

The strategy of innovation development in China – the forecast until 2050 year

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Abstract: China sets the goal to become the world leader in science and innovation by 2050. "Made in China 2025" outlines the country's strategy to become the world leader in a number of high-tech industries (robotics, aerospace, equipment, medical devices etc.). The objective of this research is to identify the innovation priority areas and their development by 2050. The comparison of the achievements of previous innovation programs is also provided. Through a combination of statistical analysis, cross impact analysis, qualitative and quantitative methods, the critical drivers that play a substantial role in transforming China's science and innovation landscape will be investigated. The study will show a correlation between the different facts and will highlight the strong impact of governance and the national economy on future developments.

Key words. Innovation policy, economic development, technological forecast.

More than 30 years of reform and opening up have been the 30 years of leaping development in China's economy and society. With the rapid increase of China's economic aggregate, China's influence and international reputation have also continued to increase. Through reflections on China's economic and social development model in recent years, China's extensive economic development model based on input of land, raw materials, labor and other primitive elements has obvious disadvantages, which has led to serious natural environmental pollution and traditional energy in China, regional development imbalance and other issues.

Therefore, relying on scientific and technological progress to promote economic development has become the only option to change the connotation and extension of China's economic and social development. Based on this development reality, scientific and technological innovation is a strategic support for improving social productivity and overall national strength, and must be placed at the core of the overall national development. The ability of scientific and technological innovation is a core element that determines the future development of a country, and it must be placed at the height of enhancing social productivity and the country's comprehensive national strength. Against this historical background, China must increase its sense of crisis, seize and make good use of the opportunities of the new round of scientific and technological revolution and industrial revolution. This has clarified the goals and direction of work for China's industrial enterprises and the vast number of scientific researchers in the future.

In the current situation in China, innovation and upgrading are used to promote rapid economic development. Through the implementation of an innovation-driven development strategy, a development strategy that promotes industrial restructuring and resource optimization is imminent. This is also a way for China to improve its international competitiveness and integrate with the human economy. A strategic choice made according to the law of development.

The innovation development strategy emphasizes the relationship between economic and social development and scientific and technological progress. Its core is to transfer the driving force of social development to production that relies on independent design and scientific knowledge, and science and technology are used as the direct driving force for the development of productive forces.

The new growth theory believes that in addition to traditional labor, natural resources, capital and other factors, science and technology are also important factors that promote economic growth, and this factor is gradually changing from infiltrating other factors to external factors in social production. These changes from exogenous variables to endogenous variables can double the efficiency of social production. In other words, the marginal effect of science and technology on economic and social development has become more and more obvious. It is also due to the multiplier effect of science and technology on economic and social development.

The era we live in today is being called the era of knowledge economy and the era of science and technology economy. Specifically, including how to strengthen the dominant position of enterprises in innovation activities (especially how to enhance the original innovation ability of enterprises), how to continuously improve China's scientific research management mechanism to ensure the smooth implementation of innovation-driven development strategies, etc., to solve these problems. The degree will directly determine the level and the effect of the implementation of China's innovative development strategy.

1. FORECAST ON CHINA'S LONG-TERM DEVELOPMENT VISION TOWARDS A WORLD POWER IN SCIENCE AND TECHNOLOGY

1.1. By 2030, China will achieve the goal of becoming an innovative country in the forefront of construction

Independent innovation capabilities have entered the forefront of the world, science and technology have achieved leapfrog development, and innovation has become an important driving force for economic and social development and national defense construction. In general, the passive situation of technological development based on follow-up is reversed, and a social development vision of innovative globalization, low-carbon industrialization, smart urbanization, smart information, ecological recycling, and green consumption is presented.

1) Science and technology achieve innovation and leapfrogging, and become one of the world's science and technology centers. The ability to develop science and technology has shifted from leading in quantity to leading in quality, and from parallel to leading in several basic frontier fields, producing a batch of original achievements that have an impact on the development of world science and technology and the progress of human civilization. It has global competitiveness in some important technical fields, and the quality of patents is close to the average level of developed countries. Overcome the main bottlenecks restricting national defense technology. Universities and research institutions have entered the

international popular list.

2) The industrial innovation capability has been significantly enhanced, and its international competitiveness ranks among the top in the world. The industry generally presents the characteristics of green, low-carbon, smart and service-oriented development. Innovation has become the main driving force for industrial development, basically changing the passive situation in which key core technologies of the industry are controlled by others. Realize the transformation from complementary cooperation to competitive cooperation with developed countries, and from competitive cooperation to complementary cooperation with developing countries. Multinational operating companies will emerge the industries and development directions that can lead the world.

3) Social innovation and the ecological environment have developed by leaps and bounds, and the management efficiency of the public sector has reached the level of moderately developed countries. Basic public services such as compulsory education, basic medical care, elderly health care, job transfer training, employment counseling, public transportation, and social security can generally meet the needs of urban and rural residents.

1.2 By 2050, China will enter the ranks of the world's scientific and technological powers and become the world's major science center and innovation highland

Focus on the 2050 national development goals. Firmly seize the strategic opportunities brought by the new round of scientific and technological revolution and the industrial revolution triggered by it, and thoroughly implement the innovation-driven development strategy.

Deepen the reform of the system and mechanism as the driving force. The main line of independent innovation capacity building. Focus on optimizing the layout of the national innovation system of open cooperation, focus on strengthening the construction of innovative talent teams with a global perspective, and focus on building a regional innovation development environment featuring equal cooperation, mutual benefit and win-win results. Accelerate the process of China's integration into the world in an all-round way, and embark on a path of technological power with Chinese characteristics.

1) Strengthen the top-level deployment of technological powers. Carry out national-level mid- and long-term technology foresight and national technology roadmap research, formulate a timetable and roadmap for the construction of a world scientific and technological power, and improve the policy system for promoting the construction of a world scientific and technological power.

2) Accelerate the improvement of original innovation capabilities. Optimize the scientific research layout of scientific research institutes and research universities, build a group of world-leading scientific research bases and large scientific projects, gather the world's top innovative teams, and make contributions to the development of world science and the response to global challenges.

3) Construct a modern industrial innovation system. With the goal of grasping the opportunities of the new round of industrial revolution, we will deploy cutting-

edge technologies and disruptive technological innovations, and cultivate and develop strategic emerging industries. Focus on major tasks related to the long-term and overall development of the country, and promote the overall innovation capabilities of related industries with major national projects and tasks such as high-speed rail, nuclear power, large aircraft, network security, aerospace and oceanography.

4) Strengthen the layout of national strategic scientific and technological forces. The goal is to grasp the opportunities of the new round of scientific and technological revolution and to make breakthroughs in major technological defects that are related to the overall development and long-term development of our country.

5) Optimize the regional spatial layout of innovation capabilities. Promote the construction of a global technological innovation center, build an innovative city cluster into a world-class innovation center, and take the lead in realizing innovation-driven transformation.

6) Continue to promote institutional reforms. Deepen the reform of the national innovation management system and mechanism, and improve the national innovation-driven development strategy organization and promotion mechanism.

7) Build a world-class innovative talent team. Reform policies on personnel training, introduction, and use to create a group of strategic scientific and technological talents who can grasp the world's scientific and technological trends and judge the direction of scientific and technological development.

8) Accelerate China's opening up and cooperation in all aspects. Build an environment for regional innovation and development of equal cooperation, develop a higher-level open economy, build a broad community of interests, and accelerate China's integration into the world in all aspects.

2. THE SUGGESTIONS FOR INNOVATIVE DEVELOPMENT STRATEGIES

The rapid economic and social development has put forward higher requirements for China's current overall technological innovation capabilities, but the conflicts between technological innovation, technological diffusion and resource conservation and environmental protection have become more and more prominent. With the current rapid economic growth and the continuous expansion of investment scale, China's technological innovation capabilities need to be further improved, which is prominently manifested in the technological system obstacles, the dilemma of human resources, and the independent innovation capabilities of enterprises, etc. The resolution of these issues will directly affect the effectiveness of the implementation of China's innovative development strategy.

2.1 Breaking down the obstacles of science and technology system and mechanism

Compared with the developed countries, China's independent innovation capability is still at a low level. Except for individual industries, the patent situation of cutting-edge and key technologies in most fields is still not optimistic. But at the

same time, we must also realize that China has basically had an internal environment for independent innovation, and its overall scientific and technological strength is already in the forefront of developing countries, and even in certain fields such as manned space technology and high-performance computing technology. It is already at the forefront of the world. In recent years, the scientific and technological innovation capabilities of various industries in China have been greatly improved, and progress has been made in the construction of scientific and technological talents. The problems of shortage of scientific research funds and low scientific research and innovation capabilities have been initially solved.

China has made many scientific and technological achievements that have attracted worldwide attention. China's scientific and technological papers rank second in the world. It can be said that the realization of innovation-driven development through the independent innovation meets the requirements of the world's technological development on the one hand, and on the other hand, it is also the key to solving the problems facing our society. At present, the enhancement of independent innovation capability requires the resolution of system and mechanism obstacles.

To implement the innovation-driven development strategy, it is necessary to break through the traditional system and mechanism barriers, especially those old ideological concepts and cultural traditions that are not suitable for scientific and technological progress. To liberate the productive forces to the greatest extent, China has basically formed a relatively reasonable allocation of scientific and technological resources, which provides an important guarantee for the implementation of innovation-driven development. Innovation is the soul of a nation's progress and the driving force for a country's prosperity. Scientific and technological innovation has increasingly become an important foundation and symbol for the liberation and development of today's social productive forces, and it increasingly determines the development process of a country and a nation.

Scientific and technological innovation is inseparable from institutional innovation. Only when two interact and complement each other can they promote the implementation of the innovation-driven development strategy, thereby promoting the realization of China's industrialization, agricultural modernization, and informatization goals. To build an innovation-driven institutional system, it is necessary to change the evaluation system that only values the value of GDP and turn technological innovation into an active choice for enterprises under the conditions of scarce resources.

At present, China's work focuses on solving the problem of the disconnection between technological innovation and economic development, and striving to stimulate the vitality of technological innovation. It is necessary to solve the problems in the technological management system, scientific research system, scientific and technological evaluation mechanism, and scientific research results transformation. Efforts should be made to deal with the relationships between the government and the market in the process of scientific knowledge production, and on the basis of giving full play to the government's macro-allocation of scientific and

technological resources, the market's leading role in the distribution of social resources should be brought into the full play.

On the one hand, we must continue to promote the streamlining of the government and continuously improve the service-oriented government. On the other hand, we must strengthen the government's actions in the innovation process, such as setting up the special funds to support the development of SME. At the same time, speed up technological innovation, transformation and upgrading.

2.2. Strengthening the construction of a team of scientific and technological innovation talents

From the perspective of previous scientific and technological revolutions, cultivating high-end innovative talents in the field of construction science and technology is an important aspect of forming a strong advantage of innovative talents and improving the country's scientific and technological innovation capabilities. The current practical problem of China's science and technology team is, "We are also facing severe challenges in the science and technology team, that is, the structural shortage of innovative science and technology talents is prominent, the shortage of world-class science and technology masters, the shortage of leading talents and top talents. Cultivation is out of touch with production and innovation practice, focusing on cultivating a team of innovative scientific and technological talents with a certain scale and reasonable structure, which is an important part of China's implementation of the innovation-driven development strategy. Innovation and development in the field of science and technology cannot live without high-level and high-level scientific and technological talents.

In recent years, western developed countries have always regarded the introduction of high-tech talents as a high-level national strategy. The "Innovative America" pointed out that "innovative capabilities in the 21st century are the primary factor determining national competitiveness, and talent is the key to determining innovation capabilities". The report gives three suggestions on technological innovation: innovative talents, and funding for innovation. Investment and innovative infrastructure construction. In terms of innovative talents, the report requires that a national strategic plan for innovative education must be formulated to ensure the cultivation of a workforce with creative and technological capabilities. It can be said that the emphasis on innovative talents is the main reason why the United States has maintained a high technological innovation capability for a long time and even has long-term rapid economic and social development.

It is necessary to formulate a science and technology talent team policy that suits the needs of the current stage in accordance with the basic positioning of China's special economic and social development stage. Compared with developed countries, despite the large number of scientific and technological workers in China, the quality is not optimistic. How to make good use of China's low-cost research and development capabilities is an important issue currently facing China's talent strategy.

An important aspect of implementing the innovative development strategy is to transform China from a country with a large population to a country with strong

human resources. At present, our society has basically surpassed the development stage of low labor cost advantage. Training and attracting a large number of high-quality and high-level scientific and technological talents has become an important aspect of implementing independent innovation strategies and improving national competitiveness.

China "lack of institutions that truly provide technical and creative services, lack of talents who are good at technical and creative services, and no effective guiding policies for technical innovation service activities." We must actively reform and improve China's current education system, vigorously promote quality education, innovative education methods, focus on cultivating young innovative talents, enhance the initiative and creativity of young scholars, and create a good atmosphere of innovation in the whole society. Only by creating an innovation-driven atmosphere in the entire society can innovation be truly transformed into productivity and promote economic development.

At the same time, we must continue to increase efforts to attract high-level talents from home and abroad (especially those who have returned from studying abroad). In the process of international cooperation, attention should be paid to strengthening the exchange and training of talents and promote the internationalization of the level and vision of China's scientific and technological talents. It is necessary to break the old system that is not conducive to the flow and function of talents, actively reform the existing innovation income distribution mechanism, encourage the establishment of a new salary distribution system, and truly provide a good environment for the work and development of innovative talents, and promote innovation-driven development strategies, consolidate the foundation for implementation.

2.3 Clarifying the dominant position of the enterprise in the innovation strategy process

Historical experience has shown many times that to improve the efficiency of innovation activities must enable enterprises, especially high-tech enterprises, to become the main bodies of the technological innovation process. "It is necessary to strengthen the dominant position of enterprises in technological innovation, give play to the backbone of innovation of large enterprises, stimulate the innovation vitality of small and medium-sized enterprises, and promote market-oriented and enterprise-oriented reforms of applied technology research and development institutions." Overall, the current technological innovation of Chinese enterprises is mainly reflected in the lack of innovation enthusiasm and motivation of many companies. This situation is more obvious for industries with long R&D cycles.

Because the future economic benefits are not clear, companies are often unwilling to take risks. The biggest problem with China's current technological innovation may not be insufficient investment in innovation, nor insufficient innovation capabilities, but insufficient innovation motivation. Therefore, on the one hand, China should increase its support for enterprise technological innovation, especially original innovation, and provide it with reasonable protection as far as

possible from the aspects of policy design and laws and regulations. On the other hand, it is necessary to encourage enterprises to establish their own R&D institutions, increase product R&D investment as much as possible, accelerate the speed of market transformation of scientific and technological achievements, and especially strive to cultivate market space for the industrialization of major scientific and technological achievements.

Another reason for establishing the dominant position of enterprises in innovation activities is that innovation, especially technological innovation, is not only a scientific research activity of scholars, it is also an economic and social phenomenon. In other words, innovation activities must aim at occupying high-end positions in the industry chain and obtaining high value-added values. Romer's research indicates that whether more creativity or knowledge can be provided and used is directly related to whether a country or region's economy can maintain long-term growth. In most cases, it is still difficult to fully market the research and development results of the laboratory. Therefore, while ensuring the company's R&D status, try to encourage other social funds to enter.

In particular, we should be aware of the key role of entrepreneurs in innovation. Entrepreneurs are not only the organizers of various innovation activities, but also the decision makers of the innovation direction. The innovation ability of entrepreneurs, such as grasping market demand, researching and developing new technologies, launching new products, etc., has become the core resource in innovation activities.

In order to ensure the dominant position of enterprises in innovation activities, it is also necessary to increase capital, management methods and technology patents, and other production factors to participate in profit distribution, encourage companies to conduct research on cutting-edge and edge technologies. At the same time, it supports the establishment of cooperative relations between high-tech enterprises and scientific research institutions to cooperate in various aspects such as technology research and development, product design, and form a situation of sharing results and win-win cooperation.

While stimulating the vitality of enterprise innovation, it also promotes a good situation of industry-university-research cooperation and the application of scientific and technological achievements. While clarifying the status of the main bodies of the enterprise, it is necessary to ensure the reasonable distribution of the interests and risks of all parties in the industry, academia and research institutes, and pay particular attention to the distribution of economic interests. This is an important condition that determines whether the cooperation between different industries, academia and research institutes can proceed smoothly. In fact, one of the goals of the innovation-driven development strategy is to provide corresponding scientific and technological support for the adjustment of the industrial structure through continuous innovation in the entire scientific and technological field. Therefore, how to stimulate the innovation enthusiasm of enterprises, especially high-tech enterprises, especially how to promote the effective transformation and application of the latest scientific and technological innovation achievements, has become an important practical issue facing China's innovation-driven development strategy.

From a global perspective, insisting on innovation in order to survive has become an inevitable choice for enterprises to "survive the fittest" in the increasingly fierce market competition of globalization and knowledge. As far as China's enterprise innovation is concerned, the following issues must be strengthened:

1) High-tech enterprises must be encouraged and guided to establish innovation alliances with universities and scientific research institutes, so that technological innovation meets market needs, and the improvement of innovation-driven efficiency depends on collaborative innovation. We must strive to improve the enterprise's collaborative innovation capabilities, especially the social functions of the enterprise's basic scientific research and cutting-edge technology research, and improve the ability to transform scientific research results into reality.

2) We must thoroughly reform and improve the current technology evaluation that is not suitable for implementing innovation-driven development strategies.

3) The reward system, strengthen the construction of public service platforms for science and technology, so that the market determines the value and application of research results.

As Chinese enterprises and the country's innovation capabilities and competitiveness have increased significantly, enterprises cannot rely on the introduction of technology to achieve growth. The innovation-driven development strategy is an inevitable choice for China to get rid of middle-income countries and build an innovative country under the background of the new normal economy. The innovation-driven development strategy is an inevitable choice to enhance China's independent innovation capabilities, join the global value chain, and occupy a favorable position in the process of upgrading and transforming the global value chain.

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