challenges and unequal treatment in guarantees and loan rates. Despite being the largest innovation entities, they receive limited capital support. Start-up high-tech enterprises, often pre-revenue, are excluded by policy indicators (revenue, profit, taxes). The withdrawal of U.S. dollar VC funds and underdeveloped sci-tech insurance and leasing further restrict innovation potential (BCG, 2025; Sohu, 2025).

6. Countermeasures and Suggestions

6.1. Strengthen Strategic Planning

Develop a gradient cultivation plan: Benchmark against global giants (e.g., Google, Huawei); establish identification mechanisms; implement targeted policies; cultivate enterprises with strong innovation, leadership, and global competitiveness.

Accelerate domestic substitution: Provide policy support for innovations replacing foreign products/technologies; improve the business environment to foster joint innovation by state-owned and private enterprises (Yang & Wu, 2025).

6.2. Constructing a Full-Chain Policy System

1) Tax incentives: Enhance reductions/exemptions for key sectors; fully refund taxes from major innovations; expand “application-free enjoyment” policies; ensure private enterprise access.

2) Financial services: Support banks, insurers, and leasing institutions serving sci-tech enterprises; encourage sci-tech specialized branches; support tech entrepreneurship.

3) Funding support: Increase enterprise access to sci-tech plans; ensure non-public enterprise participation; establish development and special funds; provide post-subsidies for R&D.

4) International cooperation: Support overseas R&D centers, M&A, partnerships

with global entities; engage in forward-looking research and international standard setting (Futunn, 2025).

5) Capital investment: Leverage Beijing Stock Exchange for multi-level capital markets; incentivize VC/PE investment; foster a tolerant capital ecosystem.

6.3. Strengthening Enterprise Dominance in Sci-Tech Innovation

1) Enhance top-level design: Learn from Zhejiang/Anhui; issue implementation plans; refine Beijing Innovation Center regulations; deploy tasks (e.g., enterprise quality, generic technology platforms); strengthen supervision and evaluation.

2) Promote organized research and mission-driven innovation: Leverage leading enterprises; build industry-university-research consortia; support “ecosystem chain” development.

3) Empower enterprises as scenario constructors: Open innovation demand scenarios; formulate policies for SME integration; encourage leading enterprises to open industrial chains; attract diverse capital and entities; use fiscal/financial policies to integrate SMEs into innovation/supply chains (Chen & Li, 2025).

4) Expand enterprise participation in sci-tech projects: Define participation ratios; explore “white list” for key enterprises; support breakthroughs in generic/original technologies (Li et al., 2025).

5) Encourage private enterprise innovation: Implement central guidelines; facilitate private involvement in major innovations through full-chain engagement.

6.4. Integrating Sci-Tech Talents Inside and Outside the System

1) Strengthen mission coordination: Implement national strategies; enhance enterprise dominance; fully utilize university/research institute functions; build efficient collaborative systems; integrate innovation, industrial, and talent chains (TrendPulse Finance, 2025).

2) Empower strategic scientists and entrepreneurs: Increase decision-making roles in project approval and infrastructure; enhance industry-university-research efficiency; address chronic collaboration and transformation challenges.

3) Improve talent evaluation and incentives: Support tech entrepreneurship and enterprise service; provide professional and financial incentives; establish a “revolving door” for talent mobility between academia and industry.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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