Postprint of Strategies for Information Source Construction to Support Think Tank Research

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Abstract

[Purpose/Significance] The prerequisite for constructing high-level new-type think tanks and producing high-quality intellectual products lies in gaining comprehensive understanding of both internal capabilities and external environment through mastering effective information, thereby enabling environmental scanning, competitor monitoring, and effective strategy formulation. This study investigates the research models and information source construction strategies of internationally advanced think tanks to explore the significant role of information source development in think tank research and growth. [Method/Process] This research selects reference-worthy think tank institutions from the University of Pennsylvania' s "2015 Global Go To Think Tank Index" report, examining their front-end information sources, and employs case study methodology to conduct comparative analysis of information collection approaches across major institutions. [Results/Conclusions] Information source acquisition for think tanks encompasses two pathways: direct and indirect; information collection demonstrates three typical characteristics: multi-sourcedness, applicability, and cross-disciplinarity; and information source construction models include three types: task-oriented, cooperative introduction, and knowledge sharing. Information sources serve as crucial support for think tank research and constitute an important guarantee for enhancing research efficiency. Based on the current status of China' s think tank construction, this paper proposes information source construction strategies for domestic new-type think tanks to draw upon.

Full Text

The Strategy of Information Source Construction Supporting Think Tank Research

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Abstract

[**Purpose/Significance**] Constructing high-level new-type think tanks and producing high-quality intellectual products requires first understanding both oneself and one' s competitors, mastering effective information, and thereby discerning the environment, monitoring rivals, and formulating effective strategies. This study examines the research models and information source construction strategies of internationally advanced think tanks to explore the vital role of information source construction in think tank research and development. [**Method/Process**] Drawing upon the University of Pennsylvania' s *2015 Global Go To Think Tank Index Report*, we selected reference-worthy think tank institutions and analyzed their front-end information sources, employing case study methodology to compare and analyze the information acquisition approaches of major organizations. [**Result/Conclusion**] Think tanks employ two primary methods for information source acquisition: direct and indirect approaches, characterized by three distinctive features—multi-sourcing, applicability, and cross-disciplinarity. Information sources serve as crucial support for think tank research and constitute an important guarantee for improving research efficiency. Based on the current state of think tank construction in China, this paper proposes information source construction strategies that domestic new-type think tanks can adopt.

Keywords: think tank; think tank research; information sources; data; intelligence
Classification Number: G352

1 Introduction

Think tanks (also known as "idea banks," "brain trusts," or "advisory groups") primarily refer to independent, non-profit organizations that produce intellectual products and rely mainly on expert opinions and ideas to gain support and influence decision-making and policy formulation processes. Modern think tanks emerged in 19th-century Western countries as a result of increasingly specialized social division of labor and the scientification and democratization of decision-making. After more than a century of development, think tanks have become extensively involved in research on major public policies concerning economic and social development, environmental protection, and international competitive strategies, providing governments and commissioning agencies with a series of valuable information resources. Consequently, they have gained high priority from governments worldwide, attracted widespread attention from all sectors of society, and become a powerful voice in both domestic and international public discourse.

According to statistics from the University of Pennsylvania' s *2015 Global Go*

To Think Tank Index [1], there are 6,846 think tank institutions worldwide, spanning 198 countries and regions. The development of think tank ideas often requires robust information collection and intelligence analysis capabilities. Without information—or with inaccurate information—think tank research results become trees without roots, water without a source. Think tank intelligence support derives from comprehensive analysis and judgment of information resources. Therefore, information sources serve as the prerequisite and foundation for all think tank research activities. Particularly in the era of big data scientific research, reliable information sources not only directly relate to the quality of think tank output but have gradually become the key to the survival and development of think tank institutions.

2 The Value of Information in the Big Data Era

2.1 The Value of Information is Fully Recognized in the Big Data Era

As the hottest concept and topic today, the importance and irreplaceability of "big data" have been widely accepted and recognized. Intelligence research is no longer limited to pure literature; "information sources" have expanded to include internet information, databases, information systems, and multiple other channels. Information has become a fundamental production factor as important as physical assets and human capital. As raw material awaiting comprehension, information not only fails to be depleted through possession but also becomes continuously enriched and grows through use and dissemination. Elements originally hidden in information are also rediscovered and excavated as understanding of phenomena deepens. Therefore, recording and collecting raw data for research to explore the treasures within the "information gold mine" can help us more accurately understand the world, predict the future, and transform it.

2.2 Information Resources are the Lifeblood of Think Tank Research

Think tank research often requires substantial relevant data and information. For think tanks, the scale and vitality of data and information, as well as the ability to collect, analyze, and apply them, determine their core competitiveness. Think tank research addresses policy issues concerning national welfare and people' s livelihoods, requiring support from vast amounts of raw data and information. The application of these information resources in government and public service domains can effectively promote government work, improving service efficiency, decision-making levels, and social management capabilities.

2.3 Accurate and Reliable Information Enables More Efficient Decision-Making

Accurate and reliable information support helps think tanks make correct decision analyses. All things possess quantitative characteristics, and through objective and effective description, they can reflect the appearance and patterns of

development and change. During think tank construction, attention should be paid not only to the accumulation of original information but also to secondary information generated during the research process and the storage and sharing of research results [2]. All these can serve as important bases before think tanks conduct specific investigations. Only by obtaining the complete picture of information can think tank researchers rationally view the patterns of development and change, accurately analyze future trends, and thus make correct decisions [3].

3 Classification of Information Sources for Think Tank Research

All think tank work is built upon the analysis of authentic, objective materials. As users of information resources, think tanks must first collect relevant materials—including data, literature, charts, reports, and other rich media resources—for their knowledge reproduction process to proceed. The connotation of information sources in the broad sense is rich, encompassing not only various information carriers, storage, and transmission institutions but also various information production and processing institutions. UNESCO' s *Literature Terminology* defines it as: the source from which information is obtained to meet information needs [4]. The information sources studied in this paper include both practical information sources and the channels, approaches, and media for obtaining needed information, belonging to the broad sense of information sources [5]. This paper classifies think tank research information sources into two categories: direct and indirect sources, as shown in Figure 1 [Figure 1: see original paper].

3.1 Directly Obtained Information Sources

When assisting decision-making and providing new insights, ideas, and recommendations, think tanks face various complex domestic and foreign policy issues as well as problems encountered in the development of specific projects, plans, and products. Before conducting research, they often need to undertake extensive information investigation and data collection.

3.1.1 Survey-Based Information Sources As an important source for information collection, survey data are datasets accumulated by researchers through questionnaire surveys, direct interviews, and other methods for collection, selection, and statistical analysis. They possess universality, easy accessibility, and operability, and can produce research-oriented data with value-added benefits based on comprehensive analysis and research.

For example, Japan' s National Institute of Science and Technology Policy (NISTEP) [6] concentrates a significant portion of its efforts on the data survey module in its projects. As a think tank under Japan' s Ministry of Education, Culture, Sports, Science and Technology, this institute is also Japan' s only

national-level department specializing in soft science research on science and technology policy. It aims to explore fundamental theoretical issues concerning science and technology policy through international and interdisciplinary research, providing basic, scientific information and decision-making basis for national science and technology policy formulation in a timely manner [7].

The institute' s most widely applied information sources come from conventional survey and statistical data. A large part of its project efforts focus on long-term data survey modules. When implementing "Science and Technology Forecasting and Frontiers" research, information on the relationship between science and technology and social development was obtained through multi-angle surveys in questionnaire form, combined with interviews with both supply and demand sides of science and technology, to paint a beautiful blueprint of how science and technology can benefit society. Additionally, in the institute' s recently launched "Innovation and Intangible Assets" research field, large-scale statistical surveys were again used to quantitatively obtain technological innovation and industrial innovation conditions across countries and industries, initially establishing a database on intangible assets, innovation, and productivity for use by universities and research institutes.

Whether theory-oriented or policy-oriented research, when facing specific task requirements, the information source channel of data surveys or expert interviews is highly effective for quickly obtaining statistical materials on relevant research topics and holds high potential value.

3.1.2 Experimental Information Sources The experimental information sources mentioned in this section (including real-time dynamic monitoring information sources) refer to researchers obtaining a complete picture of data in specific research fields by establishing models and using scientific tools or experimental methods according to research objectives. This channel of information sources can yield large amounts of objective and authentic experimental information with clear quantitative indicators, facilitating researchers' controlled observation and analysis of certain phenomena. It is most frequently applied in studying the degree of change in Earth' s ecological environment and resource quality and quantity levels caused by human activities or artificial interventions.

For example, the World Resources Institute (WRI) [8], as an influential international environmental think tank, obtains a large portion of its research data resources from experimental information sources. The institute' s research activities are dedicated to exploring the common development of environment and socio-economics, covering six areas: climate, energy, food, forest resources, water resources, and sustainable urban development. It collaborates globally with governments, enterprises, and civil society to provide innovative solutions for protecting the Earth and improving people' s livelihoods.

WRI has established a dedicated "Maps & Data" module on its website, allowing quick searches for maps, datasets, infographics, or other visualization resources

in specific research fields. Most of these resources are trend statistical data with spatiotemporal characteristics, obtained through real-time monitoring and collection using high-resolution satellite imagery or remote sensing technology in cooperation with relevant institutions, while also providing materials for subsequent institutional knowledge base construction.

3.2 Indirectly Obtained Information Sources

Considering time and labor costs, in addition to self-collection or experimental monitoring as information sources, a large portion of think tank information resources is obtained through indirect data acquisition approaches. Making full use of existing databases, data infrastructure, professional statistical websites, library and intelligence institutions, and information resources released by international data cooperation projects not only expands information types but also enriches institutional information collection channels, ensuring the comprehensiveness of think tank research information sources.

3.2.1 Publicly Available Information Sources Against the big data backdrop, it is difficult for any single think tank to collect all relevant research materials independently. Statistical yearbooks and other materials published by statistical departments and government agencies comprehensively cover all sectors of the national economy, involving all aspects of society, culture, science and technology, and people's lives. They can reflect the appearance and patterns of development and change, effectively helping think tank researchers conduct quantitative and qualitative analyses of phenomena themselves and comprehensive analyses of different phenomena, enabling both horizontal comparison and vertical analysis to summarize history and predict the future.

Information products released by major foreign think tanks all rely on support from specialized statistical institutions and data platforms. For example, the RAND Corporation, established during World War II initially to serve the Air Force, gradually developed into a comprehensive think tank serving the entire U.S. federal government, providing information consulting and project forecasting on politics, military, economy, science and technology, and society. Its "Databases and Tools" content section integrates a large amount of external publicly available data resources, among which "RAND State Statistics" [9] integrates data resources released and compiled by U.S. national and local governments, various administrative agencies, statistical institutions, and national scientific research institutions affiliated with government or universities, such as the U.S. Census Bureau, Bureau of Labor Statistics, and Environmental Protection Agency. It covers data from 50 U.S. states across nearly 200 databases, with detailed local state databases added, encompassing 14 themes including population, health, business and economy, employment, energy and environment, and presenting these data resources from national, state, and municipal perspectives.

Meanwhile, publicly available information materials also include traditional

print media (books, journals, newspapers, yearbooks, encyclopedias) and news reports published on internet new media, policy reports released by government official websites or authoritative institutions, and relevant materials obtained from social media and other informal channels. Research shows that RAND Corporation' s information collection approaches are diverse and broad-minded. Scholars have specifically conducted bibliometric analysis of citations in RAND' s military research reports on China [10]. The citation information sources for such reports are primarily publicly issued sources, with particular emphasis on timely news information sources. Online news sources include central agency websites, authoritative news websites, and local government websites. Combined with other information sources, they provide dynamic and diverse information for think tank research activities on the basis of mutual supplementation in reliability, flexibility, and specificity, ensuring the quality of think tank research output.

3.2.2 Cooperative Construction or Purchased Information Sources Think tanks also cooperate with various economic information centers, information consulting institutions, and professional survey institutions to jointly build databases, enriching each other' s data resources and achieving win-win outcomes.

For example, the National Bureau of Economic Research (NBER) [11] is a private, non-profit, non-partisan research institution whose purpose is to promote deeper understanding of economic operations, dedicated to developing new statistical indicators, evaluating quantitative models of economic behavior, and analyzing the impact of public policy on the economy. The institute jointly created "The Boston Census Research Data Center" with the U.S. Census Bureau, providing statistical analysis of non-public census microdata.

Another example is the World Resources Institute' s (WRI) CAIT Climate Data Explorer platform [12], which compiles first-hand data provided by a series of authoritative organizations including the U.S. Department of Energy' s Carbon Dioxide Information Analysis Center, CIA World Factbook, Food and Agriculture Organization of the United Nations, International Energy Agency, World Bank, U.S. Census Bureau, U.S. Energy Information Administration, and U.S. Environmental Protection Agency. This platform provides free, open, and user-friendly climate and emissions data to global users. It is precisely this powerful information cooperation platform that enables the smooth implementation of various subsequent research projects.

Additionally, well-funded think tanks purchase databases provided by professional data vendors to enrich their institutional information sources. For example, GovLab [13], a think tank under Deloitte member firms focusing on public sector innovation, subscribes to Statista, the world' s largest statistical data portal, to explore and analyze current government challenges. This platform has over 18,000 data sources covering more than 170 industries and over 3,000 themes with more than 1 million English statistical records. Through such

professional database-provided information sources, basic data for research in the field can be obtained more quickly and effectively, facilitating comparative analysis and generating value-added effects.

3.2.3 Institutional Information Sources The institutional information sources mentioned in this section refer to internal libraries affiliated with think tank institutions. As the main venues for preserving and transmitting book materials and knowledge sharing, libraries inevitably become the primary information source for think tank literature research. In fact, some internationally renowned think tanks established library and information management departments at their founding to specifically serve researchers' scientific research and production. Moreover, based on years of accumulated research experience, think tanks have also established internal knowledge bases for organizing and preserving think tank output, which, to some extent, also serve as valuable reference information sources for future research. Table 1 summarizes the internal library construction profiles of internationally famous think tanks.

3.2.4 Other Indirect Sources In addition to the three indirect approaches mentioned above, there are also some scattered non-public information sources commonly used by think tanks in their research. For example, the Science and Technology Policy Institute (STEPI) in South Korea is a non-profit organization dedicated to research and development in science and technology policy and policy alternatives. The institute holds a science and technology policy forum every two weeks, aiming to activate policy choice discussions on major science and technology issues through open discussions, hoping to stimulate thinking on problems through brainstorming methods. The meeting records generated during these conferences have guiding significance and can also serve as textual basis for subsequent research. Meanwhile, the institute also holds international conferences at different levels irregularly. The materials exchanged at these professional academic seminars help the institute connect with international research communities, sharing information and data, experience and technology accumulated during South Korea' s economic development process, in hopes of narrowing the knowledge gap with developing and developed countries.

3.3 Typical Characteristics of Think Tank Research Information Sources

The above analysis demonstrates that multi-sourcing, applicability, and cross-disciplinarity are three typical characteristics of think tank research information sources. **Multi-sourcing:** Information is universal, and its sources are not limited to traditional libraries. In the information age, everything can become a potential information source. Think tank researchers obtain and grasp intelligence information anytime and anywhere with clear minds and keen information capture capabilities. **Applicability:** Although information is the source of think tank output, more information is not necessarily better for think tanks. They often focus on information resources most suitable for research and absorb

and utilize specific intelligence according to their own needs. Therefore, mastering targeted and applicable information is more meaningful for think tank research. **Cross-disciplinarity:** With scientific progress and socio-economic development, multi-dimensional perspective cross-fertilization has become increasingly common in think tank research, especially when studying the impact of various policies on economic activities and social progress, where the interdisciplinary nature of information sources is more prominently manifested.

4 Information Source Construction Models for Think Tank Research

The production of high-quality research results first depends on the integrity and accuracy of research data. Starting from their own research objectives and task requirements, think tanks have developed a relatively standardized information construction model. Although the specific construction models of information sources vary slightly among different think tank institutions, this paper extracts their commonalities and summarizes them into the following three models:

4.1 Task-Oriented Model

The uncertainty of the external environment provides numerous research opportunities for think tank institutions. The task-oriented information source construction model offers greater flexibility for small and medium-sized think tanks. After determining research objectives, team members can quickly pool relevant data and information while also adjusting strategies according to research plans. For example, the aforementioned National Institute of Science and Technology Policy (NISTEP) [20] divides its research activities into seven major areas including science and technology innovation policy research, science and technology system research, and major science and technology indicators. The survey-based first-hand data obtained are all collected based on research topics through questionnaire surveys, expert interviews, and large-scale statistical surveys.

4.2 Cooperation-Introduction Model

Different from the self-collection construction model of task-oriented information sources, the cooperation-introduction model mostly relies on existing data platforms, including statistical data compiled by national and local governments, various administrative agencies, statistical institutions, and national scientific research institutions affiliated with government or universities, as well as information resources released by various economic information centers, information consulting institutions, and professional data survey institutions. By leveraging such platforms and cooperating with them, think tank institutions not only ensure authentic and reliable information sources but also broaden their information collection channels. For example, the Food and Agriculture Organization of the United Nations, International Energy Agency, World Bank, and

U.S. Census Bureau have all established cooperative relationships with multiple think tanks mentioned above, ensuring the smooth implementation of various research projects.

4.3 Knowledge-Sharing Model

The think tank industry belongs to knowledge-intensive industries. More and more think tanks use knowledge management to enhance core competitiveness, with knowledge sharing being the key link. For some senior, well-established large think tank institutions, rich research data and experience have been accumulated through numerous research processes. Internal libraries, resource centers, and other institutions within think tanks provide convenient channels for knowledge sharing and become important sources of knowledge creation. For example, WRI' s self-built institutional repository is an accumulation of its own research data over the years. Researchers can quickly search for and locate maps, datasets, infographics, or other visualization resources in specific research fields through search boxes, greatly saving pre-research information search time and avoiding duplicate work. Similarly, the Brookings Institution Library, Hoover Institution Library & Archives, Stockholm International Peace Research Institute Library, Chatham House Library, International Institute for Strategic Studies Library, and German Institute for International and Security Affairs Library are all libraries affiliated with think tank institutions, representing knowledge-sharing information source construction models.

5 Recommendations for Domestic Think Tank Information Source Construction

Undoubtedly, information resources are the fundamental resources for think tank research and important support for research results. Ensuring smooth information acquisition channels for think tank research is of great significance for enhancing the overall strength of domestic new-type think tanks. Constructing and possessing proprietary, characteristic information sources is an important guarantee for a think tank to produce distinctive products different from other think tanks. Unfortunately, compared with the more systematic information source guarantees and planning of foreign think tank institutions, domestic institutions are slightly weaker in this aspect, possibly still in the planning and construction period or due to confidentiality considerations. Many institutions have not publicly disclosed the data and information foundations for their research, making it impossible to understand the current state of information sources for domestic think tank research.

This paper offers recommendations for domestic think tank information source construction from the following four aspects.

5.1 Emphasize Information Planning and Identify Information Sources

To ensure smooth information flow for think tank research and fully leverage the role of information resources, unified and comprehensive planning is essential. This requires think tanks to clearly understand project information needs and be familiar with multi-channel information sources to accurately locate information sources in project research.

5.2 Select Information Sources Based on Problems or Tasks

Think tanks are divided into different research modules based on their research and decision-making consulting service scope. They then collect and construct data and information resources in a problem/project-oriented manner, forming a streamlined information source service chain. During project and task implementation, accumulating and organizing collected and generated data resources can also be a strategy for information source construction. Starting from pre-project investigation of large amounts of project-related data resources, through mid-term generation of large amounts of survey, interview, and research data, to post-formation of data reports and their derivatives, this full-process data resource collection, organization, and description around projects is significant for data accumulation and reuse in related research and long-term tracking studies.

5.3 Combine Internal and External Information Sources, Utilize Both Primary and Regenerated Sources

For most think tanks in development stages, cooperating with government departments, statistical institutions, scientific research units, and database providers to enrich internal data resources is essential. When think tank institutions develop to a certain stage, they can organize and summarize results through self-built knowledge bases or libraries, while knowledge contributions from internal researchers can also be regarded as valuable hidden information sources. For well-funded, well-established think tanks, purchasing databases produced by professional data vendors for researcher use is an option. In short, information sources should be broadened as much as possible to extract useful intelligence from primary, secondary, and multi-hand information sources to support correct decision-making.

5.4 Integrate Multi-Source Information Construction

In the big data environment, various advanced information collection technologies and developed communication networks have brought massive information from multiple sources. To effectively manage and utilize these multi-source, heterogeneous, and massive information resources, real-time judgment, identification, and fusion are required to achieve multi-source information integration and sharing, thereby transforming information advantages into decision-making advantages.

6 Conclusion

With the adoption of the *Opinions on Strengthening the Construction of New-Type Think Tanks with Chinese Characteristics* at the sixth meeting of the Central Leading Group for Comprehensively Deepening Reform, the construction of new-type think tanks in China is in full swing. As an important component of national soft power, think tanks play an increasingly important role in promoting the modernization of national governance systems and capabilities. We must clearly recognize that think tank output largely depends on the information and intelligence materials they obtain. Therefore, think tanks must be adept at collecting and utilizing various information sources during development, concentrating wisdom from all aspects and mobilizing the broadest forces to truly help government departments achieve scientific decision-making. Meanwhile, all parties should fully leverage their functional advantages: statistical bureaus and data survey institutions should work together to build data platforms and other infrastructure to promote open access to data resources; library and intelligence institutions should actively participate in think tank construction by leveraging their literature resource advantages; and the establishment of integrated think tank research result databases should be proposed to achieve effective management and scientific utilization of think tank results. In short, the "front-end" role of information in think tank research cannot be underestimated. Only by broadening information sources and deeply excavating the potential value of information can we truly realize the function of think tanks serving scientific decision-making at different levels.

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Song Zhonghui: Proposed research ideas, conducted investigation, and wrote the initial draft.
Zheng Junwei: Guided article conceptualization and revised the final version.

Note: Figure translations are in progress. See original paper for figures.