

A photograph of the Shanghai skyline at dusk, featuring the Oriental Pearl Tower and the Shanghai Tower. The city lights are reflected in the water in the foreground.

# The Innovation Ecosystem in China

**PLUGANDPLAY**



**We connect the best  
technology startups and the  
world's largest corporations.**

**FIND OUT MORE**

## WE HELP YOU IN EVERY STEP OF YOUR INNOVATION JOURNEY

Partnering with the largest organizations worldwide gives us a line of sight to identify the main pain points affecting each industry. We then focus on sourcing the best startups that can provide the best solutions to these challenges.

By collaborating with startups, corporations increase operational efficiencies, lower costs, find new product lines, and become more innovative from the core.

**30,000+**

**Carefully-curated international  
startups in our network**

**500+**

**Corporate  
Partners**

**30+**

**Offices  
Worldwide**

## GLOBAL REACH

One of our greatest ambitions is to make our ecosystem accessible wherever you are. With offices across the world, we're proud to be the world's largest innovation platform by geographic reach.





# Introduction of IIE

## Institute of Innovation Ecosystem (IIE) Plug and Play China

The vision of IIE is to become the most influential innovation ecosystem research platform in China, providing innovation methodology and intellectual supports for our ecosystem partners (corporates, governments, startups) and the innovation ecosystem of Plug and Play as a whole.



Institute of Innovation Ecosystem  
Plug and Play China  
璞跃中国创新生态研究院



**400+ Global Innovation Mentors**



**60+ University Partners**



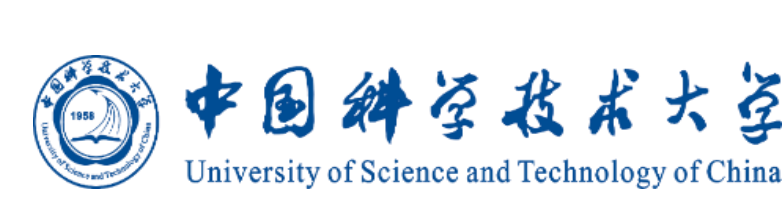
**50+ VC Partners**

**We are dedicated to building a top-tier innovation research platform and an innovative ecosystem community**

## Business model and content of IIE

- 🔍 Enabling Open Innovation
- 💡 General and Customized Research
- 👤 Global Innovation Mentors
- 🏢 University Innovation
- 👥 Curriculum Design

## University Partners





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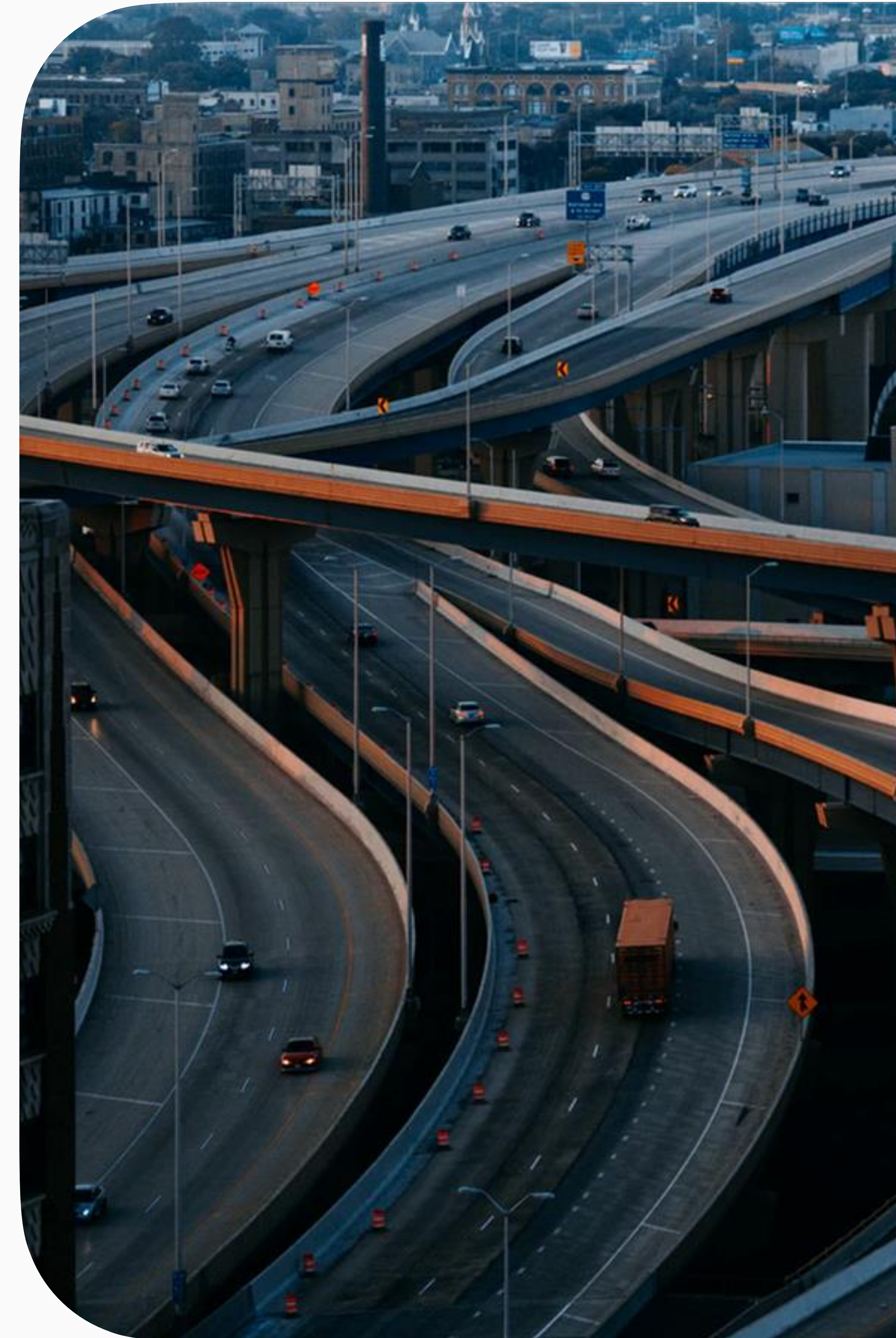
# An Introduction to the Innovation Landscape in China

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From 2019 to 2021, the pandemic is still raging and will continuously affect people's lives. However, to our pleasant surprise, we see many companies that are actively promoting innovation and striving to create a new chapter in the post-pandemic period. Innovation is the internal driving force and core competitiveness that keep technology start-ups active, whereas the development of technology startups is the key booster for development of the regional economy. For many countries, science and technology have already become an important starting point for recovering the economy under the predicament of the pandemic.

On this basis, China actively supports the development of technological innovative companies, supports the development of innovation and entrepreneurial ecosystem, conducts investments in innovation, enhances the R&D activity, and promotes the technology innovation of technological innovative companies.

According to data of UNCTAD Investment Trends Monitor, in 2021, China has replaced the United States as the world's largest recipient of FDI (Foreign Direct Investment). On one hand, investment has stabilized thanks to China's good control of the pandemic, and on the other hand, the reform and opening-up in the domestic foreign exchange field have helped to promote the implementation of cross-border trade and investment facilitation measures. In 2021, China's FDI inflows rose 6.4% to \$173.48 billion.





According to the World Bank, China has maintained a relatively high level of R&D investment in recent years. The proportion of China's R&D expenditure in GDP has increased from 1.31% in 2005 to 2.44% in 2021, with an average annual growth rate of 7.06%. In 2021, global technology investment has hit a record high, while China's equity market has experienced explosive growth in fundraising and investment.

According to the Zero2IPO Research Center, the investment volume of the domestic equity market reached 1.42 trillion yuan in 2021, with a year-on-year increase of more than 60%. In addition, as of December 31, 2021, according to CBInsights, there are 259 unicorn companies in China, a year-on-year increase of 32.31%, whereas the total valuation of Chinese unicorns ranks the highest worldwide at 1,125.37 billion USD.





China is becoming an important source of global innovation. China has an urgent need for innovation and development. The huge and dynamic market gives China an advantage in customer-centric innovation. In addition, China's manufacturing ecosystem supports efficiency-driven innovation. In 2021, more and more multinational companies established innovation centers in China with large companies upgrading these centers into global innovation centers. Big companies have shifted from establishing enterprise centers in China to building open innovation centers in China. Chinese innovation is thus replicated in the global industrial chain, leading new regional innovation trends.

Plug and Play came to China in 2015. Plug and Play China has its headquarters in Beijing and three innovation centers in Shanghai and Shenzhen. Its business covers fields such as investment, corporate innovations, startup incubation acceleration, global cross-border innovation, and space for innovation ecosystem.

The company focuses on fintech, supply chain & logistics, sustainable development, smart city, mobility, healthcare, insurance technology and other areas. It has provided services for nearly 100 industry leading companies, incubated and accelerated more than 4,000 startup companies, and invested in more than 150 technology innovation companies. Plug and Play China continues to pay attention to the growth of early-stage technology companies, invests in sustainable, AI, GPU, robotics, blockchain and other directions, and has also successfully incubated 3 unicorns since entering China.



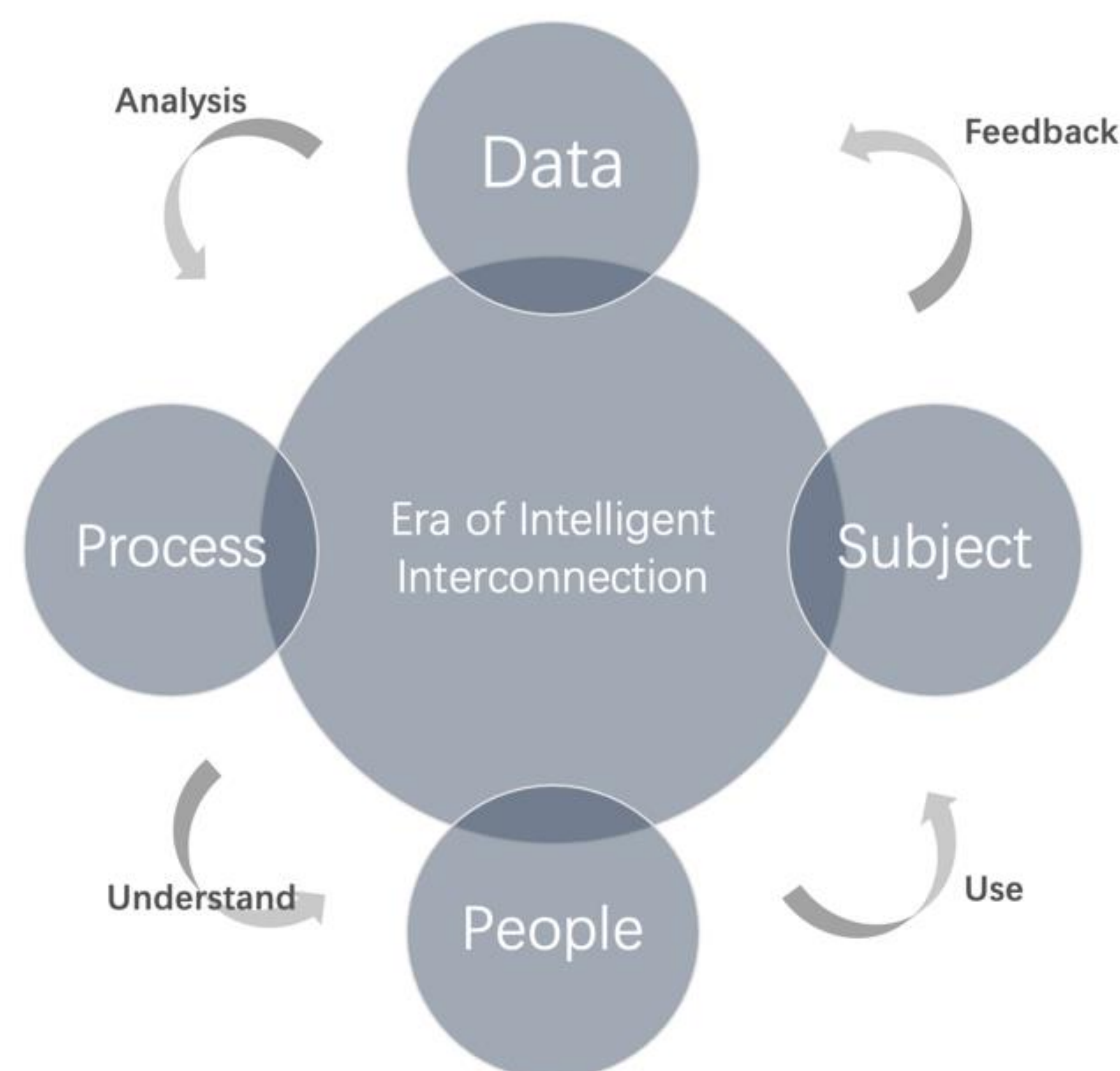


# Corporate Innovation in China

Plug and Play China's Institute of Innovation Ecosystem believes that, in the era of intelligent interconnection, the innovative strategy of corporations defines internal innovation, external innovation, collaborative innovation, and cross-border innovation.

## Internal Innovation

Internal innovation is initiated by people with innovative or entrepreneurial goals within the company or organization. This kind of strategy is exercised with the support of internal resources, incentive policies, and innovation systems.





# Internal Innovation

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## Use Case: Internal Innovation at Dongfeng Motor Group

Dongfeng Motor Group is a world-class automotive technology company with strong R&D capabilities. At present, it has formed an excellent internal innovation system located on the Dongfeng Technology Center and has established an overseas R&D base in Sweden.

They have innovated in different fields. In autonomous driving, they have developed AV technology by leaps and bounds, and it is the first to realize the L4 demonstration operation (That is highly automated driving, which does not require driver intervention within the functional range, and realizes commercial application). In new energy vehicles, they have successfully released the new purely electric brand “Voyah”, which is positioned as a mid-to-high-end new energy vehicle. In fuel cells, Dongfeng has strong scientific research capacities in the fields of fuel cell technology research and development, manufacturing, and demonstration operations.





# External Innovation

External innovation happens when enterprises address their innovation challenges by opening to external agents and ecosystems. Businesses incorporate external innovation entities into their own innovation processes.

## Use Case: Plug and Play China x China Everbright Bank

China Everbright Bank and Plug and Play China jointly launched the financial technology innovation cooperation plan. This cooperation focuses on following two aspects. Firstly, in terms of enriching the sources of cutting-edge FinTech innovation technology to China Everbright Bank, the multi-dimension innovation resources from Plug and Play China Fintech Innovation Platform, Plug and Play China IIE (Institute of Innovation Ecosystem), Plug and Play overseas offices, etc., to accelerate, incubate, promote and complete the China Everbright Bank Fintech innovation projects. Secondly, in the field of expanding the panoramic view of Fintech innovation, China Everbright Bank could timely understand the development tendency of global parallel Fintech innovation sectors and acquire the high-value industry or cross-industry research reports through Plug and Play China, which is remarkable bring forward to set out the future strategy ahead of time.



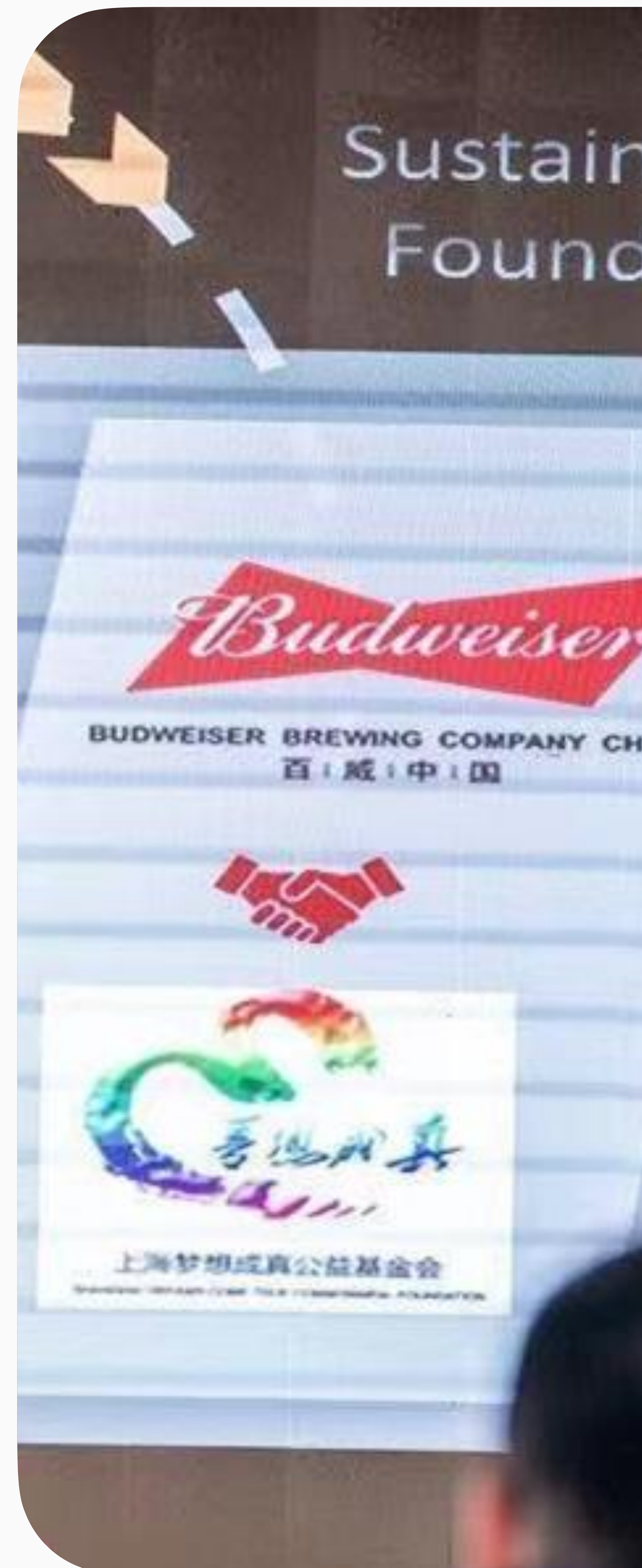


# External Innovation

## Use Case: Budweiser China's External Innovation Practices

Budweiser China launched the Budweiser China Sustainable Innovation Center plan, and together with Plug and Play China, it seeks to find the solution to improve their value chain, focusing on the production, supply and transportation, storage, and retail links.

Through the joint screening, communication and review between the BRES team of Plug and Play China and the relevant business units of Budweiser China, after several rounds of interviews and on-site roadshows, seven companies stood out from nearly 70 candidates and customized solutions for Budweiser China.





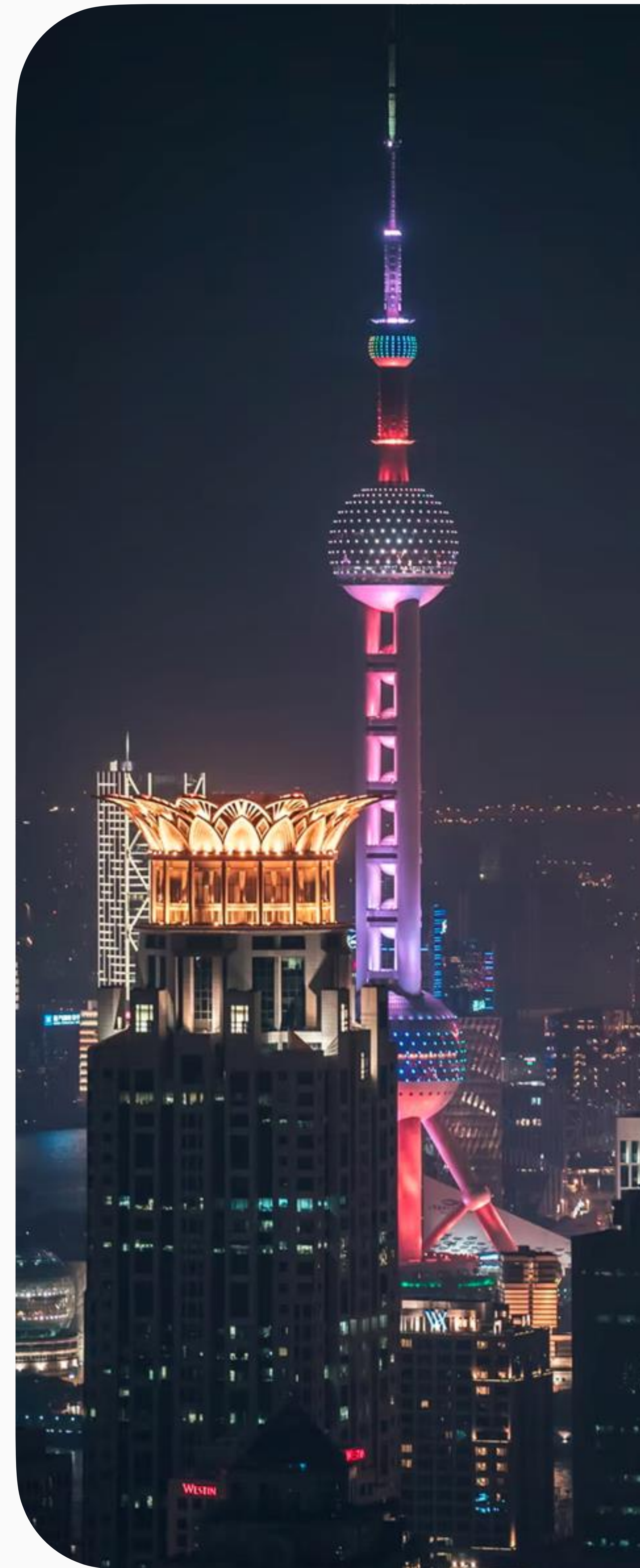
# Collaborative Innovation

In these kinds of strategies, enterprises unite, coordinate, and complement multiple entities both within the organization and outside of the organization. Nevertheless, the innovation activity is still focused on one goal.

## Use Case: SAIC Best Innovation Practice

Shanghai Automotive Group Co., Ltd. (SAIC), established in 1958, is currently the largest automobile group in China both in terms of production and sales.

NXT, a new sub-brand of Plug and Play China, is an international open innovation platform themed as "Mobility +" that was jointly established by Plug and Play China and SAIC. Plug and Play synergizes its high-quality resources and capabilities, such as a well-coordinated industry chain, cross-border innovation, capital innovation, and the linkage of international innovative resources, to empower the automobile industry of China. Plug and Play builds a collaborative platform of resources, which shares innovative achievements, recent inspirations, innovative talent, and systems of knowledge. Through value sharing and ecological empowerment, Plug and Play China and SAIC joined hands to embark on a new journey of transforming the automobile industry.





# Collaborative Innovation

## Plug and Play China x SAIC: Establish a new sub-brand - NXT

To help SAIC with their digital transformation, Plug and Play China offered its tested methodology of innovation to sort out technical concerns and business pain points through pilot projects. Plug and Play China provided a list of 233 startups and assisted in screening out the 50 best-matching high-quality projects.

In Plug and Play China automobile team's acceleration camp "Mobility+", 10 startups were selected to participate from nearly 100 applicants. Four cornerstones of the camp, SAIC, DIAS Automotive Electronics, SGMW, and Hyundai Mobis, involved partnering with the startups, working together on in-depth innovation and cooperation, and covering multiple industries and markets. Plug and Play uses its advantages in corporate innovation to continuously promote the progress of PoC cooperation, which helped five startups and three major corporate cornerstone partners to formulate five PoC cooperation letters of intent, they are Duomin intelligence and DIAS Automotive Electronics, Duomin intelligence and Donghua company, Dashang innovation and Donghua company, Opteeq technologies and DIAS Automotive Electronics, Muxvision Technology and Hyundai Mobis, thus, the achievements have been fruitful, laying a solid foundation for the innovation and cooperation development of large corporations in the future. In addition, the two companies had relatively good situations in this POC cooperation acceleration camp: Opteeq technologies successfully entered DIAS Automotive Electronics supply chain and realized the localization and substitution of brush tools. Jueyun technologies and SGMW carried 100 new energy vehicles to realize BMS SOC standard and data model evaluation.





# Platform-based Innovation

Platform-based ecosystem is defined as a network where a platform owner encourages third parties, to develop complementary innovations and the resulting network of firms manifests significant interdependencies (Ceccagnoli et al., 2012, Gawer and Cusumano, 2008, Parida et al., 2019), in the platform-based innovation it displays the evolution of collaboration and competition between incumbent producers and entrant platforms. ( Alessio Cozzolino,2019)

Based on the above case, it could be summed up that, In China, the innovation resources commonly used by enterprises are:

1. Scientific research projects in universities and laboratories.
2. Projects with startups.
3. Cross-industry startup projects.

In practice, the open innovation between corporations and startups could help corporations to reduce operating costs and unlock market potential. Large companies are generally glad to conduct cooperation with startups, especially in the area of great potential such as intelligentization and digitalization. Startups with strong core technologies, high growing potential, and wide application scenarios are more likely to be favored by corporations.

However, there are still numerous challenges in practicing open innovation. Specifically, the pain points in the innovation cooperation between large companies and minor enterprises are included in:

1. The incompatibility or adaptive problems between the new technology from startups and the business model of the corporations.
2. Capturing technical requirements is never an easy task, not every minor enterprises or startups could fully understand the technical requirements of large companies, which makes it difficult for them to provide customized technical solutions.
3. Different innovation concepts lead to the high communication costs between two





# Startup Acceleration

In terms of enterprise acceleration, IIE has also found that, in the past few decades, governments, investment institutions, universities, and research institutions have launched various acceleration models to support startups' survival and development in China market.

In addition, many startups hope to become a unicorn through acceleration. The exploration of the unicorn group is also one of the key elements to analyze the development of the global innovation ecosystem. Based on the overall development of global unicorn companies, IIE found that these have maintained stable growth. We have also seen that some unicorn companies are struggling to go public in the capital market, and some have made their debut on the list, but disappeared after a short period while some other unicorns have leaped to the forefront due to technological breakthroughs and rapid advances in market size.



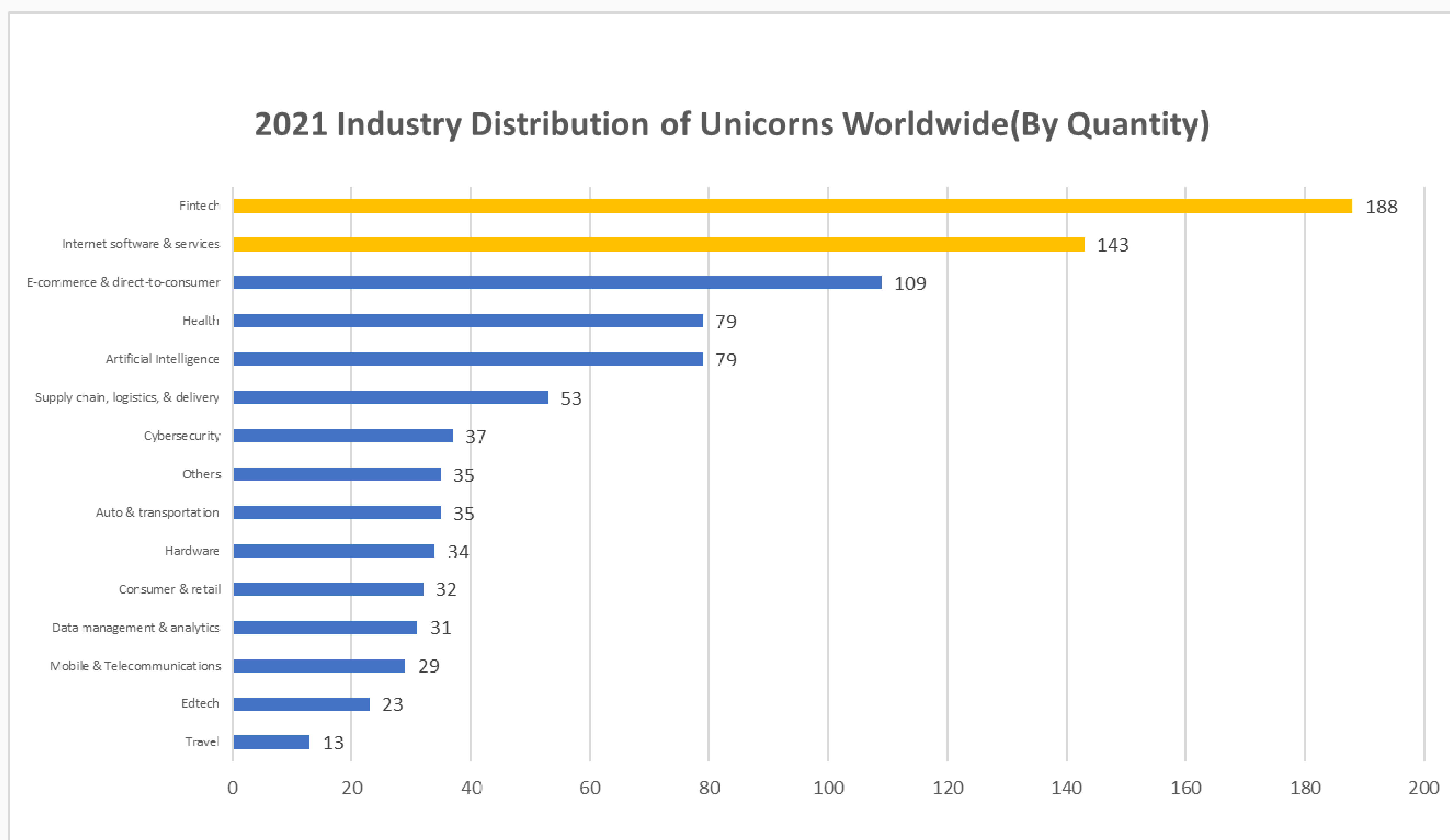


# Startup Acceleration

According to CB Insights, the global unicorn ushered in a rapid growth trend as of December 31, 2021. There are 920 unicorn enterprises in the world, with a total valuation of about US \$303.149 billion and an average valuation of about US \$3.296 billion, an increase of 352 compared with the end of 2020. On average, a unicorn is born in one day.

In terms of quantity, global unicorns are mainly concentrated in the fields of financial technology, software and services, artificial and intelligence, E-commerce, and Healthcare, accounting of 60% of all unicorns. In addition, the number of projects focusing on financial technology (188) accounted for the largest proportion, 20.43%, of the total.

Over the years, the Fintech sector has always been the sector attracting the most investments, with 188 unicorn companies worldwide in the sector. Moreover, the average valuation of Fintech unicorn companies is also the highest compares with





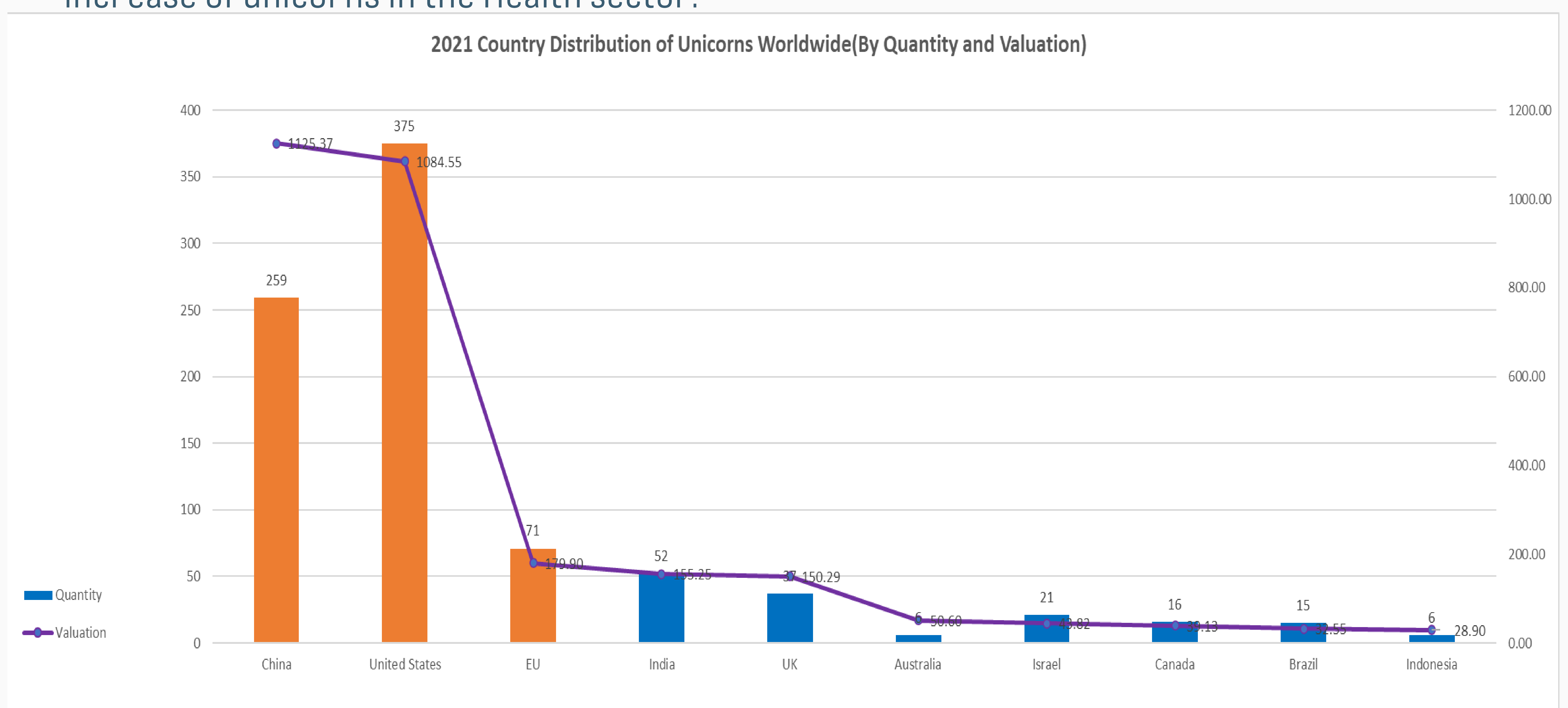
# Startup Acceleration

Under the influence of the pandemic, the number of unicorns in the Health sector has nearly doubled in one year. According to public information, the amount of funding in the Health Technology has surpassed 50 billion USD. The Health sector has become increasingly more attractive for investors worldwide.

In terms of countries, as of December 31, 2021, the United States had the largest number of unicorns, with 375, accounting for 40.7% of the total. The total number of unicorns in China is second only to the United States, with 259, accounting for 28.1% of the total.

Unicorns in China and the United States have their advantages in specific industries. The unicorns of United States concentrate in the Internet software & services, Fintech and Artificial Intelligence industries, amounting to 201 companies and taking up over a half of all US unicorn companies.

China has many unicorns in the E-commerce, Health and Artificial and Intelligence sectors, amounting to about 40% of all Chinese unicorn companies. There is an obvious increase of unicorns in the Health sector.





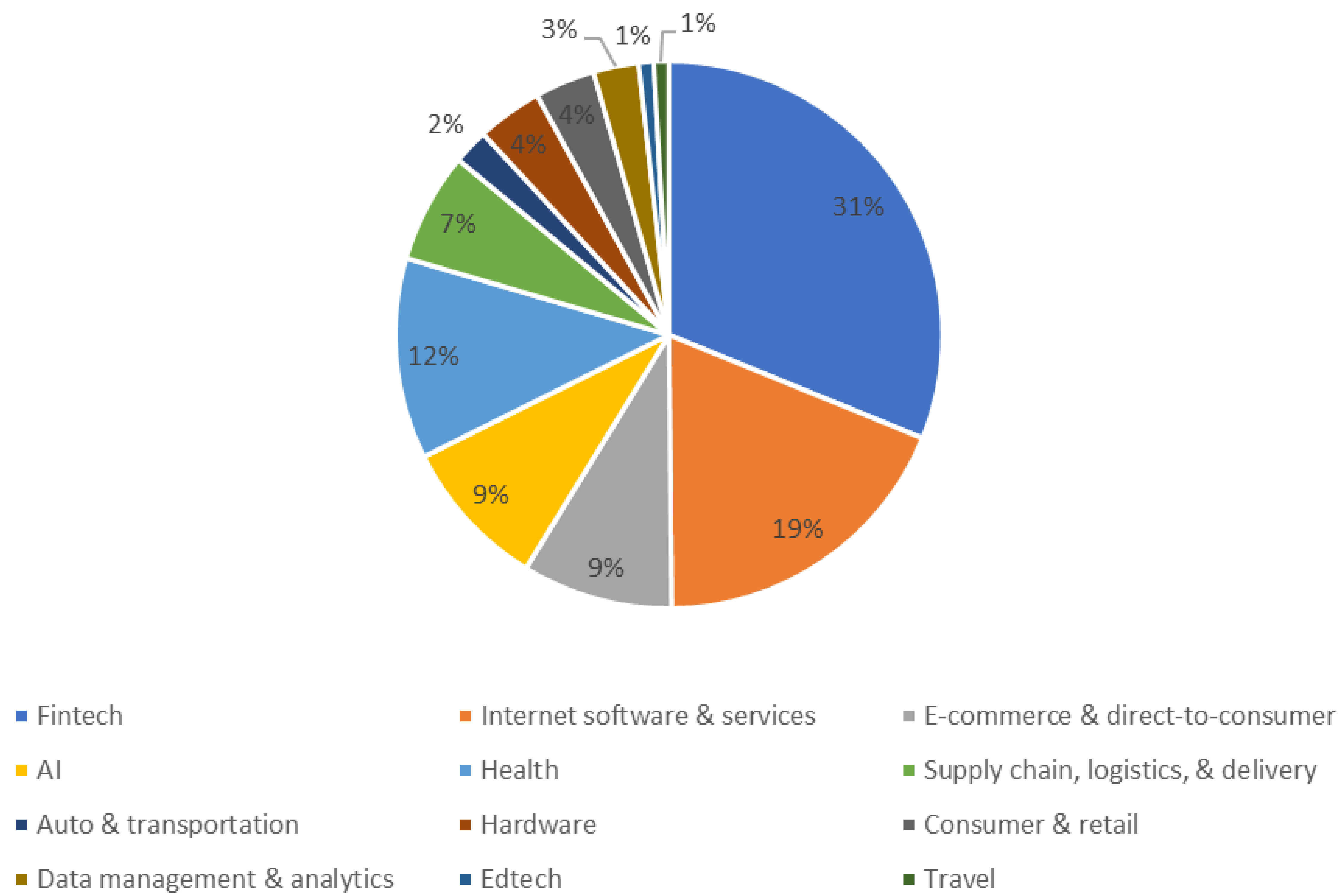
# Startup Acceleration

In 2021, 352 new unicorns were created globally, an increase of 18.95% from last year. This implies that 1 new unicorn is born every single day. The total valuation of new added unicorns is estimated around 1,198 billion USD.

Of these new unicorns, 124 came from the United States, accounting for nearly 35.2%. 83 newly added unicorn companies come from China, accounting for nearly 23.5%.

The industry that witnesses the most increase in unicorns is Fintech, Internet software & services, and Health.

2021 Industry Distribution of New Added Unicorns Worldwide





# Startup Acceleration

## Use Case: AutoX

In 2020, 97 new unicorns were created globally, an increase of 18.95% from last year, of these new unicorns, 67 came from the United States, accounting for nearly 70%, The number of new unicorns in China, Britain, the European Union, India and other countries and regions is between 5-7. mainly focusing on e-commerce, financial technology, software, and services. Among the global unicorns on the list in 2019, 33 companies were listed in 2020, of which 5 were from the health field and 4 are from the e-commerce field. The concentrated listing of big health unicorns and e-commerce unicorns in 2020 reflects the accelerated effect of the epidemic on these two markets.

## Plug and Play China x AutoX

After Plug and Play China invested in AutoX, the company was introduced to many mainstream automobile companies in the innovation ecosystem as partners. Ever since then, the company has grown and become a unicorn.

AutoX was selected to Plug and Play's mobile travel acceleration camp in 2017. There, it was introduced to FAW, Daimler, Shanghai Automobile City, SAIC, Wuxi City Government, Nanjing Development Zone, and many other international companies and local entities, supporting AutoX'S development in China.





# City Innovation

Plug and Play China's Institute of Innovation Ecosystem has sorted out the common challenges of the world's most innovative cities. These include the development of startup companies, patent application of professional technologies, support from equity investments, and the attraction of scientific and technological innovation talent. Engels once said, "Once there is a technical need in society, this need will push science forward better than ten universities." For the development of regional economies and technology, finding and solving problems based on market demand is to deal with the actual problems from a more timely and profound perspective.

Nowadays, it is a prevalent pattern that urban innovations are driven by central cities. Such a pattern is clearly demonstrated, for example, by the coordinated development of Beijing-Tianjin-Hebei, the development of the Yangtze River Economic Belt, the construction of the Guangdong-Hong Kong-Macao Greater Bay Area, and the integrated development of the Yangtze River Delta.





# City Innovation

The key comparative advantages shape a new innovative geographical pattern and urban innovation ecosystem. The 14th Five-Year Plan also proposes to "focus on areas with advantages in economic development, such as central cities and urban agglomerations, to enhance the carrying capacity of the economy and population and promote the overall improvement of national economic efficiency."

## Use Case: Plug and Play China x Wuhan x Dongfeng Motor Group

On June 30, 2020, Plug and Play China and Dongfeng Group funded a joint venture company in the Wuhan Economic Development Zone. Focusing on technological innovation in the automobile industry and targeting the megatrend of mobile travel, the venture links regional advantageous industries such as new energy, smart manufacturing, biomedicine, supply chain and logistics, and promotes cross-industry innovation. Plug and Play China and Dongfeng Group aims to unlock the full potential of regional linkage, promote the coordinated development of the province, and build an international "smart city ecosystem."





# City Innovation

## Case Highlight

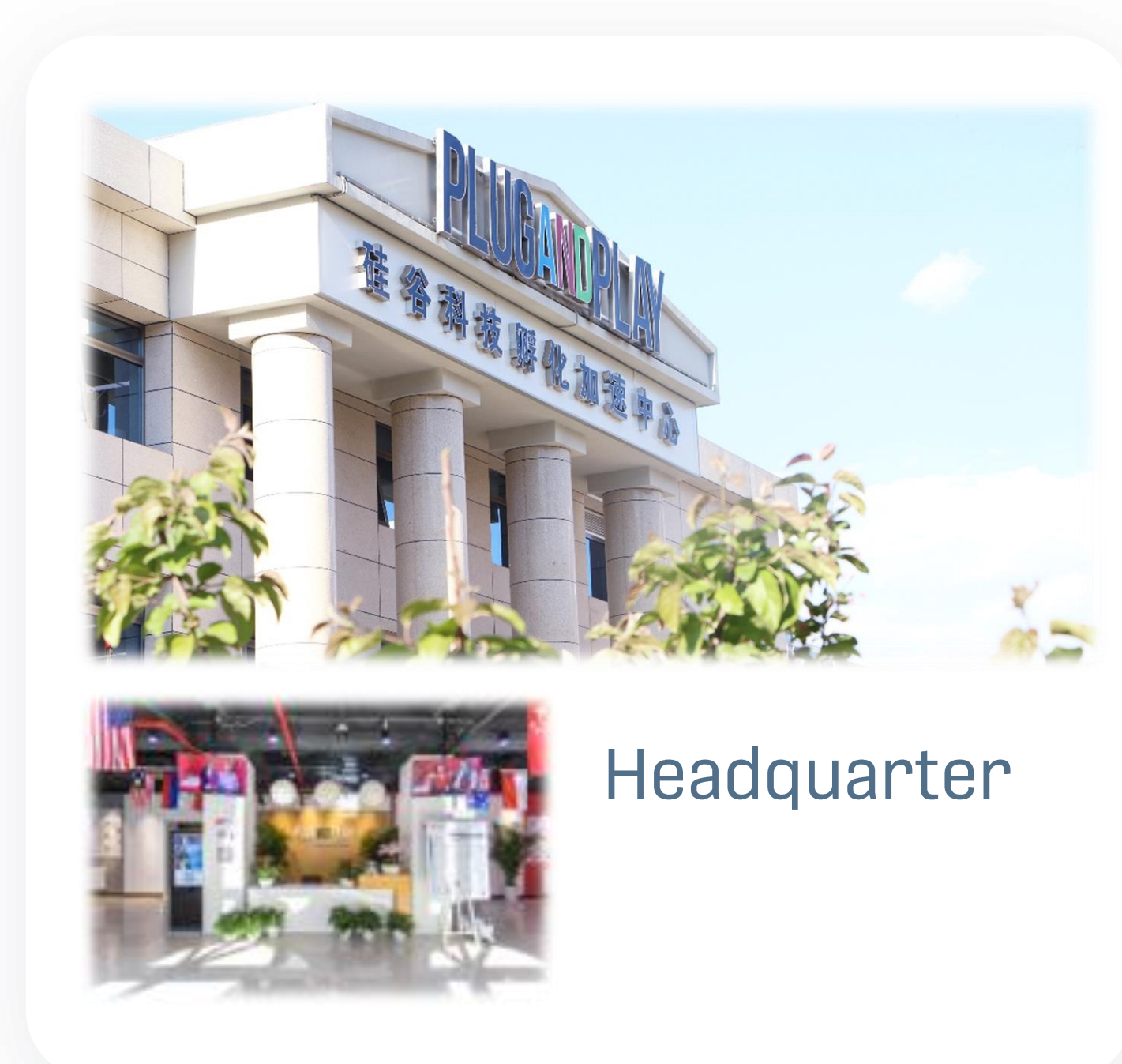
Plug and Play China, Dongfeng Group, and Wuhan Economic Development Zone jointly explore the regional collaborative innovation model of "Industry + City + Technology.". Together, they bring global innovation resources to build an international open platform, to accelerate science and technology innovation. The platform allows the advancements of the automobile industry to positively influence other major industries in the Wuhan Economic Development Zone, supporting Wuhan to become a scientific innovation center and a high-tech industrialization center in central China.





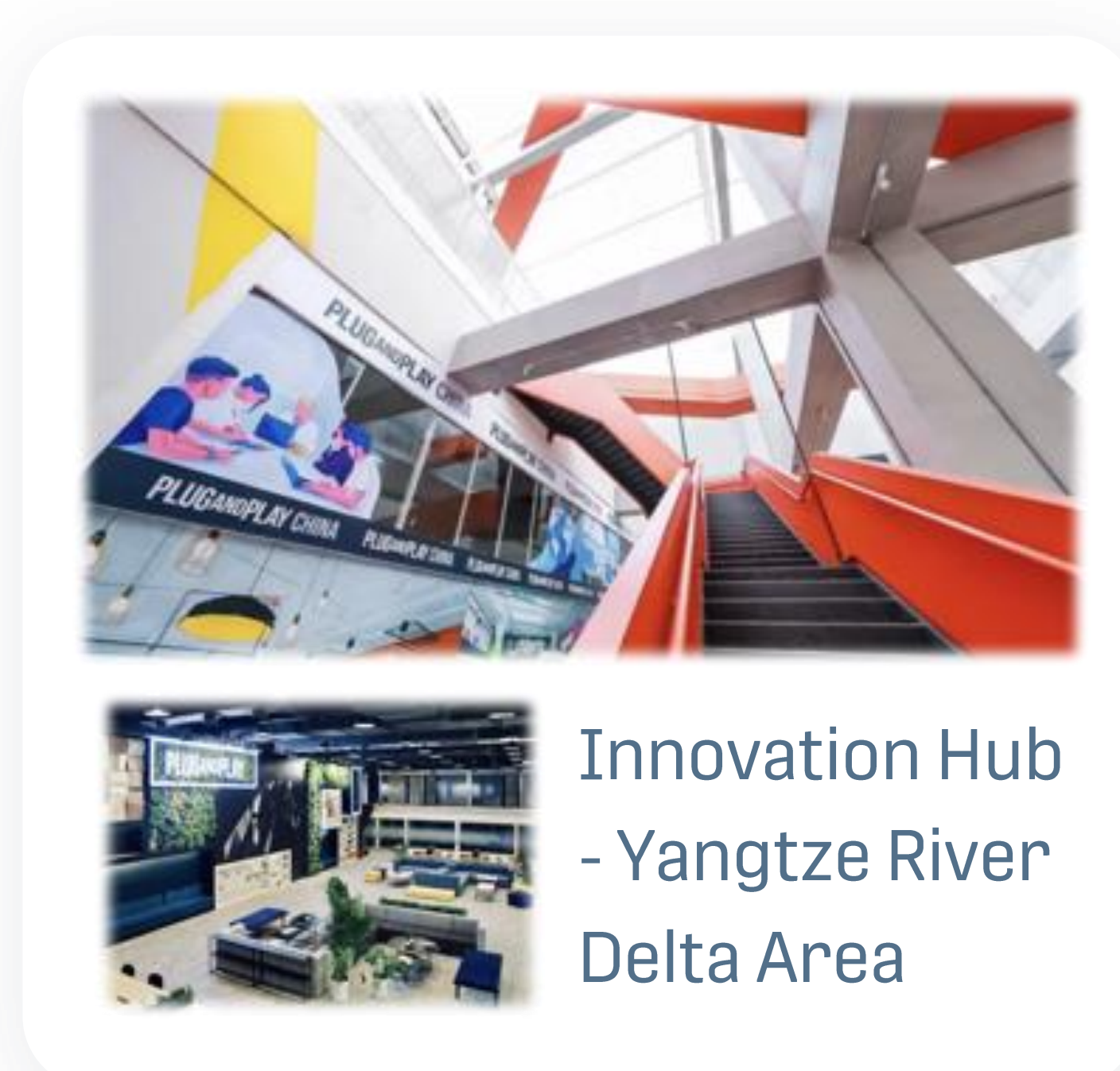
# Plug and Play China

In 2015, Plug and Play started its innovation journey in China and formally established in 2016. Currently we've opened 3 regional innovation hubs in Beijing (China HQ), Shanghai (Plug and Play Innovation Hub - Yangtze River Delta Area), and Shenzhen (Shenzhen Innovation Center). And our open innovation service has been widely appreciated by many cities and corporations in China.



Headquarter

**Beijing**



Innovation Hub  
- Yangtze River  
Delta Area

**Shanghai**



Shenzhen  
Innovation  
Center

**Shenzhen**

**Join the ultimate innovation platform.**

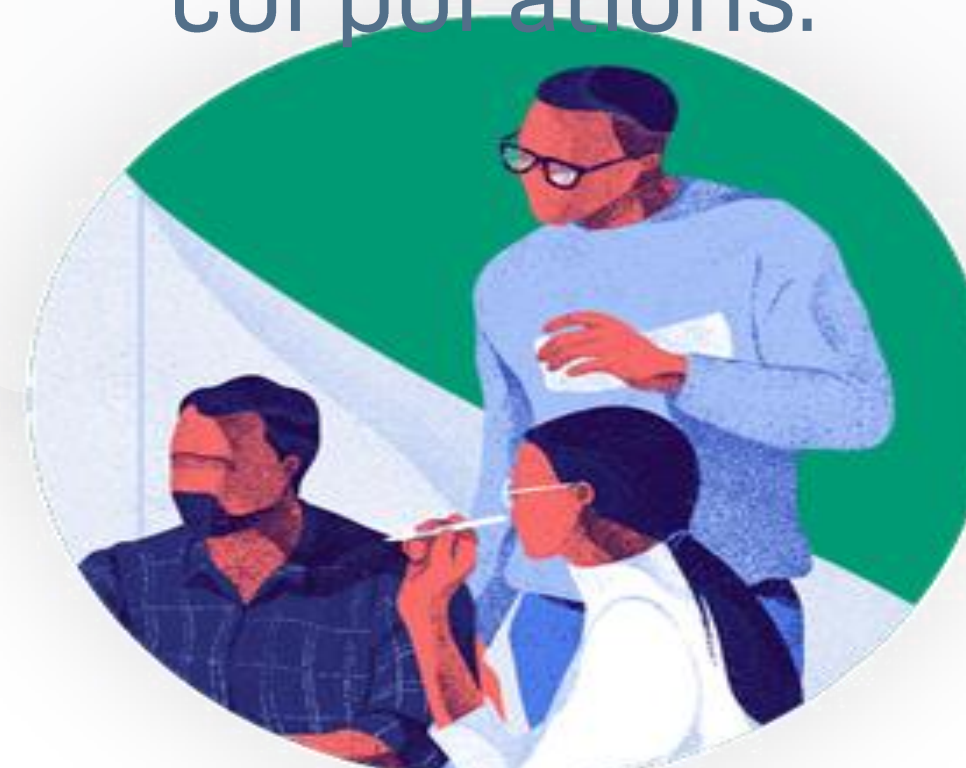


## ACCELERATOR PROGRAM

We run over 60 industry-themed accelerator programs a year in cities across the world.

## CORPORATE INNOVATION

We supercharge the innovation of over 500 industry-leading corporations.



## VENTURE CAPITAL

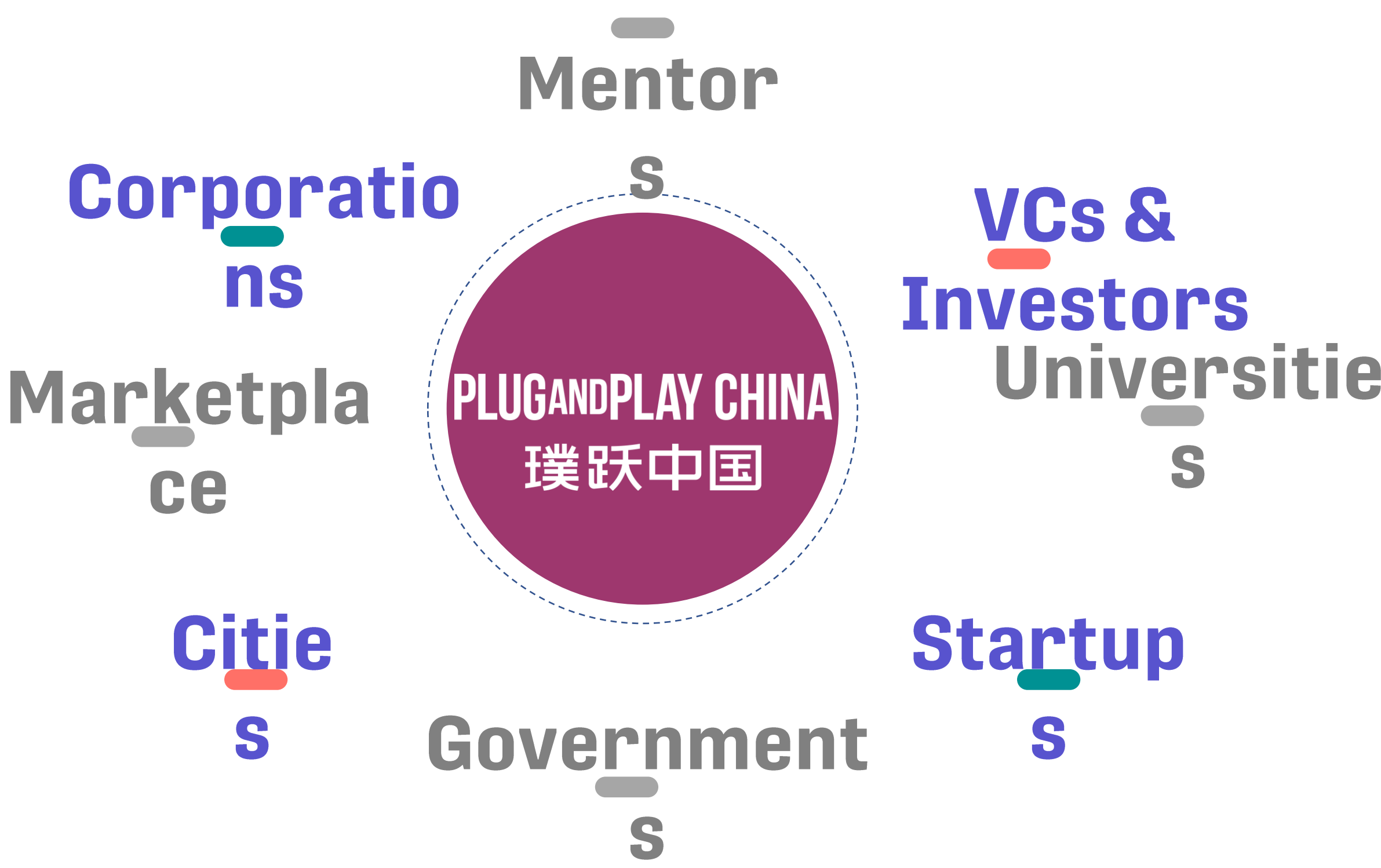
We invest in over 250 companies a year and co-invest with the world's best VCs.



# Innovation Ecosystem Outline

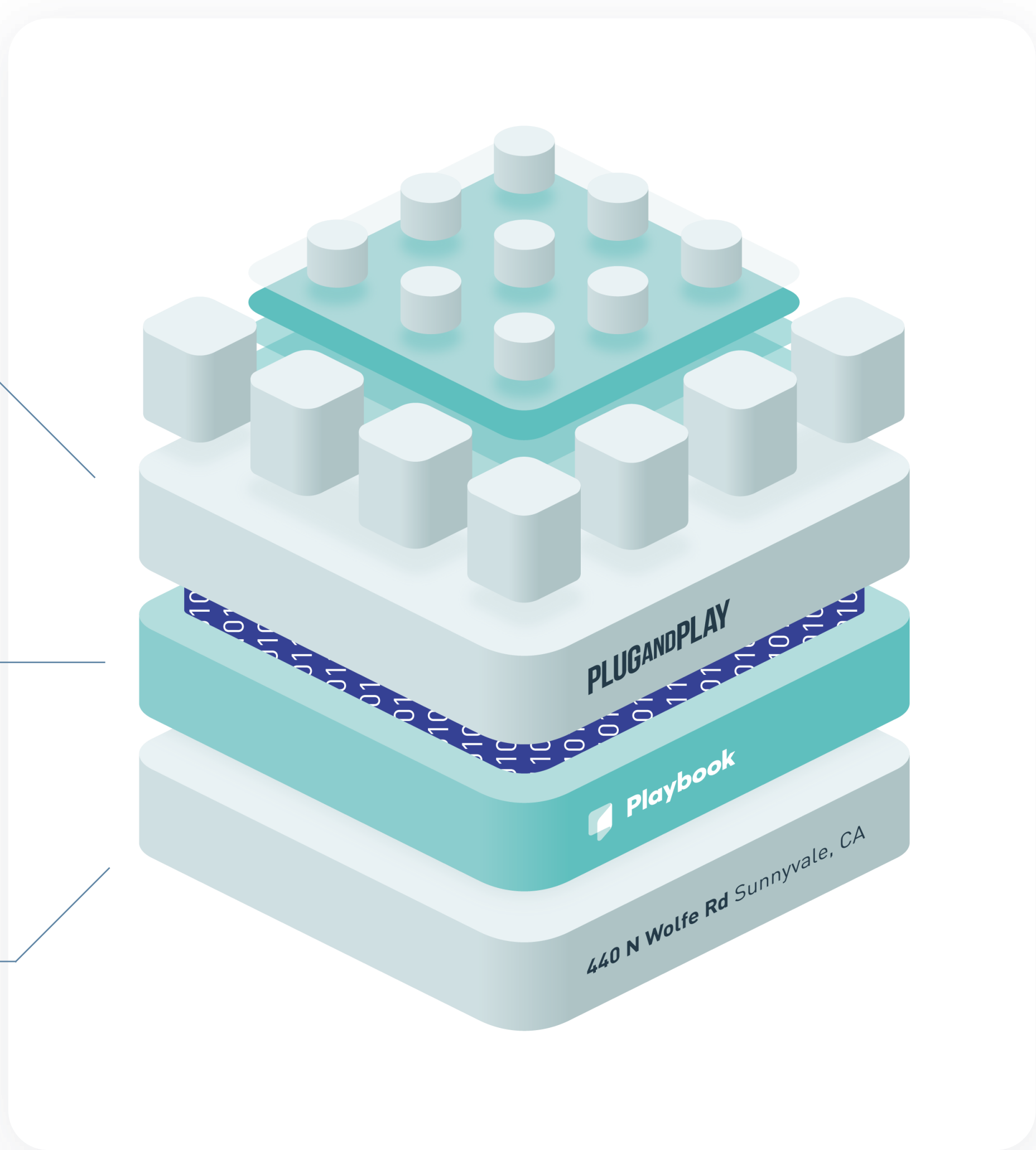
JOIN THE PLATFORM  
[PNPCHINA.COM/JOIN](http://PNPCHINA.COM/JOIN)

Plug and Play is committed to fostering a forward-looking innovation ecosystem. The “innovation ecosystem” means that through Plug and Play professional innovation solutions, matching services and global resources, market players such as startups, corporations, governments, universities, research institutes and VCs & investors from all over the world are highly concentrated in the Plug and Play platform, linking and empowering each other, breaking the barriers of space, information and technology, forming a healthy and multi-dimensional innovation ecology and realizing the perfect implementation of their own technological innovation needs.



As an innovation platform  
Plug and Play  
Platform System  
consists of three main  
structures

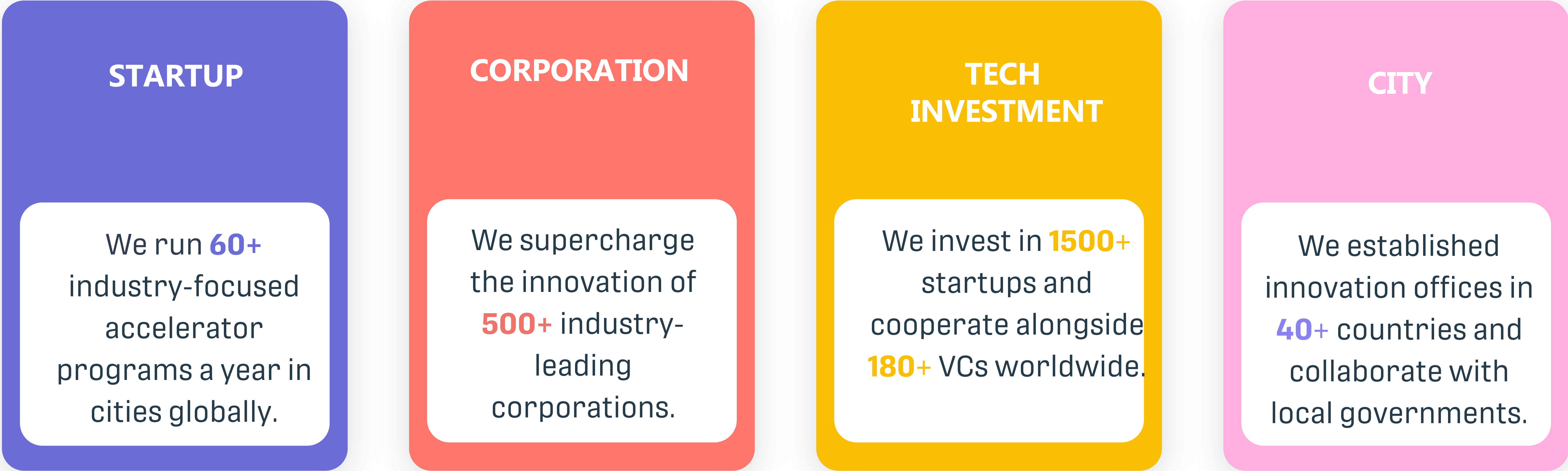
- Innovation Platform**  
A platform that gathers innovators to carry out tech innovation projects, activities, etc.
- Digital Infrastructure**  
Online support of the innovation operation.
- Physical Infrastructure**  
Offline innovation space in over 30 countries and regions.



An Ecosystem of Change Makers

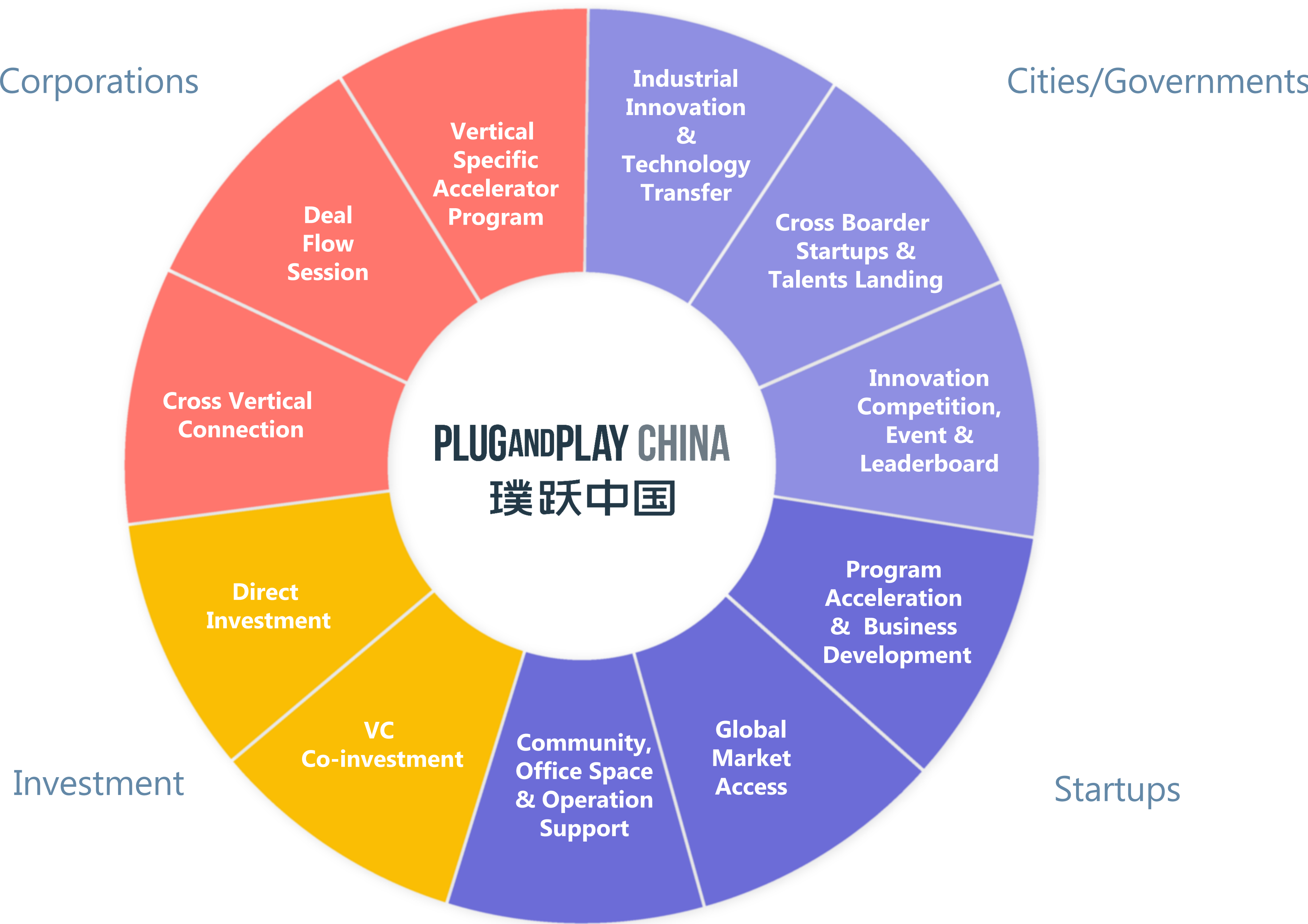


# Innovation Ecosystem Outline



## All-in-One Solution

A complete, turnkey infrastructure for startups and corporations to thrive.



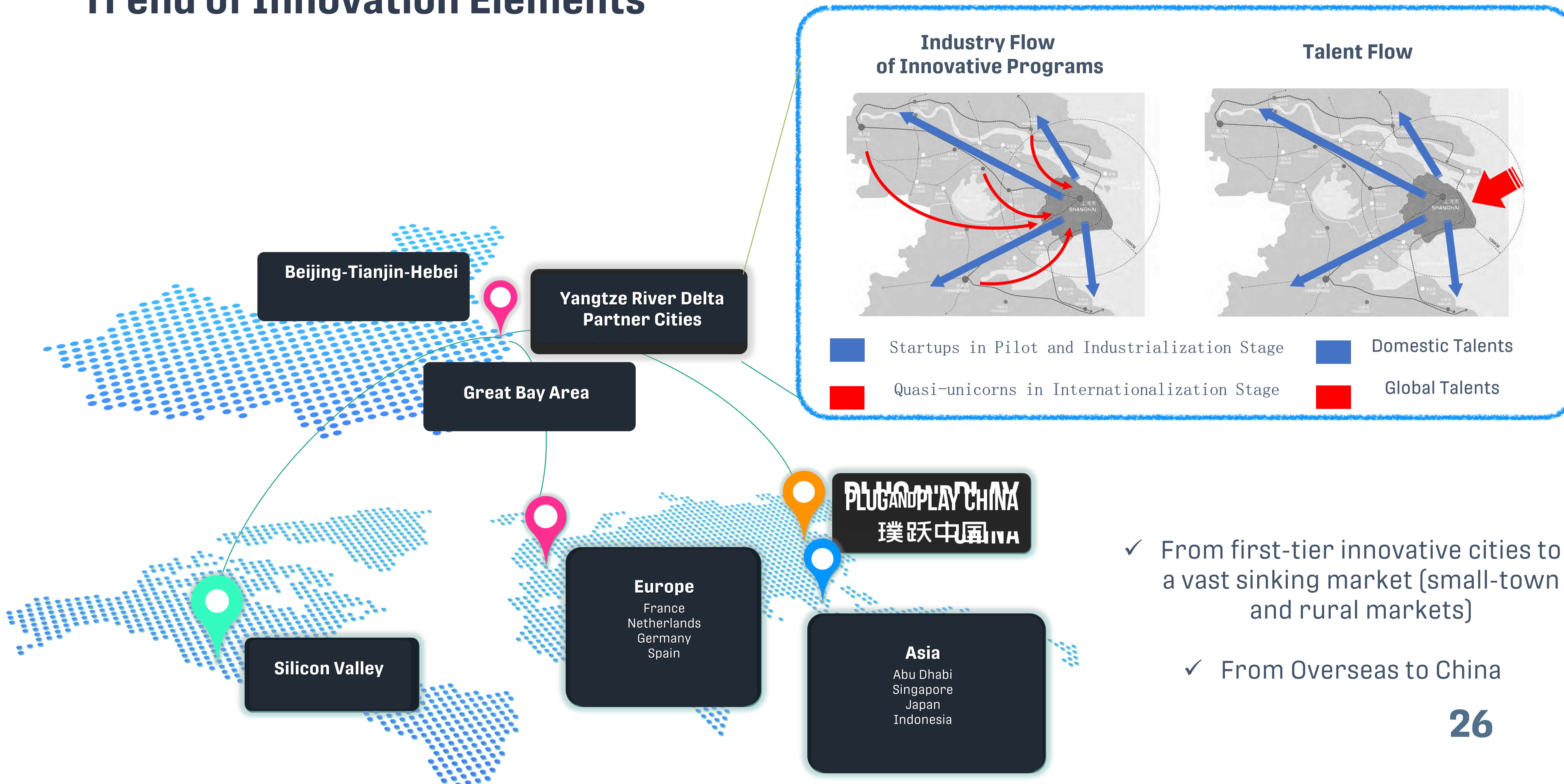


# Verticals



Note: Plug and Play China verticals are the framed ones

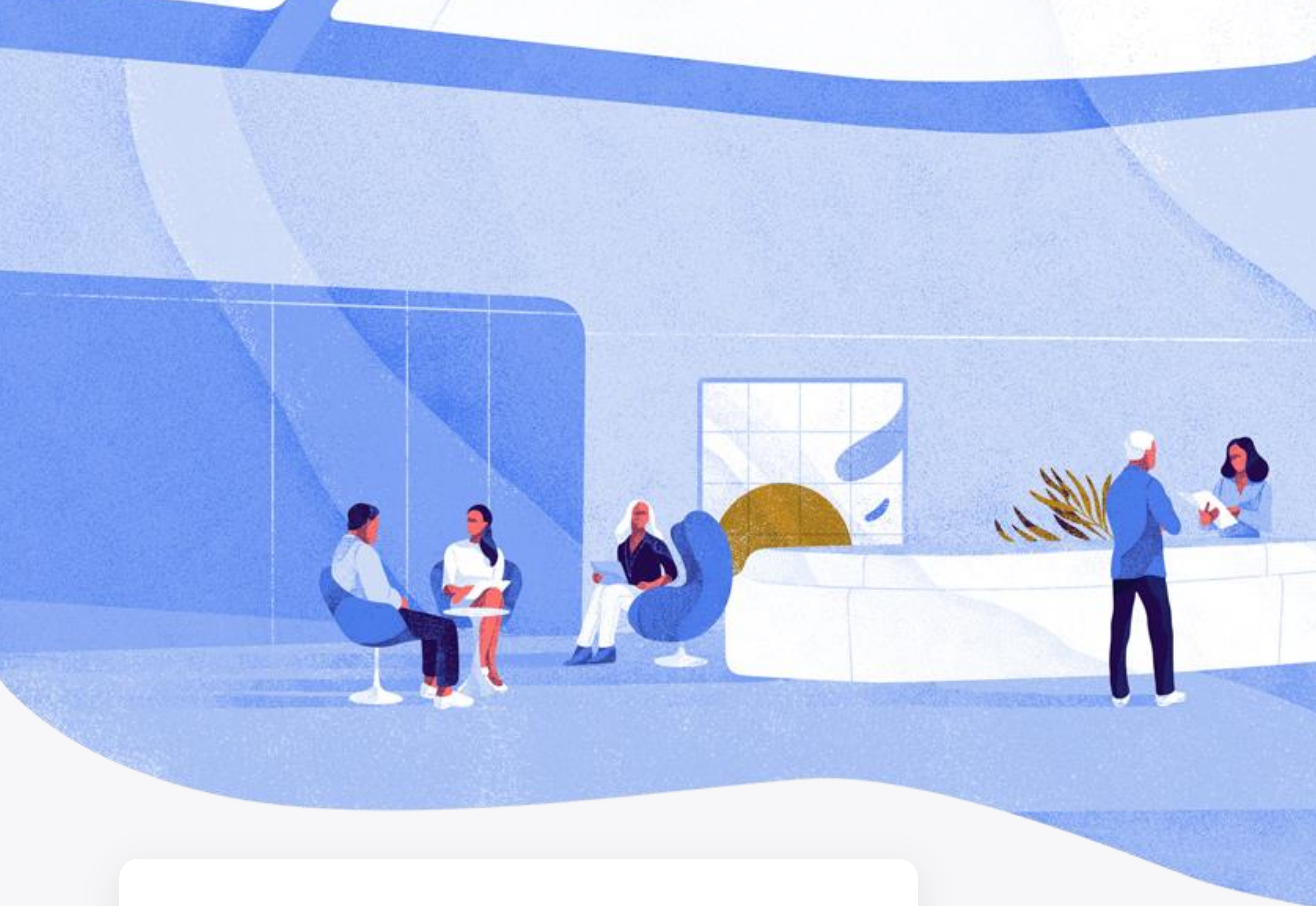
## Trend of Innovation Elements



✓ From first-tier innovative cities to a vast sinking market (small-town and rural markets)

✓ From Overseas to China





Plug and Play is a global corporate innovation platform which helps to connect corporate partners to startups in order to help solve their greatest challenges. We also operate as a venture fund and startup ecosystem. To date, we have helped over 3,000 early-to-growth stage startups raise over \$3.5 billion. Plug and Play is consistently ranked among the most active VCs in Silicon Valley.

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[PNPCHINA.COM](https://pnpchina.com)





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