



# 中华人民共和国科学技术部

Ministry of Science and Technology of the People's Republic of China

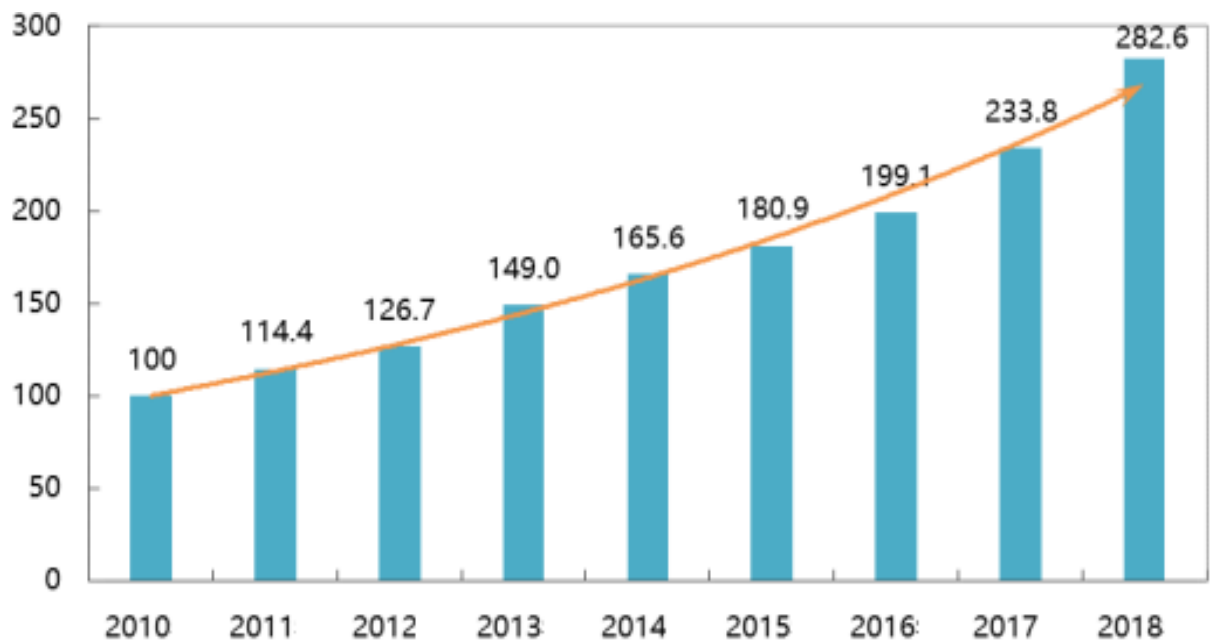


## CHINA S&T NEWSLETTER

No.4 2020

### Content

Focus: *Evaluation Report on the Innovation Capacity of National Hi-tech Zones 2019*



Growth trend of innovation capacity index of national high-tech zones

## Focus: Evaluation Report on the Innovation Capacity of National Hi-tech Zones 2019

The *Evaluation Report on the Innovation Capacity of National Hi-tech Zones 2019* covers all the 169 national high-tech zones in China as of the end of 2018, and the data used in the evaluation all come from the annual statistical surveys of national high-tech zones conducted by the Torch Center of the Ministry of Science and Technology with the approval of the National Bureau of Statistics (last updated in 2018).

### I. In 2018, the economic strength of national high-tech zones has notably enhanced, resulting in higher performance in all major economic indicators

1. In 2018, the 169 national high-tech zones in China generated a combined GDP of 11.1 trillion yuan, up 10.5% year-on-year, 3.9 percentage points higher than the country's overall GDP growth (6.6%); the national high-tech zones accounted for 12.3% of China's total GDP (90.0 trillion yuan), up 0.5 percentage points from the previous year.

2. In 2018, there were 120,000 enterprises involved in the Torch Program in the national high-tech zones, an increase of 11.2% year-on-year; the industrial added value of these enterprises totaled 4,875.95 billion yuan, accounting for 16.0% of the country's total industrial added value (30,516 billion yuan), an increase of 1.4 percentage points over the previous year.

3. In 2018, enterprises involved in the Torch Program in the national high-tech zones recorded 34,621.39 billion yuan of operating income, 2,391.81 billion yuan of net profit, 1,865.05 billion yuan of tax payment and 3,726.38 billion yuan of exports, up by 9.4%, 8.2%, 4.9% and 8.1% respectively.

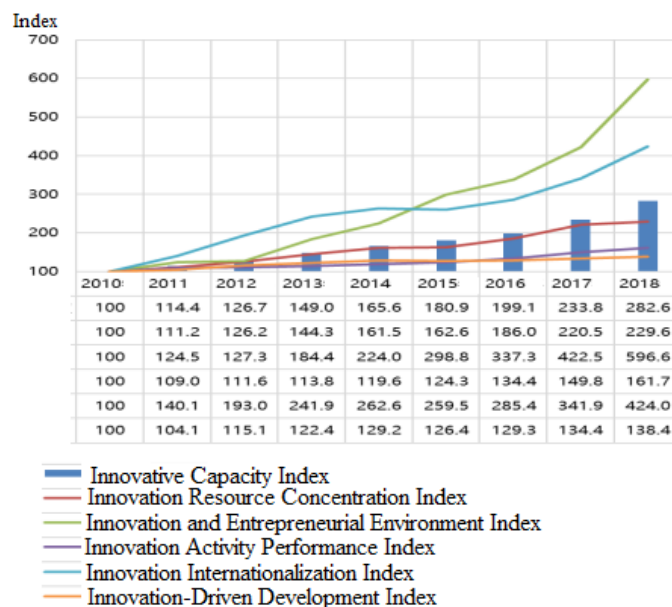
### II. In 2018, the capacity of national high-tech zones to drive development through innovation has been upgraded across the board, hitting a record high in both the speed and margin of growth in innovation capacity index

1. In 2018, the Innovation Capacity Index of National High-Tech Zones reached 282.6 points, up by 20.9%, an increase of 3.5 percentage points over 2017, the fastest growth recorded since 2011. Since the setting of the index baseline (100 points in 2010), the Innovation Capacity Index of National High-Tech Zones has gained 182.6 points in eight years, with an annual average increase of 22.8 points.

2. In 2018, all the five sub-indices of the Innovative Capacity Index registered increase: 229.6

points for the Innovation Resource Concentration Index, up 9.1 points; 596.6 points for the Innovation and Entrepreneurial Environment Index, up 174.1 points; 161.7 points for the Innovation Activity Performance Index, up 11.9 points; 424.0 points for the Innovation Internationalization Index, up 82.1 points; and 138.4 points for the Innovation-Driven Development Index, up 4.0 points.

Innovation capacity index of national high-tech zones 2010-2018



### III. As the innovation environment continues to improve, national high-tech zones have become the main platform for pooling innovation resources and promoting innovation and entrepreneurship

1. Among the five components of the Innovation Capacity Index of National Hi-tech Zones, the Innovation and Entrepreneurial Environment Index had the highest score and growth margin in 2018, and the growth trend, which was in a J curve, was the most significant in the past eight-year period. In 2018, the index contributed 71.3% to the growth of the overall index, far exceeding the other four sub-indices.

2. The accelerated pace of innovation environment building has helped bring together innovation resources and boost the development of innovation and entrepreneurship platforms in the high-tech zones. In 2018, more than 70% of the country's national engineering research centers, national key laboratories and national engineering laboratories were operating inside the high-tech zones; in particular, new types of R&D institutions developed rapidly, with a total of 642 new industrial technology R&D institutions at the provincial level and above in 2018, up by 55.3% year-on-year; the

construction of business incubators and innovation platforms in the high-tech zones has made steady advances. In 2018, there were 544 national tech-based business incubators and 906 crowd-sourcing spaces on the record of the Ministry of Science and Technology, up by 3.5% and 3.1% respectively over the previous year.

3. The continuous improvement of the innovation environment has boosted the vitality of innovation and entrepreneurship activities of the high-tech zones, with 469,000 companies newly registered in the high-tech zones in 2018, an average of 1,286 companies per day, up by 15.1% year-on-year; the total number of companies under incubation in the high-tech zones exceeded 100,000 in 2018, an average of 632 companies per high-tech zone, up by 10.6% year-on-year; and the quality of innovation and business start-up has significantly improved, with the highest growth coming from technology development and technology service companies, up by 22.4% year-on-year and accounting for 34.8% of all newly registered enterprises; correspondingly, venture capital investment in the high-tech zones also notably increased in 2018, reaching a total of 115.72 billion yuan, almost three times that in 2017.

#### **IV. With the increasing investment in innovation, aggregation of innovation elements and fostering of innovation entities, national high-tech zones have become the key engine for innovation-driven development in China**

1. The scale and intensity of R&D investment in the business sector has further increased. In 2018, the full-time equivalent of R&D personnel of enterprises in the national high-tech zones reached 1.772 million person-years, accounting for 40.4% of the country's total (4.381 million person-years); the internal R&D expenditure of enterprises reached 745.57 billion yuan, accounting for 48.9% of the country's total (1,523.37 billion yuan); the ratio of internal R&D expenditure of enterprises to the GDP of national high-tech zones was 6.7%, three times the country's average statistics (2.2%).

2. The number of patents has increased significantly, and the quality of patents is better than the national average. In 2018, the number of invention patents applied for, granted to and owned by enterprises in the national high-tech zones reached 362,000, 143,000 and 731,000 respectively, growing by over 20% in all three categories; among them, the number of valid invention patents owned by enterprises in the national high-tech zones accounted for 30.9% of the country's total (2.366 million). Moreover, the proportion of invention patents in all the patents granted to enterprises in the high-tech

zones reached 35.4%, twice the national average (17.7%).

3. The ranks of high-tech enterprises have continued to grow. In 2018, there were 67,213 accredited high-tech enterprises in the national high-tech zones, accounting for 37% of the country's total; the proportion of accredited high-tech enterprises in all enterprises operating inside the high-tech zones jumped from 50.0% to 56.0% in 2018.

4. Technology transactions of enterprises have become increasingly active. In 2018, the number of technology contracts registered by enterprises in the national high-tech zones totaled 198,000, accounting for 53.9% of all technology contracts registered nationwide through the year (368,000); the transaction value of registered technology contracts reached 476.94 billion yuan, accounting for 35.5% of the country's total (1,342.4 billion yuan).

#### **V. National high-tech zones have become a pioneer for high-quality development of Chinese industries**

1. The industrial structure is being continuously improved. In 2018, there were 59,956 enterprises of high-technology industries in the national high-tech zones, accounting for 49.9% of the total, an increase of 1.5 percentage points over the previous year; the added value of high-tech industries amounted to 2,890.02 billion yuan, accounting for 39.7% of the overall added value of industries in the high-tech zones, an increase of 1.6 percentage points over the previous year.

2. High-tech services are developing rapidly. In 2018, there were 44,457 high-tech service enterprises in the national high-tech zones, up by 19.3% year-on-year; and the number of employees in high-tech services increased by 11.4%, both of which are almost three times that of high-tech manufacturing industries.

3. With notable advantages in industrial efficiency and performance, national high-tech zones are now a leading force in the high-quality development of Chinese industries. In 2018, the productivity of enterprises in the high-tech zones reached 348,000 yuan/person, 3.3 times that of the national average (107,000 yuan/person); the business profit margin was 6.9%, 0.4 percentage points higher than that of all large industrial enterprises nationwide.

#### **VI. Aiming at a higher level of opening-up, national high-tech zones are adding an international dimension to innovation at a faster pace, and serving as a main platform for China's all-round participation in global innovation competition**

1. The innovation internationalization index of the national high-tech zones reached a new high in 2018 (424.0 points), with the growth curve rapidly going up for the third consecutive year starting from 2016.

2. The national competition on innovation has significantly accelerated. In 2018, total export from national high-tech zones amounted to 3,726.38 billion yuan, representing a growth rate of 8.1%. Among them, the export of high-tech products reached 2,188.98 billion yuan, accounting for 44.3% of the country's total; the number of overseas patents and registered trademarks owned by enterprises in the high-tech zones reached 101,000 and 89,000 respectively, an increase of 133.1% and 45.8% respectively. The number of international PCT patent applications received during the year totaled 23,000, up by 51.7% year-on-year, accounting for over 40% of the total number of PCT patent applications received in the country.

3. The ability to pool global resources has grown even stronger. In 2018, the paid-in foreign investment utilized by enterprises in the high-tech zones reached 336.26 billion yuan, accounting for 38.0% of the country's total (885.6 billion yuan). Among them, the funds mobilized by enterprises through IPO in overseas market totaled 89.88 billion yuan, up by 74.4% year-on-year; in 2018, domestically-controlled enterprises in the high-tech zones set up 947 R&D institutions overseas, up by 23.3% year-on-year; the total expenditures on overseas R&D projects commissioned by the enterprises in the high-tech zones reached 10.46 billion yuan, up by 6.8% year-on-year; there were also 73,000 permanent foreign staff and 163,000 Chinese staff members with overseas education experience in these enterprises, up by 20.9% year-on-year.

## **VII. The national high-tech zones embody the concept of green, shared development**

1. The ecological environment continues to improve. In 2018, the average comprehensive energy consumption of industrial enterprises in the national high-tech zones was 0.488 tons of standard coal per 10,000 yuan, significantly lower than the energy consumption per unit of GDP of the whole country (0.515 tons of standard coal per 10,000 yuan). According to a survey on national high-tech zones conducted in 2018, of 152 high-tech zones surveyed, 123 had introduced policies on environmental protection and green development, and the average green coverage rate of the sample high-tech zones reached 40%.

2. Workers' remuneration levels continue to rise. In 2018, the average remuneration of enterprises in the national high-tech zones reached 137,000 yuan per year, an increase of 12.0% year-on-year, and 2.1

times the average annual salary of urban workers nationwide (66,018 yuan per year); over the past eight years, the proportion of workers' remuneration in the value added of enterprises in the high-tech zones has also stayed in an upward trajectory, reaching 39.3% in 2018.

## **VIII. The "bellwether" high-tech zones play a notable role in promoting innovation-driven development, yet the problem of uneven regional development still remains**

1. In terms of the different types of high-tech zones, the ten "bellwether" high-tech zones that are built according to world standards play a visible role in driving development. In 2018, the ten world-class high-tech zones contributed 36.3% of the total GDP of all national high-tech zones; 16.3% of the total GDP came from the 18 innovation-based science parks; 17.2% from the 28 innovation-featured parks; and 30.2% from the other 113 high-tech zones. The overall R&D intensity of the ten world-class high-tech parks was 12.8%, 6 percentage points higher than the national average (6.8%).

2. Geographically, the eastern region has a cluster of national high-tech zones. In 2018, there were 70 in the eastern region, 16 in the northeastern region, 44 in the central region and 39 in the western region. The eastern region was home to 62.3% of the R&D personnel, 56.1% of the R&D institutions and 65.5% of the certified high-tech enterprises in the national high-tech zones.

## **IX. The overall industrial transformation and upgrading of national high-tech zones need to be further advanced, and high-quality development of industries remains a long and arduous task**

1. In 2018, the industrial value added ratio of national high-tech zones was only 21.9%, and the per capita industrial value added was only 348,000 yuan, both of which were lagging far behind that of developed countries.

2. Despite the improving industrial structure of national high-tech zones and the accelerated development of high-tech services, there still exists a big gap between China and world leaders. In 2018, the proportion of high-tech services revenue in the total business income of enterprises in the national high-tech zones was only 13.1%, and the share of high-tech services in total industrial value added was only 13.3%. However, in the US and other developed countries, the share of knowledge-intensive services, which are equivalent to high-tech services, has already exceeded 50% in the country's GDP.

(Source: Ministry of Science and Technology)