Research on the support system of China's industrial technology innovation

Research Ideas and Methods

The Characteristics and Challenges of China‘ s Industrial Development Stage

The Reality of National Conditions and the Construction Needs of Industrial Technology Innovation Support System

The Thinking of Promoting the construction of China‘s Industrial Technology Innovation Support System

Conclusion

Research Ideas and Methods

Research ideas

Based on the demand of industrial technology innovation in the middle and late period of industrialization in China, the organic collection of industrial technology innovation system was explored. Grasping the general rules of industrial technology innovation, policy recommendations was put forward to accelerate the construction of China's industrial technology innovation system.

Research Methods

“ 3+1 ”

- Unified theoretical framework. Based on the theoretical research of this project, a unified theoretical analysis framework was established. With innovative technology supply, innovative technology industrialization, industrial technology innovation services, coupled with the industrial technology innovation policy environment, the "3+1" basic framework of the study of the industrial technology innovation support system was constituted.

the Characteristics and Challenges of China‘s Industrial Development Stage

1.

1. Characteristics

Firstly, the unbalanced development of the industries. Including the development level of the industries, the production mode, technical level Inside the industries, the level of industrial development in different regions are all showing an unbalanced state. The unbalanced industrial development leads to the unbalance demand of technological innovation among various types and several regions of industrial;

2014 5000

38% 23% 18%

secondly, the huge potential in the market development. China has become the world's second largest market, and with the economic development and the promotion of living standard, still has great development potential in the market, which provides a variety of ways and vast space for the various types of industrial development;

In 2014, chinese domenstic public facilities capital stock per capita is about US$5000, is 38%, 23% and 18% of that of Western Europe, North America and Japan-South Korea respectively.

Thirdly, the unstable industry development foundation. After the "explosively" rapid industrialization process after the reform and opening-up, facing the new demand of the development, the technology, capital, talent accumulation was serious shortage, industrial chain, supply chain and innovation chain was not perfect, all need to strengthen remedial tasks of the industrial base, at the same time continuing to promote industrialization.

2.

the Judgment on the International Environment and the Challenge of China‘s Industrial Development

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The developed countries have completed the industrialization, the development is increasingly characterized by informationization, network, intellectualization trend. It made China‘s development in the middle and late period of industrialization, is facing severe challenges and impacts:

(1) The developed countries has formed a strong and highly integrated international capital, China is still difficult to integrate by the historical reasons.

(2) The developed countries has formed a strong technical accumulation based on the mature industrialization, monopolized a large number of areas of the technical development path.

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(3) Under the mature market mechanism, the developed countries has establish a sound industrial technology innovation support system; the industrial chain, innovation chain, supply chain of division labor, collaboration. And thus grasp the leading power of the development of the industry.

(4) The developed countries has established a innovate cultural environment, the national education system and innovative talents training mode which adapting to the modern industrialization.

(5) The developed countries has formed the industrial development foundation of technical transformation and industrial upgrading with the large scale application of information technology as the leading.

All these made China was at a disadvantage in many ways including the scale of capital investment, the ability of capital operation, the accumulation of industrial technology, the level of talent cultivation, the ability of industrial development management, and the market order , etc when participating in international competition.

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1. China is a major power. The status of the Great power requires an independent and balanced development industry, especially the important industry related to the national economy and the people's livelihood cannot rely solely on other country, China must establish industrial power system, only in this way can gain development initiative in Inferior status of the international competition position. The great resources potential and the huge market demand provide a realistic possibility for industrial development and technological progress.

2. As a later-development country, the advantages and disadvantages of later-development co-exist.

On the one hand, can learn from the industrialization experience of developed countries, achieve rapid development and improve the ability through studying the advanced technology and management experience, avoid taking the old way, the wrong way.

On the other hand, the later-development country can often obtain substantial development effect due to the technology imitation in short period, but ignoring the system construction, the perfection of the market

3

3. China's industrialization process should be completed in the context of globalization. We must actively respond to the challenges of globalization, seize the historic opportunities of the adjustment of global industrial division pattern brought by new technological breakthroughs and the new technology revolution, fully make use of the dividend of global dividend, actively absorb innovation resources in the global scope, accelerate to establish and improve China's industrial technology innovation support system in the open environment.

4

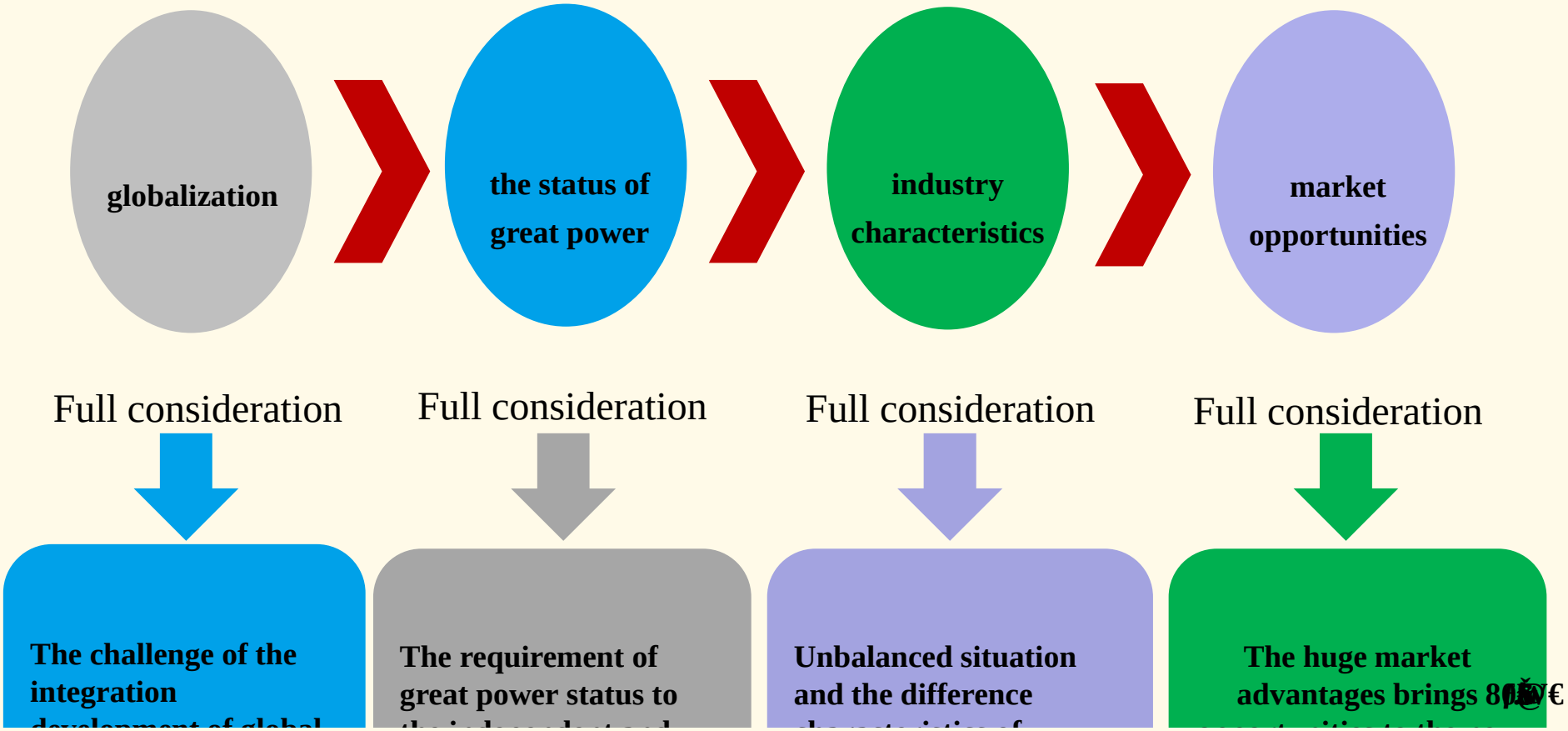
4. The original industrial technology innovation support system in China has changed greatly since the reform and opening-up, the construction mode of the industry technological innovation support system which meet the development needs of China's industrialization and information has not yet formed, influenced deeply by the original system inertia and the uncertainty of system transition. The development history of the world industry technology innovation shows that, a country's industrial technology innovation model is closely related to the country's development stage, market size, international background and other factors. Therefore, China needs to accelerate the exploration of the construction mode of industrial technology innovation supporting system from the reality of situation in the world and in China.

5. The imbalance and differentiation of China's industrial development requires that the construction mode of industrial technology innovation support system should be different. We must change the unified policy formulation method and system construction thinking under the planned economy system, and make strategic plans in a different way according to the development stage of different industries, the characteristics and laws of technological innovation, and its status in the national economy, and formulate the policy of industrial technology innovation, set up each industrial technology innovation support system, to lay

the Thinking of Promoting the construction of China‘s Industrial Technology Innovation Support System

1. Basic Thinking

1 the basic thinking of promoting the construction of industrial technology innovation system



2 Basic thinking on the construction of the industrial technology innovation support system

“ ” Based on the background and trend of globalization

“ ” Drawing the lessons from the development experience of the world industry technology innovation

I. Relying on the market advantage of a large country, make use of market mechanisms

II. Make full use of the role of

3

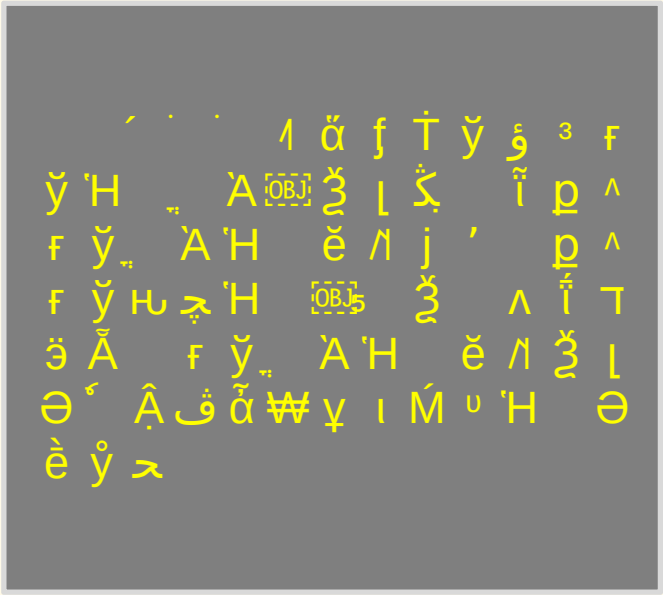
eight construction paths of the industrial technology innovation support system

Strategic plan	fund support	technology supply	collaborative innovation
encourage the enterprises	service support	personnel training	international development

2. Establish the Key Industrial

Make effective integration of the resources of central

3. Establish a diversified industrial innovation technology supply mode according to the characteristics of the industry



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Supply mode innovation

(1)In the industrial field of high industry concentration, establish innovation technology supply mode with the Research Institute of large enterprises as its main body, and in the combination of producing- studying- researching.

(2) In the industrial field of low industry concentration or strategic emerging industries, establish innovative technology supply model with public R&D institutions as its main body, and in the combination of producing- studying- researching.

(3) Build National Laboratory for strategic frontier technology.

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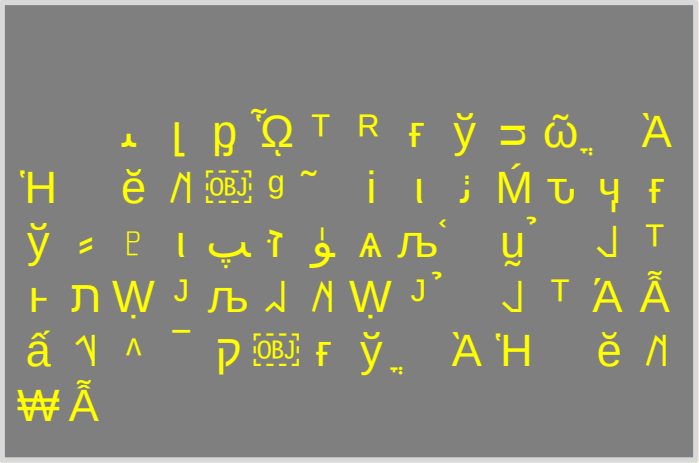
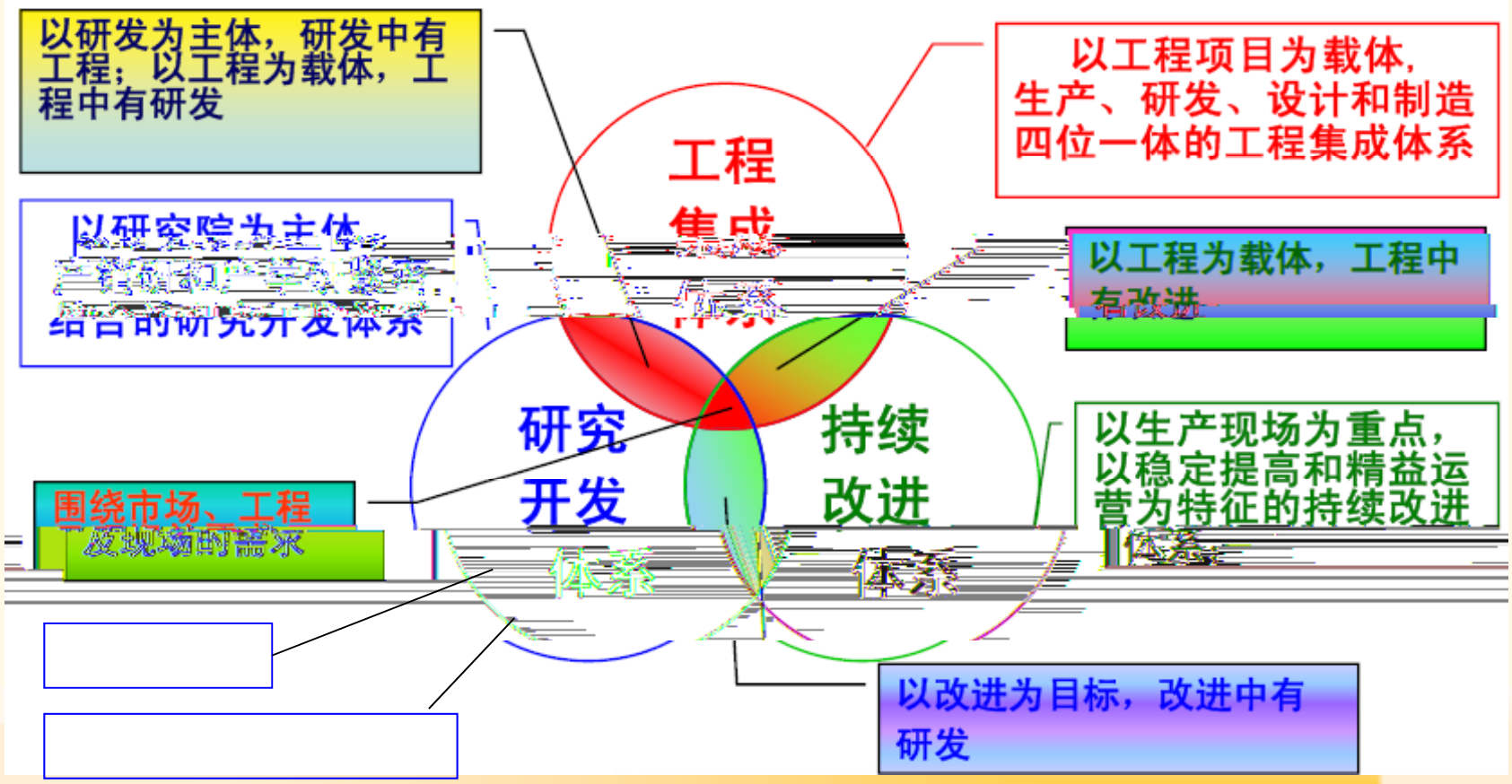


4 In the field of technology updates, the market active, and new products, fully creates

Innovative technology supply model

In the industries with high industria1 i 1 0.48 30.81 154 7.9 reW BT0 18 180 174.12 412.79 1530 89

ε The industry with high industrial concentration, and large enterprises



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• In the low industrial concentration industry:

construct industry technological innovation support system with the enterprise R&D institutions as the internal leadership, the scientific research institutions (containing the powerful science and technology enterprises strength) after restructuring, the industrialization continue to promote, and the assets can adopt classification management (classification assessment), University, Key Laboratory, National Engineering Center, professional technology companies, industrial technology innovation alliance as the external support.

The industry with not high industrial concentration, but has large enterprises in the industry

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“ ”

ε The type of enterprise and the composition form of

Deployed as a whole, construct national laboratory of the strategic frontier technology as soon as possible (innovation base).

This kind of industry can reflect the national oriented strategic intent, contains the new development prospects, but is unlikely to become a pillar industry in short times, and needs to establish a strong, systematic and efficient R&D support system, strives early to make a breakthrough in the key core technology fields.

New energy, new generation of information network security, nuclear energy, seed of life, aerospace technology, marine, new materials

Entity research base: Increase integration efforts to co-ordinate the use of existing relatively decentralized research strength, and establish a number of strong, distinctive industry R&D base of key common technology.

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Optimized and reorganized, constantly improves the technological innovation service platform of the regional or small and medium-sized enterprises.

Support local governments to adjust by local conditions, give full play to the local scientific research institutions, colleges and universities, and all kinds of technology intermediary service institutions, and regional backbone enterprises, attract technology innovation resources outside the regions to establish new scientific research institutions served for local industrial clusters innovation development.

Build an industrial technology innovation service platform, which should be full of vitality, various forms, and face to the regional and small and medium enterprises.

The technology innovation system for the small and medium enterprises and region --------Shanghai

117 121 110
32 ;
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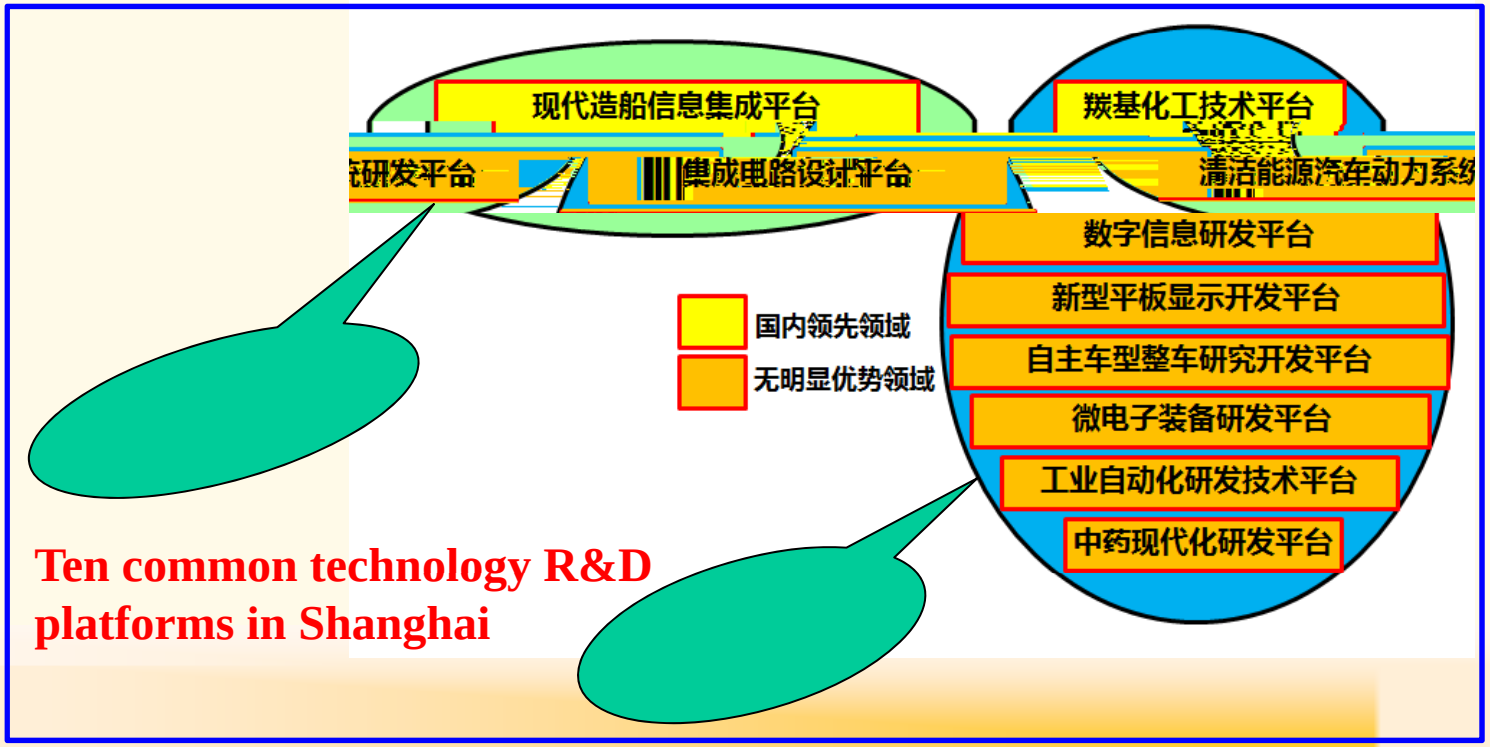
Has constructed 10 common technology platforms: 117 municipal research bases, 121 national ministries’ or local key laboratory, 110 national and Shanghai Engineering and technology centers, 32 national enterprise technology centers;

The transformed scientific research institutions with highlighting common technology R&D capabilities and significant industry technical service capabilities, turn in a whole to "a new scientific research institute", become an important force of the common technology R&D (Shanghai Industrial Technology Research Institute was formally established on august 23, 2012).



Ten common technology R&D platforms in Shanghai

Shanghai ----- Global First Class Technological Innovation Center

Technological innovation space layout

1.

Distinctive innov -ation gathering area 2.

Corresponding construction policy in the innovation center

Government regulation:
1.
2. 〃 〃
3.

R&D funds:
1.
2.
3.

Achievements transformation:
1.
2.
3.

Innovate the ecological environment

Intermediary service:
1.
2.

R & D funds:
1.
2. 〃 〃
3.
4.

other
1.
2. 〃 〃

(Cultivation of innovative talents)

1.

1.

2.

1. 〃 〃

5. Strengthen the construction of industrial technology innovation service system

De-administration of the technical innovation service organization

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(Provide diversified services for industrial technology innovation

(The development trend of internet, platform economy and big data,The construction of service platform has revealed a new direction of the management system of product service in the life cycle which supports the reconstruction of value chain)

(Platform economy supported by big data)

iOS

+ + +

Five elements: E-commerce + Logistics distribution + Financial support + Technical program

Big data.

(The technical services, technology industrialization, industrial organization and coordination, and other special services based on the analysis of the platform data)

(The industrialization of technology R&D design)

A. (The ways of new technological achievements industrialization)

B. the source of new technology R&D demands

C. the new model of technology R&D

" "

Conclusion

1.

2.

3.

+ +

1.The technological innovation support system constructed according to the different characteristics of China's industries:

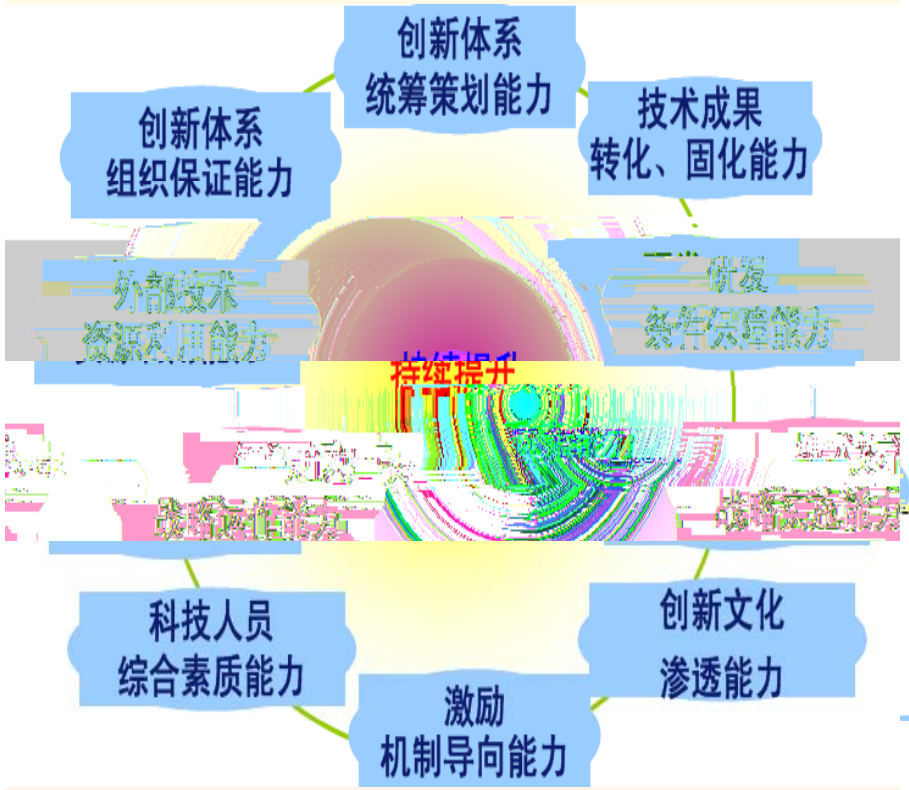
1.1 In the newly emerging industries or the industries with not high concentration, establish common technology public service platform with university, industrial technology research institute, manufacturing innovation center as the core;

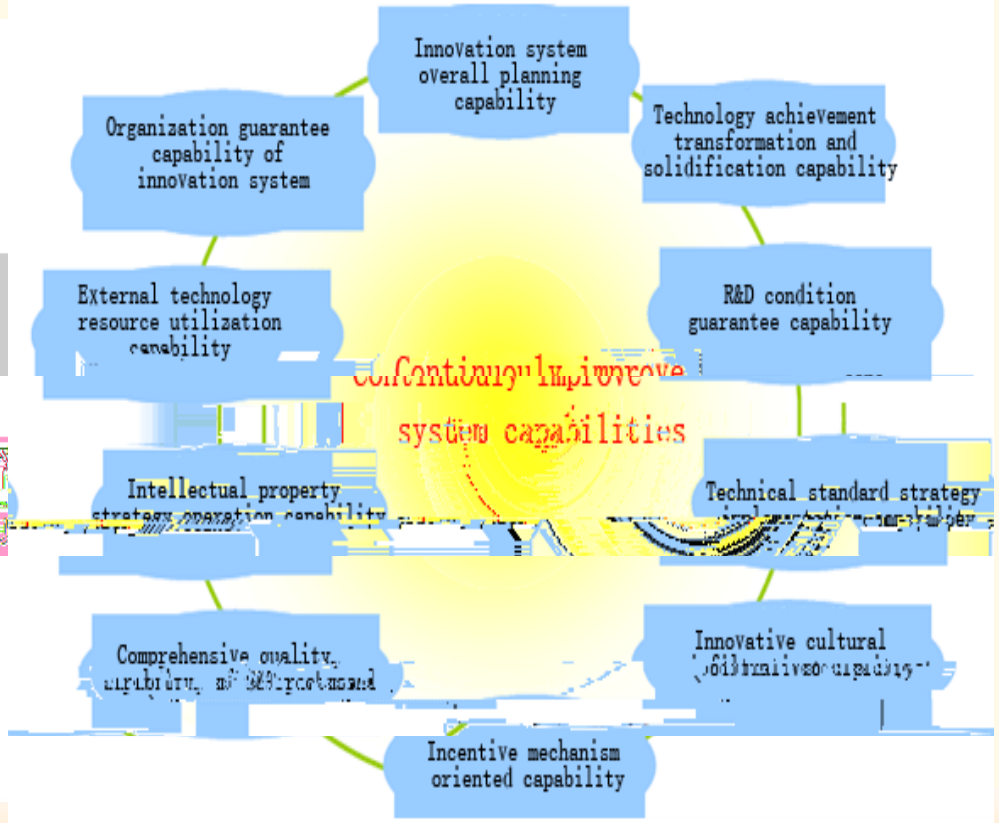
1.2 In the industries with high industrial concentration, establish industrial common technology support system which takes the enterprises as its main body(large enterprises, science and technology professional companies, Universities);

1.3.China should establish the high level of national platform as soon as possible for the important strategic frontier new technology R&D (Academy of Sciences + University + National Laboratory).

Conclusion

Aimed at ten major systems capabilities in technological innovation, construct the innovation system with different characteristics according to different industries.



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