

Innovative Development of Scientific and Technological Intelligence Services from the Perspective of Think Tanks

Xue Wang, Daizun Wang, Shuang Liu, Gang Mao

Institute of Science and Technology Information of Jilin Provincial, Changchun,
Jilin Province, China

Abstract

As globalization trends become increasingly apparent, China's economic development has entered a new normal. Implementing an innovation-driven development strategy holds significant strategic importance for promoting the transformation and development of China's economy and society. In the course of a nation's development, intellectual resources are an indispensable component. The existence of think tanks helps to enhance the nation's discourse power and soft power, promoting an effective increase in China's comprehensive national strength. Scientific and technological intelligence services can support national science and technology innovation strategies. By collecting, storing, and analyzing information, and providing science and technology information consultation and public technical services to governments and enterprises, these services enhance government decision-making, enterprise development, social public opinion, and public knowledge dissemination. Under the think tank perspective, scientific and technological intelligence services have shown new characteristics. How to innovate service models and improve service quality in the new era to better serve the construction of think tanks and national development strategies has become an urgent issue to address.

Keywords

Think tank perspective, Scientific and technological intelligence services, Innovative development.

1. Current Development Status of China's Scientific and Technological Intelligence Institutions

After more than sixty years of reform and development, China's scientific and technological intelligence system has gradually matured into a comprehensive system with a sound organizational structure, clearly defined business scope and service targets, and rich internal resources. In this process, scientific and technological intelligence institutions have continuously evolved and formed diversified development models such as public research, science and technology intermediaries, technology services, and integrated services, with the core function still serving science and technology innovation and decision-making. Currently, scientific and technological intelligence institutions are spread throughout the country, playing an increasingly important role in national scientific and technological development and economic construction. Most of these institutions in China conduct research related to science and technology policy, dynamic analysis, and statistics, but there are significant differences in database construction. Although achievements have been made in library resources, platform construction, and characteristic database development, the data often come from commercial databases rather than self-built ones.

From the perspective of service areas, as shown in Figure 1, scientific and technological intelligence institutions are mostly involved in decision support, soft project topics, patent

analysis, technology research, and industry research. Over half of these institutions have conducted long-term research in areas of technological analysis, technology tracking, and market research. Only a very few intelligence institutions engage in technology forecasting and planning services, which require long-term follow-up and involve decision-making levels, but the development of services in this field has brought enhancements^[1-3].



Figure 1: Statistics on Areas Covered by Scientific and Technological Intelligence Services

2. Definition of Think Tanks

Think tanks, also known as brain trusts, advisory groups, or idea banks, are consulting research institutions that specialize in developmental research. They gather experts and scholars from various disciplines, utilizing their wisdom and talents to provide satisfactory or optimized solutions for the development of social, economic, and other fields, and are an indispensable part of modern leadership management systems. Their main tasks include providing consultation, offering strategies and solutions for decision-makers, conducting operational analysis, proposing various designs; providing feedback on implementation plans, investigating and researching the results of operations to facilitate corrections; conducting diagnostics, studying the current state to identify problems, and finding solutions; predicting the future, using various methods from different perspectives to propose various forecasting options for decision-makers.

China's think tanks are mainly divided into four categories, as shown in Table 2. First, the party, government, and military think tanks. These refer to think tanks established through legislative or administrative regulations that exist within the party, government, and military sectors, primarily serving as decision-making advisory bodies directly affiliated with party and government agencies and military units. Second, the social science academies. This is the most characteristic series of think tanks in China. In terms of funding, these are government consulting bodies established and funded entirely by the government budget or through subsidies, conducting related research through project commissions. Third, university think tanks. These are organizations affiliated with universities engaged in policy research and decision-making consultancy, established either independently by universities or with the assistance of other institutions and groups. Fourth, private think tanks. Private think tanks are mainly funded by private sources and reflect the public's voice or policy needs. They are usually established by enterprises, private individuals, or civic groups, independent of any other organizations, and self-financed.

Table 1: Funding source of think tank of our country

	Source and characteristics of funds
Government and military think tanks	Financial allocations, internal direct, serve the leadership

Academy of Social Sciences	Full financial grants or grants, government advisory bodies
University think tank	University funding or self-financing, relying on university resources
Private think tank	Non-government funding, independent of other institutions, self-financing

3. The Role of Scientific and Technological Intelligence Services in Think Tank Construction

3.1. Providing Decision-Making Consultation Support

In government decision-making, scientific and technological intelligence institutions play a key role with their professional information, intelligence, knowledge, and data service capabilities, providing policy consultation support to government agencies in the form of intelligence research reports. These institutions cover a wide range of fields including science and technology, industry, economy, society, and management, paying close attention to the needs of management and decision-making levels^[4-5], providing them with cutting-edge, strategic decision-making support. By utilizing various analysis methods and tools, scientific and technological intelligence institutions can uncover patterns behind complex data, providing scientific basis for think tanks. This support enhances the scientific nature and accuracy of government decision-making, promotes rapid development in innovative fields, and contributes intellectual power to societal prosperity and progress.

3.2. Assisting in Strategic Planning

In scientific and technological intelligence institutions, strategic planning involves constantly monitoring changes in the external environment, deeply detecting various changes, and promptly summarizing potential development laws, providing strategic support for government and enterprise innovation decisions. To better support strategic planning, scientific and technological intelligence institutions should build a comprehensive strategic intelligence service system according to actual conditions, including extensive information collection and analysis capabilities, providing customized consultation services, and becoming indispensable think tanks for governments and enterprises, enabling these organizations to more accurately grasp future development directions.

3.3. Supporting the Decision-Making Analysis Process

Given the complex and rapidly changing social environment, government departments and enterprises should continuously improve their decision-making analysis capabilities to gain competitive advantages. In this context, scientific and technological intelligence institutions play an important role, closely monitoring the latest developments in domestic and international science and technology, continuously tracking the emergence of new technologies, new products, and new services and their market impacts, and rapidly responding to various issues in the current development process by devising a series of emergency plans to assist users in making wise decisions in the complex and variable technology environment^[6-8]. For high-tech enterprises, the services provided by intelligence institutions can help users deeply understand the current competitive environment, also by analyzing competitors' strategies, market trends, and potential opportunities, providing scientific basis for users to formulate long-term development strategies.

4. Problems in Scientific and Technological Intelligence Services from the Perspective of Think Tanks

4.1. Insufficient Alignment with Think Tanks

Whether it is think tanks or scientific and technological intelligence research, both can provide precise decision-making support for decision-makers, with overlapping functions yet each having distinct features, presenting a good situation of cross-disciplinary integration and collaborative development. Think tanks inherently include intelligence work mechanisms, and scientific and technological intelligence research compensates for the structural and functional deficiencies of think tanks. However, due to objective factors, the alignment between China's think tanks and scientific and technological intelligence services is not high, lacking stable and efficient communication and exchange mechanisms between the two, insufficient resource sharing and deep integration, and scientific and technological intelligence services not fully utilizing the thinking methods and analysis tools of think tanks when providing decision-making support. Think tanks have not actively integrated into the full process of scientific and technological intelligence services, making it difficult to fully leverage their synergistic advantages.

4.2. Limited Decision-Making Level

With the rapid development of the times, scientific and technological intelligence service institutions should have become an important force in promoting scientific and technological innovation and decision-making optimization. However, the service content provided by some scientific and technological intelligence service institutions has not kept up with the pace of the times. Compared to 20 years ago, these institutions' service models have not changed significantly, and due to insufficient investment and the impact of marketization, there are even some regressions in certain aspects. Low-level and low-quality services still exist in some intelligence service institutions, commonly characterized by weak capabilities, insufficient effectiveness, narrow vision, insufficient scientific data support, lack of continuous and systematic in-depth research, more diagnostic research, less predictive research, and their policy research and decision-making consultation capabilities also need further enhancement^[9].

4.3. Low Professional Quality of Talent

In the field of scientific and technological intelligence services, talent team construction is key to enhancing service quality and promoting industry development, especially from the perspective of think tanks, where the issues faced by scientific and technological intelligence services often have high complexity, comprehensiveness, and multidisciplinary crossover, placing extremely high demands on experts' professional backgrounds and overall quality. Currently, there are issues with insufficient personnel capabilities, lack of talent cultivation and echelon construction capabilities, and loss of key personnel, especially high-level leading talents, who are very scarce. When faced with emergencies, they are unable to properly resolve issues in a timely manner, and "all-rounders" with multidisciplinary backgrounds are even rarer.

5. Innovative Strategies for Scientific and Technological Intelligence Services from the Perspective of Think Tanks

5.1. Improving Information Resource Construction

With the deep development of the information age, think tanks' demand for information resources is increasingly diverse and specialized. Intelligence departments should actively respond to the needs of think tanks, store data in each storage layer of information storage, and

intelligence professionals should collect comprehensive information, process information, and enrich information resources based on the information goals of information resources. Think tanks should voluntarily establish their own knowledge bases according to their needs, improve the information resource construction of think tanks, and form their own professional characteristics^[10]. Think tank knowledge bases focus on providing product development and consulting services for organization members, while institutional knowledge bases provide users with pathways to obtain knowledge. At the same time, intelligence information collection departments can use network mining tools and other intelligent technologies to capture and classify virtual documents, not only through traditional manual income methods but also by using machine intelligence to obtain information resources, improving the efficiency and accuracy of information resource construction.

5.2. Enhancing Professional Quality of Talent

In the context of the Internet, intelligence information resources are also more abundant, showing an explosive development trend. In the course of future development, scientific and technological intelligence services should also integrate with information technology to achieve intelligent intelligence services. Scientific and technological intelligence mainly provides effective ideas, countermeasures, and suggestions for enterprises and governments. It should change the previous work model and build a professional talent team. Leverage the advantages of the team, condense the wisdom of team members, achieve collective public relations, team cooperation, involving multiple units and professions, and conduct close cooperation. Because intelligence information is rich and has diverse characteristics, when forming a research team, it should be combined with the direction and field of scientific and technological intelligence, view problems from a macro supervision perspective, formulate scientific construction goals according to the dynamics of scientific and technological development, comprehensively improve the research level and decision-making level of the team, and fully bring into play the positive role of think tanks.

5.3. Innovating the Intelligence Service Platform

The think tank service platform, as a highly integrated user access portal, aims to provide convenient and efficient search and retrieval services. However, in practical applications, common issues such as low user utilization and insufficient service interactivity often exist. To address these issues, it is necessary to allow users to actively participate in services based on resource personalization tags, community sharing, allowing users to actively participate in services, obtain knowledge, order knowledge, and promote knowledge innovation. Users add tags to information resources to improve the quality of user retrieval and enhance users' knowledge collection, integrating knowledge tags and resource integration based on user tags. Combining users' habits, automatically extract and recommend tag keywords. Based on this, organize knowledge resources from the user's perspective, use cooperative tagging to create knowledge user groups, allowing users to participate more deeply in the creation process of knowledge resources, stimulating their innovative interaction enthusiasm, and jointly promoting the progress and development of knowledge.

5.4. Building an Evaluation Mechanism System

In the current think tank field, due to the uneven quality of some think tank products and even the existence of non-working phenomena, there is no think tank in the evaluation system. To improve the overall level of think tanks, it is necessary to strengthen the openness and transparency of the evaluation mechanism. For this purpose, in specific practice, introduce international commonly used peer review mechanisms, establish an open ideological market, and discuss scientific research results under the premise of not violating national laws and not infringing on personal privacy. Intelligence services should use relevant indicators to evaluate

the construction of think tanks and assess the role and impact of think tanks in public policy. Conduct statistics and rankings on citations of think tank reports to analyze and evaluate the effectiveness of think tank reports. By statistically ranking the citations of think tank reports, analyze and evaluate the effectiveness and impact of think tank reports, further evaluate the scientific nature and reliability of think tank achievements, clarify the main reasons for the relative backward development of think tanks, and explore the innovative paths of think tank structural mechanisms in combination with international think tank types and their product characteristics^[11-12].

6. Conclusion

Think tanks have received increasing attention, and as their influence grows, everyone's understanding of think tanks also varies. At this stage, there is no unified definition of think tanks. With the rapid development of society, think tanks have become more diverse in function, exerting a greater impact on government decision-making. However, compared to the functions of think tanks in Western countries, there is still a gap in the role played by the scientific and technological intelligence department, still having a very large room for improvement, requiring government departments to fully play a macro-guidance role in the course of future development. Scientific and technological intelligence services should also integrate with think tanks, deepen exchanges, strengthen cooperation, and through measures such as implementing improved information resource construction, enhancing professional talent quality, innovating intelligence service platforms, and building evaluation mechanism systems, promote the development of scientific and technological intelligence services towards higher quality and higher efficiency, meeting the needs of sustainable social development.

References

- [1] Chafuen, A. (2021). The Top Ranked Free-Market Think Tanks Today. Forbes. [https:// www.forbes.com/sites/alejandrochafuen/2021/02/15/the-top-ranked-free-market-think-tanks-today/](https://www.forbes.com/sites/alejandrochafuen/2021/02/15/the-top-ranked-free-market-think-tanks-today/)
- [2] Center for China and Globalization (CCG) (2021). CCG View. Newsletter.
- [3] Ladi, S. (2023). Think Tank. Encyclopedia Britannica.
- [4] Morillas, P. (2021). Connecting Politics and Society: A Way Forward for Think Tanks. In J. McGann (Ed.), *The Future of Think Tanks and Policy Advice around the World* (pp. 59-62). Palgrave Macmillan.
- [5] GIZ (2017). Trends and the Future of Development Cooperation. Deutsche Gesellschaft für International Zusammenarbeit (GIZ) GmbH.
- [6] Kuhn, B., & Margellos, D. (2022). Global Perspectives on Megatrends. *The Future as Seen by Analysts and Researchers from Different World Regions*. Ibidem.
- [7] Bertelsmann Foundation (2019). Megatrend-Report #1: The Bigger Picture. [https:// www.bertelsmann-stiftung.de/de/publikationen/publikation/did/the-bigger-picture-1](https://www.bertelsmann-stiftung.de/de/publikationen/publikation/did/the-bigger-picture-1)
- [8] Wang, H. (2021). Prospects and Possibilities for Think Tanks: A View from China's Non-Governmental Think Tank Sector. In J. McGann (Ed.), *The Future of Think Tanks and Policy Advice around the World* (pp. 217-224). Palgrave Macmillan.
- [9] United Nations (2003). *Thinking the Unthinkable. From Thought to Policy—The Role of Think Tanks in Shaping Government Strategy*. <https://shop.un.org/books/thinking-unthinkable-tho-1926>
- [10] Horn, L., Mert, A., & Müller, F. (2023). Introduction—The Qurative Turn in Global Politics. In L. Horn, A. Mert, & F. Müller (Eds.), *The Palgrave Handbook of Global Politics in the 22nd Century* (pp. 1-11). Palgrave Macmillan.

- [11] McGann, J. (2021). The Future of Think Tanks and Policy Advice around the World. Palgrave Macmillan. <https://doi.org/10.1007/978-3-030-60379-3>
- [12] The Economist (July 15, 2023). The Meticulous, Ruthless Preparations for a Second Trump Term.