

# Investigation and Research on the Development of Emerging Industries at the 24th Beijing International Science and Technology Industry Expo

Xingyu Zhou\*, Yuanyuan Zhou, Zimu Wang

Beijing Union University, Beijing 100088, China

\*2316218418@qq.com

## Abstract

In recent years, with the intensification of economic competition, high-tech industries have become increasingly important in the national economy, and have gradually become the pillar industry of social and economic development. The Zhongguancun Forum (Science and Technology Expo) is a national platform for China's exchange and cooperation in global scientific and technological innovation, fully demonstrating the image of a large country that is open and collaborative in international scientific and technological innovation exchanges and has a positive role in promoting the construction of a new development pattern. During the "14th Five Year Plan" period, important energy was injected into cultivating strategic emerging industries, building the foundation of a modern economic system, and promoting emerging industries to become economic and social development and industrial transformation and upgrading.

## Keywords

Beijing Science and Technology Expo; High and New Technology Industry; Technological Development; Digitalization; Technology.

## 1. Introduction

The aftermath of the COVID-19 pandemic has set the stage for a new wave of innovation in the global economy, which will be characterized by the integration of big data, artificial intelligence, and the Internet of Things. These cutting-edge technologies are set to foster a novel industrial ecosystem that will redefine the global division of labor and comparative advantage, significantly impacting human production and lifestyle. China has recently witnessed an active digital technology development, which has pervaded various sectors, including production, life, and public governance.

Seizing the strategic opportunity presented by the forthcoming digital transformation requires the cultivation of an innovation ecosystem and an acceleration towards an innovative economy. This paper, therefore, delves into the 24th China Beijing International High-tech Expo, also known as the "High-tech Expo," and the "Zhongguancun Forum." It provides an extensive examination of the trends, development layouts, main directions, development prospects, and relevant policy support that will facilitate the digitization of new technology industries and technology. Moreover, this paper proposes innovative and constructive suggestions to aid in achieving a successful transformation.

## 2. Overview of the Science and Technology Expo

### 2.1. Historical Evolution of the Science and Technology Expo

China Beijing International Science and Technology Industry Expo is a large-scale national-level international scientific, technological exchange and cooperation event in Beijing approved by

the State Council, co-hosted by the Ministry of Science and Technology, the China National Intellectual Property Administration, the China Council for the Promotion of International Trade and the Beijing Municipal People's Government, and organized by the Beijing Council for the Promotion of International Trade.

The Science and Technology Expo was founded in 1998, was named "China Beijing High and New Technology Industry International Week". It has been officially renamed as the Science and Technology Expo since the 5th session in 2002. So far, it has been successfully held for 23 sessions. After four periods of initial exploration (1-3 sessions), rapid growth (4-8 sessions), steady development (9-15 sessions), and innovation leadership (16 sessions to date), the Science and Technology Expo has formed a "five in one" activity structure that integrates comprehensive activities, exhibition displays, promotion transactions, forum meetings, and online display and promotion.

## **2.2. Comparison of the Last Four Science and Technology Expositions**

According to the comparative data of the recent four science and technology expositions, the number of exhibition areas and exhibitors in the recent four science and technology expositions is decreasing year by year. This year's science and technology expo has only five exhibition areas, and only more than 500 enterprises participated, less than half of the number in 2020.

Due to the impact of the epidemic, the promotion transaction of the 24th China Beijing International Science, Technology Industry Expo Science and Technology Expo was not set up. This session of the Science and Technology Expo Forum is fully integrated into the Zhongguancun Forum, and there is no independent forum and conference section for the Science and Technology Expo. Based on existing sections such as technology trading, exhibition display, and achievement release, an online exhibition and promotion section has been added to create an "online+offline" exhibition model. This will be inherited by the 2021 Science and Technology Expo, with a slight increase in the number of visitors.

In summary, due to the impact of the epidemic, it is not difficult to find a reduction in the scale of the last four science and technology expositions, regardless of the area of the exhibition hall, the number of exhibition areas, exhibitors, visitors, or the number of promotional transactions. However, due to the impact of the epidemic, the Expo has innovatively developed an "online model", bringing more attention to the Expo.

## **3. Analysis and Evaluation of this Science and Technology Expo**

Through field research, questionnaire issuance, data integration, and analysis of cutting-edge information capture at the 25th Science and Technology Expo, this article analyzes and evaluates the following four aspects of this Science and Technology Expo.

### **3.1. Basic Overview of this Science and Technology Expo**

The 2021 Zhongguancun Forum (Science Expo), co-sponsored by the Ministry of Science and Technology, the Chinese Academy of Sciences, the Chinese Association for Science and Technology, and the Beijing Municipal Government, was held in Beijing from September 24 to 28, 2021. As the exhibition section of the Zhongguancun Forum, the 24th China Beijing International Science and Technology Industry Expo (hereinafter referred to as the Beijing Science and Technology Expo) was held simultaneously with the Zhongguancun Forum for the first time. It was a highlight of this Zhongguancun Forum, with the combination of virtuality and reality, supplemented by movement and silence, communication and retreat, and product orientation.

The theme of the 24th Science and Technology Expo is "Intelligence, Digital, Carbon Neutralization". Based on existing sections such as forum meetings, technology trading, exhibition displays, and results release, it will add cutting-edge competitions and supporting

activities. At the same time, it will further integrate cloud forums, cloud promotions, and cloud negotiations, continuously improving the level of online and offline meetings, science and technology meetings, and green meetings. This Science and Technology Expo also conducts in-depth discussions and exchanges around hot topics of global common concern such as the digital economy, life and health, and clean energy. Five exhibition areas have been set up for smart technology, scientific and technological Winter Olympics, great health, carbon neutrality, and scientific and technological innovation achievements of provinces, regions, and cities [1].

During the forum, the Zhongguancun International Technology Trading Conference was also held, with more than 10 series of themed activities held around the three major sectors of "international technology trading, new technology and new product launches, and application scenario supply and demand docking", to continuously create a technology trading event of "global buy, global sell". The results release section of this forum focuses on the release of several major national innovation achievements, the latest science and technology policies, and international science and technology cooperation plans during the "13th Five Year Plan" period. At the same time, various innovation entities have released several major projects, innovative achievements, research reports, etc. that highlight innovation, demonstration, and leadership.

## 3.2. Overall Situation Analysis

### 3.2.1. Exhibitors are Mainly Small and Medium-sized Enterprises, Private Enterprises

First of all, the main business scope of the participating enterprises is relatively consistent with the theme of this Science and Technology Expo; Secondly, large and medium-sized exhibitors account for a large proportion, with significant scale effects, while private enterprises with more innovative vitality account for a higher proportion.

1) In most small and micro enterprises with a size of fewer than 500 people

The survey results show that the proportion of enterprises with fewer than 50 employees is 10.08%, that of enterprises with 50-100 employees is 16.81%, that of enterprises with 100-500 employees is 33.61%, that of enterprises with 500-1000 employees is 10.08%, and that of enterprises with more than 1000 employees is 24.37%.

2) More than 40% of exhibitors are private enterprises

The survey results show that the proportion of private enterprises participating in the exhibition is 47.9%, state-owned enterprises 26.89%, universities, and research institutes 10.08%, government agencies 5.04%, foreign-invested enterprises 1.68%, and others 5.04%.

3) Exhibitor's main business scope matches the exhibition theme

The survey results show that "telecommunications, computers, and information" account for 15.97%, and the application of computer technology, AI, and cloud technology has added impetus to the development of smart China, echoing the theme of "smart". "Aerospace" accounts for 4.2%, and "medical and health" accounts for 25.21%, consistent with the medical theme. "E-commerce" accounts for 2.52%, and "manufacturing" accounts for 19.33%. As carbon emissions are mainly related to industry and agriculture, cutting-edge green inventions and creations in the manufacturing industry are crucial to achieving the national strategic goal of "carbon neutrality and carbon peak". "Processing industry" accounted for 1.68%, and "others" accounted for 21.85%.

### 3.2.2. Professional Audiences Mainly Include Young and Middle-aged People, Highly Educated People, and Private Enterprises

Young and middle-aged people included highly educated personnel are the main participants in the exhibition. The audience generally has a high educational background and is concentrated in the age range of 22-45 years. The younger participation reflects the main positioning of the Science and Technology Expo to showcase cutting-edge technology and conduct technological exchanges. Secondly, the majority of employees and management

personnel in enterprises are conducive to facilitating enterprise transactions and industry exchanges.

1) The audience is mostly highly educated

The survey results show that undergraduate students account for 43.92%, master's degree students account for 31.76%, of which doctoral students account for 2.7%, and college degree students account for 18.24%.

2) In the age range of 22-45 years

The survey results show that the proportion of people under 22 years old is 23.65%, the proportion of people aged 23-30 years old is 31.76%, the proportion of people aged 31-45 years old is 35.81%, and the proportion of people aged 46-60 years old is 4.73%.

3) The largest proportion of enterprise employees and management personnel

The survey results show that students account for 32.43%, enterprise employees account for 28.38%, state functionaries account for 14.19%, enterprise managers account for 12.84%, teaching and research personnel account for 4.05%, and media reporters account for 4.73%.

4) Large proportion and multiple types of enterprise visitors

The survey results show that private enterprises account for the largest proportion of professional visitors, accounting for 32.42%, state-owned enterprises for 12.84%, foreign-invested enterprises for 2.7%, universities, and research institutes for 31.08%, and government agencies for 13.51%. Others accounted for 4.73%.

### 3.2.3. Exhibitors' Goals are Well Achieved

1) Exhibitor survey

"Understanding cutting-edge scientific and technological achievements" accounted for 41.18%, "promoting business and expanding influence" accounted for 35.29%, "seeking new partners or investors" accounted for 7.56%, and "achieving transactions and win-win cooperation" accounted for 15.79%. It can be seen that the main purpose of the exhibition is to understand cutting-edge scientific and technological achievements and promote business, and expand influence.

2) Professional Visitor Survey Results

"Understanding industry market information" accounted for 31%, "Understanding cutting-edge technology" accounted for 28%, purchasing products accounted for 8%, and watching exhibitions accounted for 16%. It can be seen that understanding industry market information and cutting-edge technology is the main purpose of professional visitors participating in the exhibition.

3) Survey results of ordinary audiences

"Understanding cutting-edge scientific and technological achievements" accounted for 66.69%, "watching exhibitions" accounted for 16.17%, "understanding industry market information" accounted for 12.12%, and "looking for investment projects" accounted for 2.2%. It can be seen that understanding cutting-edge scientific and technological achievements is the main exhibition purpose of ordinary visitors.

4) This Science and Technology Expo has a certain adsorption capacity

This Science and Technology Expo has a strong attraction for exhibitors, professional visitors, and nonprofessional visitors (tourists); A certain proportion of participants with high viscosity who have participated many times have expressed their willingness to participate in the next Science and Technology Expo.

5) Participants' overall satisfaction with the Expo is high

The survey results of three types of subjects, namely, exhibitors, professional visitors, and ordinary visitors, show that participants have high overall satisfaction with this Science Expo.

Taking the results of the general audience satisfaction scale as an example, more than 90% of the respondents were "satisfied" with the convenience of obtaining information, the layout of the exhibition hall, and the choice of the environment; More than 90% of participants are satisfied with the "average" selection of interactive experiences and activities, exhibition hall personnel services, and transportation convenience

### **3.3. Outstanding Features**

Compared to the past, the main characteristics of this Science and Technology Expo are reflected in "one focus, three highlights":

#### **3.3.1. "One Focus"**

"One focus" refers to focusing on the topic of the forum. The exhibition of this Science and Technology Expo closely follows the theme of "wisdom, health, carbon neutrality" of the Zhongguancun Forum, and sets up exhibition areas for smart technology, big health, science and technology Winter Olympics, carbon neutrality, and scientific and technological innovation achievements of provinces, regions, and cities. Among them, the smart technology exhibition area will invite industry leaders to focus on displaying technological innovation achievements in cutting-edge fields, promoting the development of industrial digitization and digital industrialization. The Great Health Exhibition Area will showcase the latest development achievements of the biomedical and traditional Chinese medicine industries, as well as new products for smart medical and wearable devices, promoting deep integration of the upstream and downstream of the industrial chain, and assisting the sustainable development of the Great Health industry. The Science and Technology Winter Olympics Exhibition Area is led and organized by the Ministry of Science and Technology of the People's Republic of China. Focusing on the scientific and technological support needs of the Winter Olympics, it will focus on displaying several sports industry contents that reflect the national strength, such as high-tech, innovative achievements, demonstration projects, and popularization of winter sports. The carbon-neutral exhibition area will showcase the latest achievements in energy efficient utilization, renewable energy substitution, new power systems, pollution reduction and carbon reduction, and industrial green manufacturing. The exhibition area of scientific and technological innovation achievements of provinces, autonomous regions, and cities will focus on displaying scientific and technological innovation achievements of various provinces, autonomous regions, and cities, and carry out investment attraction and strategic cooperation.

#### **3.3.2. "Three Highlights"**

First, highlight the achievements of the "13th Five-Year Plan". During the "13th Five Year Plan" period, China vigorously promoted the deep integration of science and technology with the economy and society and supported and led high-quality development to achieve new results. This International Science and Technology Expo will closely follow the development characteristics of the capital, comprehensively showcase the construction and development achievements of the International Science and Technology Innovation Center, fully present new technologies and products, and present new models and scenarios in various ways. For example, the cultural and technological integration exhibition will show the audience the changes that have taken place in cultural and entertainment life in the 5G era; The Digital Economy Benchmark City Exhibition will highlight the achievements of digital technology innovation and help cultivate data-driven future industries.

The second is to highlight small and medium-sized micro startups. While exhibiting cutting-edge industries, this Science and Technology Expo will focus more on the development of small, medium, and micro startups, focusing on creating an innovation exhibition platform for small, medium, and micro startups, focusing on displaying the innovative achievements and disruptive technologies of award-winning enterprises in the Zhongguancun International Frontier Science and Technology Innovation Competition, especially the technological

innovation achievements in cutting-edge fields such as big data, artificial intelligence, and smart cities. In addition, excellent small, medium, and micro startup enterprises will be recruited through multiple online platforms to promote docking and cooperation between enterprises in sister provinces, regions, and cities and small, medium, and micro startup enterprises in Beijing, forming an information direct mechanism, and achieving information sharing, resource sharing, and market sharing.

Third, highlight the on-site interactive experience. This Science and Technology Expo will create a comprehensive and immersive interactive experience through indoor and outdoor science and technology performance interaction projects, allowing viewers to participate in various games, performances, and activities organized on-site in addition to on-site visits, and participate in the Science and Technology Expo experientially and interactively. Through virtual reality technology, intelligent video games, and other technologies, viewers can experience the latest technological achievements, experience a technological event with a strong sense of technology and experience, and personally experience the infinite charm of technology [2].

### **3.4. Advantages and Characteristics**

#### **3.4.1. Top Annual Example Exhibition, Comprehensive Technology Event**

Approved by the State Council and co-sponsored by eight ministries and commissions, leaders of the Party Central Committee, the National People's Congress, the National People's Political Consultative Conference, the State Council, the Central Military Commission, and relevant ministries and commissions have visited the Expo many times. Select 10 from the Science and Technology Innovation Experience Museum, Museum, Enterprise Experience Center, and Featured Science Popularization Exhibition Hall to organize citizens of the capital to visit and experience the charm of science and technology innovation in the capital.

The 24th Science and Technology Expo held a promotion and signing ceremony for scientific and technological cooperation projects. Focusing on the cutting-edge technology industry, we have extensively solicited technology investment projects, centrally organized the signing and implementation of major industrial projects, and facilitated cooperation on both internal and external meetings, online and offline projects. At the same time, national leaders, leaders of relevant ministries and commissions, and leaders of Beijing Municipality are invited to visit the exhibition on site. There are a variety of comprehensive activities, with a series of activities of "Walking into the Science and Technology Expo and Looking at Beijing". The 24th Science and Technology Expo held multiple promotion talks, professional forums, and multiple presentations. These rich and rational and pragmatic investment promotion activities and professional activities seeking industrial cooperation have achieved remarkable results, leading to the signing of over 100 scientific and technological cooperation and technological achievements trading projects, with a huge total amount of agreement. After years of dedicated construction, the Science and Technology Expo has become a large professional exhibition of science and technology that has attracted worldwide attention, attracting the common attention and enthusiastic participation of international organizations and political, scientific, and industrial circles at home and abroad.

#### **3.4.2. "Science and Technology Winter Olympics" Achievements Make a Wonderful Appearance**

This session of the Zhongguancun Forum Exhibition (Science and Technology Expo) has set up a special exhibition area of 1000 square meters for the "Science and Technology Winter Olympics", which is led and organized by the Social Development Department of the Ministry of Science and Technology, and hosted by the 21st Century Center. The Service Center of the Ministry of Science and Technology is responsible for the specific layout of the exhibition. The exhibition area of "Science and Technology Winter Olympics", with the theme of "Innovation

Dream of Science and Technology Winter Olympics", focuses on four parts: scientific competition, scientific training, intelligent observation, and support demonstration, and focuses on displaying the new technologies, achievements, and equipment achieved by key special projects of "Science and Technology Winter Olympics". In the Science and Technology Winter Olympics Museum, exhibition items such as venue construction, scientific training, scientific competitions, security demonstration, and intelligent observation were displayed, fully demonstrating the comprehensive support of science and technology for the hosting of the Winter Olympics [3].

More than 70 technologies and nearly 100 exhibits from more than 30 projects, including the construction, operation, and maintenance of artificial section racetrack venues, competitive sports skills optimization, intelligent nutrition gas stations, six-legged guide robots, and digital immersive spacetime warehouses, were displayed in the exhibition area.

The key technologies for low-carbon heating, insulation, and ventilation of temporary housing for the Winter Olympics are developed based on the harsh climate characteristics of the Winter Olympics' mountainous competition area and the thermal environment requirements of temporary housing to meet the heating and ventilation requirements of temporary housing. At present, this achievement has been implemented and applied in the projects of Yanqing and Chongli competition areas of the Beijing Winter Olympics. The 5 G-based emergency command and rescue platform can provide multimedia dispatching and command communication services such as cluster intercom, positioning, images, videos, and instant messaging, and has remote security protection functions. This achievement supports nationwide communication services, regardless of geographical and distance constraints. The research and development and demonstration application of the Winter Olympics food safety assurance technology is a blockchain-based food safety assurance platform that supports the use of mechanisms such as encryption, decryption, on-chain authorization decryption, and on-chain modification decryption permissions for privacy protection. At the entrance of the Science and Technology Winter Olympics, the model of the National Snowmobile and Ski Center attracted many spectators to stop and take photos. This colorful behemoth has upgraded the domestic snow maker from "Made in China" to "Made in China Intelligently."

### **3.4.3. Pay Attention to the Well-being of People under the Global Epidemic and Be based on People's Health**

Facing people's lives and health is also a particularly prominent theme of this Science and Technology Expo. The destiny of mankind is our responsibility, and every word we say is always about love. This year's Science and Technology Expo and the Forum are jointly targeted, open, and innovative, demonstrating the power of hard-core technology through anti-epidemic achievements. There are anti-epidemic technology exhibition areas, and multiple enterprises display new products such as "medical devices, rings," and "intelligent equipment," bringing a new experience of healthy life through "going to the Science and Technology Expo to see Beijing." In this exhibition area, a digital epidemic prevention system is displayed, which is committed to creating a healthy ecosystem, providing professional public epidemic prevention services for enterprises and governments, and constructing a new pattern of the scientific and technological health industry chain. The achievements of this system provide a comprehensive epidemic prevention guarantee for the exhibition hall of the Science and Technology Expo.

The world has undergone unprecedented changes and accelerated evolution in a century. Only by jointly exploring ways and means to solve important global issues through scientific and technological innovation can mankind jointly address the challenges of the times. "The world should share vaccines, or the virus will" share "the world. [4]" At the Zhongguancun Forum Global Science and Life Health Forum, Gao Fu, academician of the CAS Member and director of the China Center for Disease Control and Prevention, said. To deal with global problems such

as the continuous variation of COVID-19 and the increasing spread of the COVID-19 virus, vaccine R&D experts and manufacturers from home and abroad jointly "opened the door to discuss" and exchange the latest research and development progress of COVID-19 vaccine, adverse reaction monitoring, virus variation research, and other topics.

In the medical and health museum, a "Hi Jeff disinfection spray robot" that moves slowly and sprays white mist attracted the audience. According to Amy, General Manager of Hekangyang, a Chinese medicine company, "This is a public epidemic prevention intelligent disinfection robot specifically developed for normalized epidemic prevention in the civil field. It is based on our 'Hi, Geoff-FS Public Epidemic Prevention System' for supporting us." This system is installed foolishly and is very convenient to use. "It can ensure the safety of imported food and greatly reduce the transmission of viruses and cross-infection issues. The acidic oxidizing potential water generated by the system can be used for washing tableware and air disinfection; the alkaline reducing potential water generated can be used to remove stains and remove vegetable pesticide residues. In the event of an epidemic, all FS public epidemic prevention systems in the city can jointly form epidemic prevention barriers, shorten the time for dispensing disinfectant in various regions, and quickly reach the entire city." "Epidemic prevention standards," Amy said [5].

#### **3.4.4. "Three Cities and One District" Leading Science and Technology Development**

The 2021 Zhongguancun Forum Exhibition (Science and Technology Expo) focuses on the construction of the Beijing International Science and Technology Innovation Center, with a selection of 210 enterprises and 288 exhibition projects, focusing on the integrated development trend of "three cities and one district". In the exhibition area of Zhongguancun Science City, the enterprise "Legion" composed of Baidu, Cambrian, Longxin Zhongke, and others showcased the latest and cutting-edge scientific and technological achievements of Zhongguancun. At the exhibition stand of Chang'an Chain, relevant application cases of Chang'an Chain were displayed. In the exhibition area of Huairou Science City, major technological infrastructures such as high-energy synchrotron radiation light sources were exhibited. In the exhibition area of Future Science City, there are three sections: Life Valley, Energy Valley, and Shahe Higher Education Park, which showcase innovative achievements in seven fields: innovative drugs, medical devices, cell and gene therapy, public service platforms, medical aesthetics, advanced energy, and new generation information technology. The exhibition area of the Beijing Economic and Technological Development Zone is divided into four parts, namely, Smart Inspiration, Smart Manufacturing, Driving, Smart Travel, Cloud Control, and Smart Yuan, Building a Dream. More than 70 exhibits from 31 enterprises are displayed, demonstrating the development achievements of the Beijing Economic and Technological Development Zone in the new generation of the information technology industry, robotics and intelligent manufacturing industry, high-end automobile, and new energy intelligent automobile industry, as well as emerging industries.

#### **3.4.5. International Double Crossing Platform**

According to incomplete statistics, 1190 overseas delegations from more than 100 countries and regions participated in the previous Science and Technology Expo, with 39080 Chinese and foreign institutions and enterprises participating, and a total of 5.726 million visitors. Government delegations from 32 provinces, autonomous regions, and cities specifically designated in the national plan have participated in the Science and Technology Expo, with over 2000 multinational companies, domestic industry leaders, large backbone enterprise groups, and high-growth small and medium-sized enterprises participating; Held 1094 forums, promoted transactions, signed 5685 contracts, agreements, and intentions, with a total amount of 106.1419 billion yuan, providing an important platform for displaying the construction achievements of the International Science and Technology Innovation Center, promoting

collaborative innovation between government, industry, university, research, and application, and deepening international production capacity cooperation [6].

To promote the construction of "two districts" and "three platforms" in Beijing to a high standard, starting in 2020, the Science and Technology Expo has gradually been integrated into the Zhongguancun Forum, realizing the integration of discussion and exhibition. The State Council approved the establishment of the Organizational Committee of the Zhongguancun Forum, chaired by Vice Premier Liu He, and the Executive Committee of the Zhongguancun Forum, chaired by Cai Qi, Secretary of the Beijing Municipal Party Committee. As the exhibition section of the Zhongguancun Forum, the name of the Science and Technology Expo has been changed to Zhongguancun Forum Exhibition (Science and Technology Expo). Over 500 industry-leading enterprises such as China Railway Group, Baidu, AstraZeneca, etc. have participated in the exhibition, and 23 leaders at or above the provincial and ministerial levels have visited the exhibition for guidance [7].

#### **3.4.6. Strong Media Promotion Lineup**

Xinhua News Agency, People's Daily, China Central Television, The Associated Press, Reuters, and other 280 mainstream media at home and abroad tracked and reported. Over the years, the Beijing Science and Technology Expo has led innovation, witnessed the process of China's technological innovation from following and running to leading the world, and witnessed the process of China's industry and value chain from the low end to the middle and high end. It has become one of the most representative and authoritative major international expositions in China's science and technology trade field. It has played a positive role in displaying the latest scientific and technological achievements at home and abroad, disseminating cutting-edge ideas, and promoting scientific and technological exchanges and cooperation.

## **4. Comparison and Reference of Similar Exhibitions**

While studying and analyzing the advantages and characteristics of this Zhongguancun Forum (Science and Technology Expo), this article also compares and draws on similar exhibitions at home and abroad, striving to put forward constructive and innovative improvement suggestions and prospects for the remaining issues of this Science and Technology Expo more comprehensively and objectively.

### **4.1. Comparative Analysis of Domestic Exhibitions - Boao Forum for Asia 2022 Annual Conference**

#### **4.1.1. Basic Overview**

On January 12, 2022, the press conference for the 2022 annual meeting of the Boao Forum for Asia was held in Beijing. At the meeting, Li Baodong, then Secretary General of the Boao Forum for Asia, revealed that the 2022 annual meeting would be held in the spring in Boao, Hainan. The specific date of the annual meeting would be announced to the public after being determined.

On April 20, 2022, Hua Chunying, the spokesperson of the Ministry of Foreign Affairs, announced that on April 21 [8], Chinese President Xi Jinping will be invited to attend the opening ceremony of the 2022 annual meeting of the Boao Forum for Asia by video and deliver a keynote speech.

On the afternoon of April 22, 2022, the closing press conference of the 2022 annual meeting of the Boao Forum for Asia was held in Boao, Hainan. Li Baodong, then Secretary General of the Boao Forum for Asia, made a concluding speech.

During the exhibition, the Boao Forum for Asia fully considered various factors such as meteorological support, transportation support, shipping support, electricity support, voluntary services for epidemic prevention along with control and the setting of security work

sectors. The service support is complete and complete, providing a significant guarantee for the success of the exhibition.

#### 4.1.2. Comparative Analysis

Through a comparative analysis of the Boao Forum for Asia and the Zhongguancun Forum (Science and Technology Expo), it is found that there are differences between the two in terms of political influence, echo of the times, coverage and timeliness of reports (Table 1).

**Table 1.** Comparative Analysis of Zhongguancun Forum (Science and Technology Expo) and Boao Forum for Asia

Comparison category	Zhongguancun Forum (Science and Technology Expo)	Boao Forum for Asia
Political influence	Less political influence.	Chinese President attended the opening ceremony with great political influence.
Echo of the times	It follows the development of the times, but has a small echo.	The thematic agenda responds to the needs of the times.
Scope of coverage	The sub forum covers a relatively small scope and has a relatively single mode.	The sub forums cover major and hot topics, with a large scale and scope.
Timeliness of reporting	There is a slight delay in reporting timeliness, at the same time, there is still room for improvement.	The flagship report was released on the first day of the annual meeting, with high timeliness.
Combination of online and offline	Mainly offline.	"Online+offline" ensures professional participation.
Service Assurance	Due to delays caused by the epidemic, risk response capabilities such as epidemic prevention and control support and emergency filing need to be improved.	The service guarantee is complete and complete, and the ability to cope with risks is high.

## 4.2. Comparative Analysis of Foreign Exhibitions - World Economic Forum in Davos, 2022

### 4.2.1. Basic Overview

The 2022 annual meeting of the World Economic Forum (also known as the "Davos Forum") was held in Davos, Switzerland, from May 22 to 26. This is the first offline meeting since the outbreak of the COVID-19 epidemic, also the first held in spring. More than 2500 insightful elites and political leaders from all walks of life gathered at this annual meeting to exchange views and seek innovative thinking and advanced solutions to address the emerging new challenges in the future.

The theme of this year's summit is "Government policies and corporate strategies at a historical turning point". The five-day meeting focused on six important topics, including "restoring global order and regional cooperation", "achieving economic recovery and ushering in a new era of growth", "building a healthy and fair society", "protecting climate, food, nature", "promoting industry transformation", "leveraging the power of the fourth industrial revolution" [9].

### 4.2.2. Comparative Analysis

Through a comparative analysis of the Davos Forum and the Zhongguancun Forum (Science and Technology Expo), our group found that there are differences between the two forums in terms of forum purpose, participation scale, internationalization level, resource integration, other aspects (Table 2).

**Table 2.** Comparative Analysis of Zhongguancun Forum (Science and Technology Expo) and Davos Forum

Comparison category	Zhongguancun Forum (Science and Technology Expo)	Davos Forum
<b>Purpose of the Forum</b>	The purpose of the Zhongguancun Forum is to lead the direction of scientific and technological innovation, gather consensus on innovation cooperation, and respond to global development concerns.	To study and explore the problems existing in the world economic field and promote international economic cooperation and exchanges.
<b>Participation scale</b>	The scope of participation of the political, business, academic and media sectors is relatively small.	Every year, the exhibition is attended by representatives from political, business, academic and media circles from dozens of countries, with a large gathering of celebrities and a grand scale.
<b>Internationalization level</b>	The level of internationalization is relatively low.	Integration of government and business, high level of internationalization.
<b>Integration of resources</b>	The forum focused on topics such as science and technology epidemic prevention, global innovation cooperation, and carried out over 50 activities in the four major sectors of "conference+exhibition+transaction+release", with relatively reasonable resource integration.	Facing the forefront of world science and technology, focusing on key core technologies and original innovation, integrating high-quality resources, and creating an international exchange and cooperation platform in the field of science and technology [10].
<b>Platform construction</b>	With the permanent theme of "innovation and development", the Zhongguancun Forum strives to build itself into an international scientific and technological innovation exchange and cooperation platform that integrates scientific and technological exchanges and the display, release, trading of innovative achievements.	Establish a scientific and technological innovation stage and communication platform through forums, meetings, technology transactions, exhibitions, results release, cutting-edge competitions, supporting activities and other sectors[11].

### 4.3. Lessons Learned

#### 4.3.1. Basic Ideas for Exhibition Hosting

Refine the exhibition classification and highlight the theme of exhibits. Closely focus on innovation and embody Chinese creativity. The layout of each exhibition area is also more detailed and professional, highlighting the theme of the exhibits. Integrate high-quality

resources, jointly focus on the theme of "Cooperative Innovation and Meeting Challenges", face the forefront of world science and technology, focus on key core technologies and original innovation, integrate high-quality resources, and create an international exchange and cooperation platform in the field of science and technology.

Take the new round of technological revolution and industrial transformation as an opportunity, follow the new trends in the development of emerging industries, focus on key areas of manufacturing development, adhere to the combination of government guidance and market mechanisms, fully demonstrate the important role of modern information technology enabling industry, fully highlight the important function of promoting the transformation of innovation achievements, fully release the Made in China, and reflect the brand effect; Its display, transaction, award evaluation, forum, and other functions have enriched the connotation of enterprise manufacturing.

#### **4.3.2. Practical Operation of Exhibition Hosting**

##### **1) Strong government support**

With the strong support of the Chinese government, it is jointly organized by multiple national ministries, commissions, and local people's governments. Several national leaders visited and guided the event, with high-level national leaders attending. It has great political influence.

##### **2) Strong promotion means**

Special promotion plans specially formulated by the organizer, including press conferences, direct mail and direct mail; Make full use of the long-term cooperative relationship formed with domestic and foreign media over the years to fully understand the exhibition for domestic and foreign enterprises and customers. At the same time, the organizer invites thousands of journalists from hundreds of domestic and foreign media to participate in the reporting of each exhibition. Including Chinese media, mainstream print media from overseas and many professional online media.

##### **3) Quality service guarantee**

The service guarantee is complete and complete, and the ability to cope with risks is high. During the exhibition, the Boao Forum for Asia fully considered various factors such as meteorological support, transportation support, shipping support, electricity support, voluntary services for epidemic prevention along with control and the setting of security work sectors. The service support is complete and complete, providing a significant guarantee for the success of the exhibition.

##### **4) Adopt the "online+offline" approach**

The combination of online and offline, mainly offline, supplemented online, ensures the participation of celebrities and makes the exhibition a complete success.

#### **4.3.3. Promotion and Application of Scientific and Technological Achievements**

Bringing good benefits to many enterprises. Microsoft, IBM, Sony, Qualcomm, Samsung, Hewlett Packard, Siemens, Toshiba, Oracle, LG, Hitachi, Panasonic, and other multinational companies have participated in the exhibition many times. A large number of outstanding Chinese private enterprises, such as Tencent, Huawei, Kingdee, iFlytek, Han's Laser and Coship Electronics, have gone global from here.

## **5. Future and Prospect of the Science and Technology Expo**

### **5.1. Areas to Be Improved and Improved in the Science and Technology Expo**

#### **5.1.1. The Quality of Exhibitions under the Influence of the Epidemic is Extremely Challenging**

Due to the epidemic, all aspects of the exhibition, regardless of the exhibits or scale, are greatly limited, the audience's sense of the experience of the exhibition is also affected, resulting in great difficulties and challenges for the holding of the Science and Technology Expo.

There is still room for improvement in the trading volume of scientific and technological achievements, the innovation of display content, the integration of industrial development, the play of the platform role, the construction of information technology at this Science and Technology Expo.

#### **5.1.2. Compatibility between Form and Content Needs to Be Improved**

In the exhibition areas of scientific and technological innovation achievements in provinces, autonomous regions and cities, most exhibitors in many regions only display pictures and text, which fails to fully reflect the industrial characteristics of the region. In the A3 and A4 pavilions, in addition to the large exhibition areas of exhibitors' delegations from various regions, there are dozens of small booths for exhibitors in the corner of the exhibition hall. Most of these exhibitors have no physical exhibits, even no staff present, at the same time, their exhibition necessity and compatibility with the theme of the exhibition are insufficient.

#### **5.1.3. Limited Venue Planning and Hardware Facilities Constrain the Richness of the Exhibition**

The exhibition hall area of this Science and Technology Expo is small and the number of exhibitors is small; The location of the exhibition hall is not conducive to exhibition arrangement and observation; The exhibition hall has a small area and limited visitors; Limited by the size of temporary venues, the number of exhibitors is small. These comprehensive factors constrain the richness of the exhibition and the sense of audience experience.

#### **5.1.4. Organizational Ability Needs to Be Improved**

Operators still lack experience and resources in hosting science and technology exhibitions, as well as insufficient services, contacts and maintenance for exhibitors. The organizational capacity of the organizers needs to be improved. Exhibitors need to arrange their exhibitions in advance. Due to insufficient cooperation between various departments of the exhibition, some exhibitors have not received enough exhibition cards to enter the exhibition hall as exhibitors, which can only enter as spectators in the later stage.

#### **5.1.5. The Enthusiasm of the Government and Exhibitors Needs to Be Improved**

At this Science and Technology Expo, there are relatively few government-sponsored forums. Moreover, more forums are held by exhibition companies through market-oriented operations. It is inevitable that some of these forums are not satisfactory and do not fully reflect the government's requirements. At the late stage of the exhibition, the exhibitors' attendance rate is not high. This is something that needs to be strengthened in the future.

At the later stage of the exhibition, the exhibitors' participation rate is low, there is no display content on the display screen showing a black screen status, some booths have no staff, some of the exhibitors' staff at the exhibition play with mobile phones, resulting in a low overall enthusiasm for the exhibition.

Some viewers reported that the specific results displayed on the exhibition stand were less; The booth staff did not provide sufficient explanations to help the audience gain a deeper understanding of the products under exhibition; Some booths only have company promotional

videos without product substance and features; The display device is not fully functional. We look forward to enhancing the interactive experience.

### **5.1.6. Reception Level and Exhibition Order Need to Be Optimized**

Before and after the launch of this Science and Technology Expo, it was exposed that the reception service needs to be improved. The ability to control orders was relatively lacking in the early stage. The organizer did not strictly implement the original admission plan, resulting in simultaneous admission of all personnel, resulting in congestion at the site and the management of the admission order needs to be strengthened.

According to the officially released layout of the exhibition, it can be seen that there is a dining area within the exhibition, but there is no dining area at the exhibition site. On the first day of the exhibition, many exhibitors and visitors are waiting for meals at the fence at the entrance of the exhibition. As it is a temporary exhibition hall, there is no accurate location on the map, the food delivery personnel cannot arrive on time. Taking out food from the fence at the entrance of the exhibition also hurts the image of the exhibition.

## **5.2. Suggestions for Improvement of the Science and Technology Expo**

### **5.2.1. From the Perspective of the Sponsor**

1) Increase publicity efforts to enhance the enthusiasm of exhibitors

According to the comparison of data from the recent four science and technology exhibitions, the number of exhibitors has decreased year by year, with only over 500 enterprises participating in this session. Although some exhibitors are listed on the exhibitor list, they have not participated substantively or actively, which to some extent hurts the exhibition effect.

In response to the decrease in the number of enterprises participating in the Science and Technology Expo in recent years and the low level of participation and enthusiasm of exhibitors, the organizers can increase publicity efforts and strengthen synchronous online and offline publicity. On the one hand, through the WeChat official account push and frequent updates of the official website home page, the news and real-time dynamics are timely transmitted to enhance the audience's understanding of the Expo. On the other hand, strengthen offline publicity, which can be carried out in various state-owned enterprises and universities, while placing more road advertisements and increasing exposure. Make good use of paper media and new online media to steadily carry out publicity work and comprehensively enhance the international attention of the forum. Do a good job of organizing regular meetings. Ensure that "display activities have focus, news reports have highlights."

2) Optimize the business environment and enhance the richness of exhibitions

From the comparison of data from the past four science and technology exhibitions, it can be seen that the theme exhibition area of this exhibition has decreased sharply, and the business coverage of exhibitors is not as good as that of previous exhibitions. After visiting the exhibition, professional visitors from other provinces expressed their regret that there were too few exhibitors and exhibits to match their needs. The small exhibition area, the small number of themed exhibition areas, the small number of exhibitors and the low enthusiasm for the exhibition will indeed weaken the possibility of matching supply and demand to a certain extent, affecting the exhibition effect. Our team recommends expanding the exhibition hall area, giving exhibitors more exhibition space and providing more viewing space for the audience to enhance their viewing experience.

3) Improve the exhibition organization system and improve service quality

Due to the impact of the epidemic, a temporary exhibition hall was set up on the west side of Haidian Park in this Science and Technology Expo, which has shortcomings and weaknesses. We suggest that the organizers can formulate a series of regulations to control the order of the venue. At the same time, we should make overall planning for the exhibition and optimize the

layout of the venue. Secondly, while implementing epidemic prevention and control, we can appropriately relax epidemic prevention measures to reduce the marginal costs caused by cumbersome processes. Develop and improve epidemic prevention plans and emergency plans, identify various risks and hidden dangers, ensure the safe holding of the forum. In addition, the organizers can strengthen overall coordination and provide docking services, with each working group performing its duties.

### **5.3. Viewers and Exhibitors**

#### **5.3.1. Improve the Participation Sense of the Audience at the Science and Technology Expo**

Our team has found that in practical applications, online exhibitions do not display on-site exhibit information. Most of them are just a brief introduction to the company, lacking interactive technologies such as online live streaming, video, audio and automated customer service; Visitors, sellers and exhibits have not yet established an efficient real-time interactive platform; Lack of online exhibition business cooperation and business talks, limited communication.

Exhibitions can combine "offline" and "online". First of all, under the premise of ensuring that the epidemic is controllable, offline exhibitions can be appropriately carried out to allow on-site audiences to experience the product more realistically. Exhibitors can create a comprehensive and immersive interactive experience through indoor and outdoor science and technology performance interaction projects, allowing viewers to participate in various games, performances and activities organized on-site in addition to on-site visits, participate in the Science and Technology Expo experientially and interactively. In addition, exhibitors can display their exhibits through virtual reality technology, intelligent video games and other methods, allowing the audience to experience fresh technological achievements, experience a technological event with a full sense of technology and experience, which personally experience the infinite charm of technology.

Secondly, the organizers can improve their technology to create a good online exhibition experience for online viewers. The online exhibition can utilize the official online platform of the Zhongguancun Forum, the official website of the Science and Technology Expo, the official mobile device client of the Science and Technology Expo, well-known websites to provide comprehensive services such as online promotion of outstanding enterprises and products, online docking of investment promotion and cooperation projects, which create a never-ending Science and Technology Expo.

#### **5.3.2. Combining Technological Innovation with Exhibitions**

The sponsor can use new technologies, new products and new ideas such as metauniverse and blockchain to focus on creating an online and offline integrated participation experience, integrating hardcore technology and artistic aesthetics. For example, remote speeches by guests will be combined with immersive stage design to make the speech more realistic; Online exhibitions can create an immersive interactive experience of participating and exploring the cloud, which use MR technology to create a panoramic exhibition section on the cloud.

In addition, the forum can also use XR virtual production technology to create XR live streaming rooms; Use ultra high-definition large screens and digital art means to create an immersive venue atmosphere; Build a data cockpit for the Zhongguancun Forum to achieve data fusion and information sharing with the Zhongguancun Forum.

#### **5.3.3. Improve the Quality of Exhibits**

We suggest that exhibitors exhibit more physical exhibits, at the same time, staff use technology to display exhibits from multiple perspectives to the audience. We suggest increasing live streaming, using AR and VR technologies to enhance interaction, attract audience attention and

better highlight the display of exhibits. In addition, exhibitors can innovate online promotional methods and use virtual exhibition halls to attract the attention of more enterprises and visitors.

#### **5.3.4. Expand the Team of Exhibitors and Visitors**

The Science and Technology Expo takes solving the bottleneck in the development of innovative talents as an important starting point, strengthens the innovation of talent differentiation policies, enhances the continuous attraction of various innovative talents and builds a high-level talent highland. In terms of early publicity, on the one hand, we can rely on high-level innovation platforms such as large scientific devices, cross-research platforms, new research and development institutions to accelerate the participation of top exhibitors such as global strategic entrepreneurs and provide first-class services to enable top entrepreneurs to take root in Zhongguancun and showcase outstanding products of enterprises. On the other hand, it can accelerate the expansion of the "enterprise matrix", create an innovative enterprise matrix covering different stages and fields, expand high-energy innovative leading enterprises, cultivate high-growth and high-value enterprises, activate technology-based small and medium-sized enterprises, mobilize enterprises to actively participate in the exhibition and investment attraction of the Science and Technology Expo, which deeply promote the pilot reform of Zhongguancun. Focusing on promoting the efficient flow of innovative resources such as international talent, technology and capital, strengthening international cooperation in scientific and technological innovation, utilizing the characteristics of "exhibitors attract visitors, and visitors bring exhibitors", increasing customer flow, and achieving a hundred flowers blooming and a hundred schools of thought contending.

## **6. Prospects for the Science and Technology Expo**

The epidemic has had a certain impact on the overall exhibition effect of this Science and Technology Expo. Based on the investigation, this article proposes improvement suggestions and prospects for the Science and Technology Expo itself and the future.

### **6.1. Receive "Future" Signals in Beijing**

At the parallel forum and exhibition site of the 2021 Zhongguancun Forum, cutting-edge technologies from more than 500 Chinese and foreign enterprises were displayed, allowing people to receive "future" signals in advance and touch the pulse of the future industry. The relevant principals of the Municipal Science and Technology Commission and Zhongguancun Management Committee introduced that Beijing will strive to cultivate future industries, build new trillions of industrial clusters such as intelligent manufacturing, big health, green smart energy, lay out future industries such as brain intelligence, quantum computing, 6G, future networks, unmanned technology, metamaterials and two-dimensional materials, genes and stem cells, along with "dual carbon".

### **6.2. Deeply Create a "Business Card" for International Scientific and Technological Exchanges and Cooperation**

The Zhongguancun Forum (Science and Technology Expo) connects and gathers innovation resources at home and abroad. It is a "business card" for international scientific and technological exchanges and cooperation, not only establishing an international exchange platform but also providing strong support for scientific and technological innovation cooperation.

In the future, the Zhongguancun Forum (Science and Technology Expo) will further promote the pilot reform of Zhongguancun, focusing on promoting the efficient flow of international talent, technology, capital, other innovative resources, strengthening international scientific and technological innovation cooperation; Support enterprises to participate in international innovation governance, promote the sharing of innovation resources and scientific elements,

create an open science 'Beijing model', convey the innovative development concept of expanding openness and joint construction and sharing, promote exchanges and cooperation between Zhongguancun and overseas in various ways, polish the "business card" of international scientific and technological exchanges and cooperation.

### 6.3. Accelerate Integration into Global Innovation Networks

"Major infectious disease prevention and control, carbon peak and energy revolution, digital transformation and future industries... In the face of significant challenges and opportunities for global development, the "strongest brains" from various fields around the world gathered at the Zhongguancun Forum to ask for answers to science and technology innovation".

The relevant person in charge of Beijing introduced that in the next step, Beijing will actively participate in the global innovation network, promote scientific and technological innovation exchange and cooperation, introduce several measures to support the establishment and development of foreign research and development centers and support the development of international venture capital institutions in Beijing. In the field of open science practice, Beijing will implement international joint research projects, actively participate in the formulation of international scientific and technological rules, and carry out international major science programs on life, health, climate change, making new contributions to promoting global scientific and technological innovation exchanges and cooperation.

The curtain slowly opens, the good play is still to come. Both the protagonist and the supporting role have gradually entered the theme, writing a new chapter in the story of "Zhongguancun Innovation and Entrepreneurship" with practical actions. By 2025, the Zhongguancun Demonstration Zone will take the lead in building a world-leading science and technology park, providing strong support for Beijing to form an international science and technology innovation center. Looking forward to 2035, the Zhongguancun Demonstration Zone will become an important engine of global scientific and technological innovation and an important role in the world's innovation landscape, providing strategic support for achieving high-level technological self-reliance, accelerating the construction of technological power, transmitting the innovative development concept of expanding openness, joint construction and sharing.

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