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## Demand-Driven Think Tank Knowledge Service Methods: An Empirical Study (Postprint)

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### Abstract

[Objective/Significance] Demand has always been critical to enhancing service quality and standards. Exploring effective knowledge service modalities from a customer needs perspective holds significant importance for safeguarding the quality of knowledge services in think tanks and elevating their service levels and influence. [Method/Process] Through literature review, we summarize the types of customer demands for think tank knowledge services and the corresponding service modalities. Employing questionnaire surveys, we collect data from two customer cohorts—government officials and the general public—to analyze their awareness levels of think tank knowledge services, demand intensity, and preferences for service modalities. Furthermore, we utilize a partial least squares regression model to examine the relationship between customer demands and knowledge service modalities in think tanks. [Results/Conclusion] Government officials demonstrate significantly higher awareness of think tank knowledge services compared to the general public; moreover, government officials are more familiar with party-affiliated think tanks, whereas the general public shows greater familiarity with university-based think tanks. The intensity of customer demands for think tank knowledge services, in descending order, comprises talent support, policy research, decision-making consultation, and public opinion guidance. Customer preferences for different knowledge service modalities, from highest to lowest, are public media, public publishing, offline exchange, and internal cooperation. Additionally, various knowledge service demands of customers exert positive and significant influences on different knowledge service modalities of think tanks.

## Full Text

### Empirical Research on Think Tank Knowledge Service Modes Based on Client Requirements

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**Abstract:** [Purpose/Significance] Requirement has always been the key to improving service quality and standards. Exploring effective knowledge service modes from the perspective of client requirements is of great significance for guaranteeing the quality of think tank knowledge services and enhancing their service levels and influence. [Method/Process] Through literature review, this paper summarized the types of client requirements for think tank knowledge services and the knowledge service modes of think tanks. A questionnaire survey was conducted to collect data from two client groups: government employees and the general public. The survey analyzed clients' cognition degree, requirement intensity, and service mode selection intention for think tank knowledge services, and examined the relationships between client requirements and knowledge service modes using a partial least squares regression model. [Result/Conclusion] Government employees' cognition degree of think tank knowledge services is significantly higher than that of the general public. Moreover, government employees are more familiar with party and government think tanks, while the general public is more familiar with university think tanks. The intensity of client requirements for think tank knowledge services, from high to low, is: talent support, policy research, decision-making consultation, and public opinion propaganda. Clients' willingness to choose different knowledge service modes, from high to low, is: open media, open publication, offline communication, and internal cooperation. Furthermore, various knowledge service requirements of clients positively and significantly influence different knowledge service modes of think tanks.

**Keywords:** think tanks; knowledge service; service mode; client requirements; relationship; PLS model

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Think tanks are policy research and consulting institutions composed of experts with clear research directions and interdisciplinary backgrounds. Based on knowledge acquisition, development, utilization, and innovation, they provide decision-makers with optimal theories, strategies, methods, and ideas for handling complex problems [1]. In recent years, global think tanks have continued to develop, with both the number and influence of Chinese think tanks growing steadily. According to statistics, there were 8,162 think tanks worldwide in 2018, representing a 4.4% increase from 2017. Among them, China had 507 think tanks, ranking third in quantity, but only 8 Chinese think tanks were included in the global top 100 list [2]. Although Chinese think tanks are

increasingly improving in terms of government decision-making participation, international exchanges, enhanced cooperation, and the professionalization of research outputs, they still face shortcomings such as research lagging behind practical development and decision-making requirements, as well as international situations [4], and lack high-quality think tanks with significant influence and international reputation [3]. Knowledge service modes are important means and tools for think tanks to conduct policy research and decision-making consultation activities and to establish connections with clients. Exploring effective knowledge service modes is crucial for ensuring the quality of think tank knowledge services and improving the service levels and influence of Chinese think tanks. The disconnect between supply and demand is a practical difficulty in think tank knowledge services [5]. Therefore, this study examines client requirements, analyzes differences in clients' cognition degree, requirement intensity, and service mode selection intention through questionnaire surveys, and explores the relationships between client requirements and think tank knowledge service modes.

## 1 Research Foundation and Problem Statement

Government and the general public are the two major client groups for think tank knowledge services [6], with different groups having diverse knowledge service requirements.

### 1.1 Think Tank Knowledge Service Requirements

Meeting user and client requirements has always been the primary goal for information and knowledge services in libraries and information institutions [7-8], public service agencies [9], and knowledge-intensive service enterprises [10]. Satisfying the needs of decision-makers and the public plays an important role in enhancing think tank influence [11]. Based on relevant research, client requirements for think tank knowledge services can be categorized into four main types: policy research, decision-making consultation, public opinion propaganda, and talent support.

**Policy research requirements** refer to clients' needs for think tanks to provide professional, objective, and scientific forward-looking policy research outcomes. Meeting these requirements is one of the primary functions of think tank knowledge services [12]. For instance, think tanks need to conduct long-term international policy research, focusing on long-term development trends brought about by demographic and technological changes to meet government strategic needs [13]; through forward-looking research, they can form unique national governance ideas and development strategies to influence government decision-making [5]; and by leveraging various policy research outcomes, they can intervene in the policy formulation process to exert their professional influence [14].

**Decision-making consultation requirements** refer to clients' needs to ob-

tain policy suggestions, consulting solutions, policy implementation plans, and evaluation results for specific problems from think tanks. Influenced by the increasing demand for political advice within government and regional differences in knowledge capabilities, think tanks play dual roles as government consultants or regional public advocates [12]. Governments increasingly value suggestions from external institutions such as think tanks, consulting companies, and policy researchers, with government decision-making consultation systems showing characteristics of externalization [15-16]. Theoretical research has also found it particularly necessary for governments to purchase high-quality decision-making consulting services from social think tanks [17].

**Public opinion propaganda requirements** refer to clients' needs for think tanks to grasp public opinion trends, disseminate policy viewpoints, and guide social 舆论 through various channels. Governments and the public obtain think tank knowledge outcomes through appropriate information transmission channels [14], such as learning about think tank professional viewpoints and research outcomes from the internet [18]; acquiring relevant policy data, information, and viewpoints by searching for articles on specific topics published by think tanks in media or authoritative expert opinions, or through informal communication channels and relationships with key participants [19-20]; understanding public opinion trends through think tank outcomes and viewpoints [21]; and disseminating policy viewpoints and guiding social 舆论 through think tanks' international communication capabilities and external discourse systems [22].

**Talent support requirements** refer to clients' needs to leverage think tank expert intelligence to carry out practical work and cultivate their own organizational talent. For example, clients need think tank experts to serve multiple roles as academic researchers, policy-making assistants, entrepreneurs, and media professionals to obtain various types of professional talent support [23]; by strengthening connections with talent teams from renowned think tanks such as the Brookings Institution and RAND Corporation, they can promote the sharing and dissemination of tacit knowledge [24-26]; and by participating in multi-faceted talent cultivation programs such as professional degrees, short-term training, and internship positions established by think tanks, they can cultivate think tank talent for themselves [27-28].

In summary, client requirements for think tank knowledge services are diverse. Foreign research typically combines typical case analyses from countries such as the United States, Canada, China, and New Zealand to examine think tank functions and roles oriented toward specific client requirements. Domestic research more often employs theoretical analysis and draws on foreign experiences to discuss the characteristics of think tank client requirements. However, both domestic and foreign research lack empirical studies on think tank client requirements.

## 1.2 Think Tank Knowledge Service Modes

To meet diverse client knowledge service requirements, think tanks adopt various service modes to establish close connections with government employees and the general public, deliver knowledge outcomes, and enhance influence. As early as 2003, foreign scholars began paying attention to think tank knowledge service modes. For example, A. M. McCright and R. E. Dunlap used website surveys, information tracking, and research report analysis to discover that conservative think tanks primarily influence policy-making through publishing literature, delivering speeches, sponsoring policy forums and conferences, establishing elite teams, publishing expert research reports, and attending public activities [29]. A. S. Krymskaya found that establishing strong expert teams and employing scientific analysis methods can ensure the professionalization of think tank research [30]. X. Zhu categorized think tank roles into three types through survey research: advisors, academics, and advocates. Advisors generally adopt service modes such as conducting government-funded project research, participating in consultation meetings, short-term positions in government departments, and offering training courses; academics adopt modes such as publishing academic papers, journal articles, research reports and books, holding academic conferences and seminars, and providing education and training; advocates adopt modes such as publishing mass media articles, establishing websites, accepting media interviews, and posting blogs [12,31]. J. D. Kelsrup divided German and British think tank knowledge service modes into three categories: publishing (books, reports, journals, policy briefs, etc.), holding events, and media communication (websites, newspapers, etc.), noting that funding sources and media environments affect think tank service modes [32]. S. Bennett found that health field think tank knowledge services are driven by government or donor requirements, with research reports and briefs as the main outcome forms [33]. Domestic scholars have mainly analyzed service strategies [34] and service models [35] of different think tank types from a theoretical perspective. Some scholars have also focused on think tank knowledge service modes. Zou Yian analyzed successful experiences of foreign think tanks and found that publishing numerous research outcomes (papers, monographs, reports, etc.), holding lectures, publishing viewpoint articles in newspapers and magazines, and strengthening personnel training are all important ways to enhance think tank influence [36]. Wan Yi summarized diverse offline communication modes of American think tanks, including attending government hearings, accepting interviews, and organizing exchange meetings [21]. Wen Shaobao pointed out that university think tanks should influence public opinion through decision-making consultation submission channels, paper media, online media, and other public publication channels, as well as offline communication modes such as holding forums and conferences [5]. This study synthesizes relevant research to categorize think tank knowledge service modes into four types: open publication, open media, internal cooperation, and offline communication, as shown in Table 1 .

In summary, foreign research has paid attention to knowledge service modes of

think tanks in different countries, fields, and types, mainly summarizing their knowledge service modes and influencing factors based on think tank practices. Domestic research has mainly used theoretical analysis and survey data to analyze think tank service strategies and development paths from a macro perspective. However, domestic research still lacks attention to think tank knowledge service modes, and both domestic and foreign research rarely studies think tank knowledge service modes oriented toward client requirements.

This study starts from client requirements and uses questionnaire surveys to conduct empirical research on think tank knowledge service modes, addressing three research questions:

Research Question 1: What are the client requirements for think tank knowledge services?

Research Question 2: What are the knowledge service modes that clients are willing to choose?

Research Question 3: What is the relationship between client requirements and think tank knowledge service modes?

## 2 Questionnaire Design and Data Collection

### 2.1 Questionnaire Design

To explore the proposed research questions, this study designed a survey questionnaire on think tank knowledge service requirements and modes. The questionnaire consists of four parts: The first part covers demographic characteristics; the second part examines clients' cognition degree of think tank knowledge services and measures their requirement intensity. It begins with a screening question: "In your work, study, or daily life, have you ever been exposed to think tank knowledge services?" Those who have never been exposed skip directly to the end of the questionnaire to ensure data quality. For respondents who have been exposed, the questionnaire asks about the types of think tanks they have encountered and uses a 5-point Likert scale to measure their requirement intensity for four knowledge service types, with scores from 1-5 representing "very unnecessary," "relatively unnecessary," "neutral," "relatively necessary," and "very necessary." The third part measures clients' selection intention for different knowledge service modes, also using a 5-point Likert scale (1-5 representing "very unwilling," "relatively unwilling," "neutral," "relatively willing," and "very willing"), with multiple-choice questions to identify which service modes respondents have used. The variables and specific items for knowledge service requirements and modes are shown in Table 2. The fourth part consists of open-ended questions to gather respondents' suggestions on knowledge service modes for new types of think tanks with Chinese characteristics.

### 2.2 Pre-test

After questionnaire design, a pre-test was conducted with participants including one think tank research professor, one think tank expert, and eight doctoral

students engaged in think tank research and work. They were asked to evaluate the necessity and usefulness of questionnaire items and the reasonableness of scale levels. Participants also assessed the accuracy and comprehensibility of questionnaire content. Based on their feedback, the logical relationships, scale settings, and wording of questionnaire content were adjusted.

### 2.3 Data Collection

The survey was conducted online through the Wenjuanxing platform, combining a “snowball” approach via WeChat forwarding with Wenjuanxing’s sample service to collect data from government employees and the general public. Data collection took place from May 9-27, 2019, with 392 questionnaires returned. After identification and screening, questionnaires with all identical answers or more than one missing value in the second and third parts were considered invalid. Ultimately, 347 valid questionnaires were retained, yielding a recovery rate of 88.78%.

## 3 Survey Results Analysis

This study first analyzed descriptive statistics to confirm the rationality of sample distribution, then conducted reliability and validity tests to assess data reliability and validity. Based on these analyses, the survey data were further examined around the three research questions using non-parametric tests and partial least squares regression models.

### 3.1 Descriptive Statistical Characteristics

The demographic characteristics of survey samples are shown in Table 3 . In terms of gender, the number of male and female respondents was similar. The majority were under 39 years old, with educational backgrounds primarily at the undergraduate level or below and master’s degree level. Position levels were mainly intermediate. The sample included roughly equal proportions of government employees and general public. Government employees’ positions included comprehensive management, professional technical, administrative law enforcement, and scientific research categories. The general public came from various sectors including education, manufacturing, internet, finance, and students. Geographically, respondents came from 30 provincial-level administrative regions nationwide, primarily from Beijing (26.2%), followed by Henan (8.65%), and then Guangdong, Shanghai, Hubei, Liaoning, Hebei, Jiangsu, etc.

To ensure data analysis reliability, except for the analysis of cognition degree of think tank knowledge services, other analyses used only data from respondents who had been exposed to think tank knowledge services. The demographic distribution of respondents who had been exposed to think tank knowledge services was generally similar to that of all respondents, with the only difference being in client type, as more general public respondents had never been exposed

to think tank knowledge services. Overall, the sample distribution was relatively balanced and representative (see Table 3).

### 3.2 Reliability and Validity Analysis

To analyze the reliability and validity of this survey sample, reliability and validity tests were conducted on valid data from respondents who had been exposed to think tank knowledge services. Reliability refers to consistency—the degree to which similar methods produce similar results when measuring similar things [37]. This study tested reliability using Composite Reliability (CR). Validity refers to the effectiveness of a measurement tool in accurately reflecting research objectives and results, including content validity and construct validity [37]. The questionnaire items were primarily based on existing literature and designed in combination with online surveys of think tanks, thus possessing content validity. Construct validity was tested through convergent validity and discriminant validity.

Test results showed that the composite reliability of knowledge service requirement variables and knowledge service mode variables all exceeded the critical value of 0.7, meeting reliability requirements (see Table 4), indicating that measurement items for each variable consistently explained the variable. Analysis results showed that all factor loadings were greater than the critical value of 0.7, and all Average Variance Extracted (AVE) values were greater than 0.5, indicating satisfactory convergent validity of the measurement model. Discriminant validity reflects the correlation between measurement items of different variables. The evaluation criterion is that the square root of each variable's AVE must be greater than the correlation coefficient between that variable and other variables. Test results all met requirements, indicating good discriminant validity of measurement variables, as shown in Table 5.

### 3.3 Client Cognition Degree and Requirement Intensity for Think Tank Knowledge Services

**3.3.1 Client Cognition Degree** Overall, 64.55% of respondents had been exposed to think tank knowledge services, indicating a moderate general cognition degree. Between the two client groups, exposure rates were 82.42% for government employees and 48.35% for the general public. Chi-square test results showed that government employees' cognition degree was significantly higher than that of the general public ( $X^2=42.431$ ,  $df=1$ ,  $p<0.001$ ). Specifically, among government employees, the largest proportion (33.33%) reported “sometimes contacting” think tank knowledge services, followed by “frequently contacting.” Among the general public, the largest proportion (51.65%) reported “never contacting,” followed by “occasionally contacting” (see Table 6). Clearly, the general public's cognition degree is far lower than that of government employees.

Examining clients' understanding of different think tank types, research insti-

tute think tanks were the most frequently encountered. Comparatively, government employees were most familiar with party and government think tanks, followed by research institute think tanks; the general public was most familiar with university think tanks, followed by research institute think tanks. Significant differences existed between the two client groups in their understanding of different think tank types, as shown in Figure 1 [Figure 1: see original paper].

**3.3.2 Client Requirement Intensity** Based on literature review, client requirements for think tank knowledge services fall into four main types: policy research, decision-making consultation, public opinion propaganda, and talent support. To further analyze requirement intensity for various knowledge services, this study calculated the average of all factors for each requirement type as the variable value and conducted statistical tests. Since data on client requirements for think tank knowledge services did not follow a normal distribution, non-parametric tests were applied to verify differences in requirement intensity between government employees and the general public, with non-significant results. Therefore, the two groups were combined to compare mean differences among the four knowledge service requirements.

Mean values showed that intensity scores for all four requirement types fell between 3.6-3.9, indicating high client requirements for all four types of knowledge services (see Table 7). Kruskal-Wallis test results showed significant differences among the four types of knowledge service requirements ( $X^2=16.43$ ,  $df=3$ ,  $p<0.001$ ). As shown in Table 7, client requirement intensity for think tank knowledge services, from high to low, is: talent support, policy research, decision-making consultation, and public opinion propaganda.

### 3.4 Client Selection Intention for Think Tank Knowledge Service Modes

Similarly, the average of all factors for each service mode variable was calculated as the selection intention value to determine the popularity of various knowledge service modes. Test results first showed no significant differences between government employees and the general public, so they were treated as one population to calculate differences among service modes. Descriptive statistics are shown in Table 8. Overall, selection intention values for the four knowledge service modes fell between 3.6-4.0, indicating clients were relatively willing to choose these service modes to obtain think tank knowledge outcomes. Kruskal-Wallis test results showed significant differences among service mode selection intentions ( $X^2=12.278$ ,  $df=3$ ,  $p<0.01$ ). Clients' willingness to choose think tank knowledge service modes, from high to low, is: open media, open publication, offline communication, and internal cooperation.

This study also investigated which think tank knowledge service modes clients had used. Over 77% of clients had used two or more knowledge service modes. Specifically, the frequency of clients having used the four knowledge service modes, from high to low, is: open publication, internal cooperation, open me-

dia, and offline communication, as shown in Figure 2 [Figure 2: see original paper]. Open publication was the most widely used knowledge service mode, with 42.07% of respondents having used it. Similar proportions had used internal cooperation (38.90%) and open media (37.75%). The least used was offline communication (29.97%). Clearly, clients not only have weak selection intention for offline communication but also use it relatively infrequently.

### 3.5 Relationship Between Client Requirements and Knowledge Service Modes

Based on satisfactory reliability and validity of measurement variables, this study used Partial Least Squares (PLS) to analyze the relationship between client requirements and knowledge service modes. The PLS algorithm is a regression modeling method for multiple dependent variables and multiple independent variables, suitable for analysis modeling with small to medium sample sizes [38], meeting this study's analytical needs. The Bootstrap resampling method was used for significance testing of the regression model, with 1,000 repetitions. Results showed that client requirements had  $R^2$  values of 0.322, 0.352, 0.451, and 0.496 for open publication, open media, internal cooperation, and offline communication respectively, indicating that client requirements have certain predictive effects on think tank knowledge service modes. Path coefficients and significance levels of the research model are shown in Figure 3 [Figure 3: see original paper].

Table 9 shows specific relationship test results. Clients' policy research requirements positively and significantly influence their selection intention for open publication, open media, and offline communication, but not for internal cooperation. Clients' decision-making consultation requirements only positively and significantly influence their selection intention for internal cooperation. Clients' public opinion propaganda requirements positively and significantly influence their selection intention for open media and offline communication, but not for open publication or internal cooperation. Clients' talent support requirements positively and significantly influence their selection intention for open media, internal cooperation, and offline communication, but not for open publication.

## 4 Discussion of Results

Survey results reveal significant differences in clients' cognition degree, requirement intensity, and service mode selection intention for think tank knowledge services, with client requirements positively and significantly influencing knowledge service mode selection intention.

**(1) Significant differences exist between different client groups in cognition degree and requirement intensity.** Chi-square test results show that government employees' cognition degree of think tank knowledge services is significantly higher than that of the general public. Meanwhile, government employees are more familiar with party and government think tanks, while

the general public is more familiar with university think tanks. However, for both client groups who understand think tank knowledge services, no significant differences exist in their requirement types, indicating that both government departments and the general public need think tank knowledge services. Yet think tanks are typically considered as serving government decision-making, and most of the general public has no opportunity to access or understand them. Over 20 respondents suggested in open-ended questions that think tanks should strengthen publicity efforts and improve the openness of their knowledge services to allow more people, especially the general public, to understand and participate in think tank knowledge services. Therefore, strengthening promotion and conducting open knowledge services to enhance public understanding should be the primary strategy for improving the influence of Chinese think tanks among the general public.

Regarding specific think tank knowledge service requirement types, clients have high requirements for all four types, with intensity from high to low being: talent support, policy research, decision-making consultation, and public opinion propaganda. Clearly, cultivating professional think tank talent and conducting high-quality scientific research are the most urgent client requirements and should be important tasks for think tank knowledge services. Although current Chinese think tank construction emphasizes policy research, decision-making consultation, and expert influence, it lacks a sound talent cultivation mechanism [28] and neglects public opinion propaganda aimed at the general public. It is recommended that Chinese think tank knowledge services should be grounded in reality, meeting diverse client requirements by improving the professionalism of talent cultivation, the forward-looking nature of scientific research, the relevance of consulting suggestions, and the convenience of public opinion propaganda.

**(2) Significant differences exist in clients' selection intention for different think tank knowledge service modes.** Non-parametric test results show that clients have relatively high willingness to choose different knowledge service modes, but significant differences exist. The open media mode is convenient and timely, unrestricted by time and space, allowing clients to subscribe to and access online media or traditional media anytime and anywhere to obtain information and knowledge provided by think tanks, making it the most preferred knowledge service mode. With the popularization and development of information technology, service platforms such as official websites, apps, and social media are receiving more attention from think tanks. Existing research shows that globally renowned think tanks widely use social media platforms such as Facebook, Twitter, YouTube, and LinkedIn to conduct policy knowledge services; domestic think tanks mainly use Weibo and WeChat, but the adoption rate is relatively low [39]. It is recommended that Chinese think tanks should pay attention to the important role of social media in exerting social influence [40], combining websites, self-developed apps, social media, and other platforms to increase online activity and enter the public view in more fields and platforms [41].

Open publication includes publishing books, journal articles, and professional research reports. It is the most widely used knowledge service mode in survey results, and clients also show strong selection intention. Publishing research outcomes in a formal, authoritative manner is an important channel for demonstrating think tank research levels and a key indicator for evaluating think tank influence [42]. Both domestic and foreign think tanks regularly publish various research outcomes. Foreign think tanks have high openness in their research outcomes, allowing clients to freely access full texts of research reports and articles through open channels, while most domestic think tanks only publicly release abstracts and tables of contents, resulting in lower openness. It is recommended that Chinese think tanks should regularly publish research outcomes, share policy research data, innovative research methods, and forward-looking research results to maintain academic influence and promote knowledge sharing and cooperation.

Internal cooperation and offline communication require offline interaction between clients and think tank personnel, involving significant time costs and numerous participants. Therefore, survey results show weaker client selection intention for these two modes compared to the former two. However, these two modes enable close contact between think tank personnel and clients, serving as important means for close-range communication and knowledge exchange that facilitate understanding client requirements and direct communication on specific issues. In practice, cooperative project research, the “revolving door mechanism,” and talent cultivation programs are important pathways for conducting internal cooperation; academic forums and symposiums are also very common in think tank knowledge service activities. It is recommended that Chinese think tanks should further strengthen the depth of internal cooperation and expand the breadth of offline communication to promote extensive cooperation and exchange among different institutions including governments, think tanks, research institutes, and enterprises worldwide.

**(3) Client requirements for think tank knowledge services positively and significantly influence service mode selection intention.** Partial least squares model analysis reveals that various knowledge service requirements of clients positively and significantly influence their selection intention for different knowledge service modes.

The path coefficients of clients’ policy research requirements on think tank knowledge service modes, from high to low, are: open publication, offline communication, and open media. This indicates that formal, standardized open publication is the most common mode for meeting policy research requirements, while offline communication and open media can disseminate knowledge outcomes to different client groups through direct or indirect means. The Brookings Institution and other research-oriented think tanks in the United States disseminate their knowledge outcomes through academic forums, official websites, and social media while publishing research results.

Clients’ decision-making consultation requirements only positively and signifi-

cantly influence internal cooperation. Because decision-making consultation requirements involve specific problems for which client institutions seek consulting suggestions and solutions, internal cooperation can help think tanks accurately grasp client institutions' problem requirements through close collaboration and provide effective solutions. For example, the Development Research Center of the State Council completed 45 research tasks assigned by the Party Central Committee and the State Council in 2018 through internal cooperation, focusing on specific issues [43].

Clients' public opinion propaganda requirements positively and significantly influence open media and offline communication. The survey found that both open media and offline communication can promote large-scale information and knowledge dissemination, with open media primarily targeting the general public client group and offline communication mainly targeting government-related client groups. For instance, renowned think tanks such as the French Institute of International Relations and the Chinese Academy of Social Sciences hold hundreds of academic exchange activities annually, while well-known think tanks like the Brookings Institution and the Chinese National School of Administration release over 10 updates daily on social media platforms, timely delivering ideas, viewpoints, and knowledge outcomes to clients to promote intellectual exchange and thereby guide social public opinion and influence government decision-making.

The path coefficients of clients' talent support requirements on think tank knowledge service modes, from high to low, are: open media, internal cooperation, and offline communication. From the perspective of client selection intention, talent support requirements are closely related to open media, indicating that think tank experts' media image is very important for meeting client requirements. Think tank experts are key participants in influencing decision-making [44]. For example, renowned experts from well-known think tanks such as the International Institute for Strategic Studies and Chatham House in the UK have established proprietary accounts on Facebook and Twitter platforms to output multi-domain viewpoints and knowledge to clients, forming online academic networks and exerting expert influence. Meanwhile, think tank talent cultivation programs such as degree programs and short-term training, as well as talent exchange activities such as seminars and lectures, are also effective ways to meet client talent support requirements.

In summary, it is recommended that Chinese think tanks should increase publicity and promotion through various service modes to improve public cognition and enhance requirement awareness; clarify the roles of different service modes, emphasize social media application, improve the openness of academic outcomes, and promote international exchange and cooperation; focus on the diverse and dynamic requirements of different client groups, select effective service modes according to their own professional service positioning and target client requirements, provide high-quality and high-level knowledge services, and continuously expand think tank influence.

Requirement has always been the key to improving service quality and standards. This study, from the perspective of client requirements, summarized types of client requirements and service modes for think tank knowledge services through literature review, conducted questionnaire surveys among government employees and the general public, identified differences in these two client groups' cognition degree, requirement intensity, and service mode selection intention, and analyzed the relationships between client requirements and think tank knowledge service modes. The study found that the general public has low cognition degree of think tank knowledge services, government employees are more familiar with party and government think tanks, while the general public is more familiar with university think tanks; clients have high requirements for all types of think tank knowledge services, with intensity from high to low being talent support, policy research, decision-making consultation, and public opinion propaganda; clients also have high selection intention for different knowledge service modes, from high to low being open media, open publication, offline communication, and internal cooperation, and various knowledge service requirements of clients positively and significantly influence different knowledge service modes of think tanks. These findings have practical significance for guiding Chinese think tank knowledge service work and provide an empirical foundation for subsequent exploration of think tank knowledge service development mechanisms oriented toward client requirements.

This study has limitations, such as the lack of investigation into the requirement types and service mode selection intention of potential clients who have “never been exposed to” think tanks.

## References

- [1] Geng Ruili, Shen Jing. Construction and application of think tank knowledge management model based on open innovation [J]. *Library and Information Service*, 2020, 64(10): 46-55.
- [2] McGann JG. 2018 Global go to think tank index report [R/OL]. [2019-06-28]. <https://www.gotothinktank.com/global-go-to-think-tank-index>.
- [3] Shanghai Academy of Social Sciences Think Tank Research Center. 2018 China think tank report [R/OL]. [2019-06-28]. <http://www.pjzgzk.org.cn/upload/file/20190320/2019032011044>
- [4] General Office of the CPC Central Committee, General Office of the State Council. Opinions on strengthening the construction of new types of think tanks with Chinese characteristics [EB/OL]. [2019-07-12]. [http://www.gov.cn/xinwen/2015-01/20/content\\_{2807126}.htm](http://www.gov.cn/xinwen/2015-01/20/content_{2807126}.htm).
- [5] Wen Shaobao. The logical starting point, difficulties, and strategies of university think tank services for government decision-making—From the perspective of modernizing national governance capability [J]. *China Higher Education Research*, 2015(1): 34-38.
- [6] Li Yongxian, Lü Chengcheng. Research on think tank public opinion influence based on stakeholder theory [J]. *Information and Documentation Services*, 2018(1): 39-44.

- [7] Shelburne WA. E-book usage in an academic library: User attitudes and behaviors [J]. *Library Collections, Acquisitions, and Technical Services*, 2009, 33(2/3): 59-72.
- [8] Cao Shujin, Chen Yijin, Yang Tao. Empirical research on library user satisfaction based on user requirements [J]. *Journal of Library Science in China*, 2013, 39(5): 60-75.
- [9] Verdegem P, Verleye G. User-centered e-government in practice: A comprehensive model for measuring user satisfaction [J]. *Government Information Quarterly*, 2009, 26(3): 487-497.
- [10] Cao Yong, She Shuo, Nagakubo Takeshi. Research on the role of knowledge-intensive service industries in Japanese manufacturing enterprises' innovation from the client perspective [J]. *Journal of Intelligence*, 2010, 29(2): 85-90, 108.
- [11] Bai Bicheng. Consulting requirements, intellectual products, and communication capability: An analytical framework for think tank influence [J]. *Learning Forum*, 2015, 31(9): 51-55.
- [12] Zhu X. Government advisors or public advocates? Roles of think tanks in China from the perspective of regional variations [J]. *China Quarterly*, 2011, 207(207): 668-686.
- [13] McKinlay P. Bridging a strategic gap: A think tank for local government in New Zealand [J]. *Asia Pacific Journal of Public Administration*, 2016, 38(2): 131-137.
- [14] Gong Huilian. Research outcomes, transmission channels, and university think tank governance research [J]. *Library and Information Service*, 2017, 61(2): 121-128.
- [15] Craft J, Howlett M. The dual dynamics of policy advisory systems: The impact of externalization and politicization on policy advice [J]. *Policy & Society*, 2013, 32(3): 187-197.
- [16] Vesely A. Externalization of policy advice: Theory, methodology and evidence [J]. *Policy & Society*, 2013, 32(3): 199-209.
- [17] Ren Heng. Government purchase of social think tank services: Implementation mechanism, operational difficulties, and promotion strategies [J]. *Hubei Social Sciences*, 2017(8): 40-46, 123.
- [18] McNutt K, Marchildon G. Think Tanks and the Web: Measuring visibility and influence [J]. *Canadian Public Policy*, 2009, 35(2): 219-236.
- [19] Lalueva F, Girona R. The impact of think tanks on mass media discourse regarding the economic crisis in Spain [J]. *Public Relations Review*, 2016, 42(2): 271-278.
- [20] Arshed N. The origins of policy ideas: The importance of think tanks in the enterprise policy process in the UK [J]. *Journal of Business Research*, 2017(71): 74-83.
- [21] Wan Yi. China's think tank construction urgently needs to align with era development and national strategy [J]. *Finance Forum*, 2015, 20(9): 9-17.
- [22] Wang Mei. Think tank international communication and construction of external discourse system [J]. *Journal of Xinjiang Normal University (Philosophy and Social Sciences Edition)*, 2015, 36(6): 94-100, 2.
- [23] Medvetz T. "Public policy is like having a vaudeville act": Languages of

- duty and difference among think tank-affiliated policy experts [J]. *Qualitative Sociology*, 2010, 33(4): 549-562.
- [24] Cao Ruzhong, Liang Yali, Song Yawen, et al. International comparison of think tank construction models and their implications [J]. *Information Studies: Theory & Application*, 2017, 41(5): 97-103.
- [25] Ke Yinbin, Lü Xiaoli. How are think tanks made?—Case studies on the internationalization of foreign think tanks [M]. Nanjing: Jiangsu People's Publishing House, 2016.
- [26] Zhao Rongying, Guo Fengjiao, Qiu Junping. Development of RAND Corporation and its implications for China's think tank construction [J]. *Journal of Chongqing University (Social Science Edition)*, 2016, 22(2): 125-131.
- [27] Chen Yingxia, Liu Hao. Research on personnel allocation and management models of top American university think tanks—Taking Stanford University's Hoover Institution as an example [J]. *Comparative Education Review*, 2014, 36(2): 66-71.
- [28] Shen Jing, Zhang Lu, Liu Ying. Preliminary exploration of social think tank talent mechanisms [J]. *China Science and Technology Resources Review*, 2019, 51(1): 92-102.
- [29] McCright AM, Dunlap RE. Defeating Kyoto: The conservative movement's impact on US climate change policy [J]. *Social Problems*, 2003, 50(3): 348-373.
- [30] Krymskaya AS. Information and analysis centers in the system of state-level decision making [J]. *Herald of the Russian Academy of Sciences*, 2016, 86(6): 527-533.
- [31] Zhu X. The influence of think tanks in the Chinese policy process: Different ways and mechanisms [J]. *Asian Survey*, 2009, 49(2): 333-357.
- [32] Kelsrup JD. Quantitative differences in think tank dissemination activities in Germany, Denmark and the UK [J]. *Policy Sciences*, 2017, 50(1): 125-137.
- [33] Bennett S, Corluka A, Doherty J, et al. Influencing policy change: The experience of health think tanks in low-and middle-income countries [J]. *Health Policy and Planning*, 2012, 27(3): 194-203.
- [34] Pang Li. Requirement analysis and optimization strategies of think tank library knowledge services [J]. *Library and Information*, 2018, 182(4): 111-116.
- [35] Bai Yang, Zhang Xinyi. Converging ideas: Data-driven think tank collaborative innovation service model research [J]. *Information Science*, 2018, 36(7): 25-31.
- [36] Zou Yian. Foreign think tanks and their successful experiences [J]. *China Soft Science*, 1999 (6): 88-90, 108.
- [37] Golafshani N. Understanding reliability and validity in qualitative research [J]. *The Qualitative Report*, 2003, 8(4): 597-606.
- [38] Ringle CM, Sarstedt M, Straub D. A critical look at the use of PLS-SEM in MIS quarterly [J]. *MIS Quarterly (MISQ)*, 2012, 36(1): 3-14.
- [39] Shen Jing, Zhang Lu, Wang Ruoqia. Analysis of content characteristics of Chinese think tank Weibo—An empirical study based on Sina Weibo [J]. *Information Science*, 2019, 37(12): 3-10.
- [40] Think Tank Research Center, School of Public Policy and Management, Tsinghua University. Tsinghua University think tank big data report 2018

- [R/OL]. [2019-07-05]. <http://www.199it.com/archives/890149.html>.
- [41] Yang Siluo, Feng Ya. Comparative evaluation research on Chinese think tank network influence analysis system [J]. Journal of Chongqing University (Social Science Edition), 2017, 23(2): 68-78.
- [42] Luan Ruiying, Chu Jingli. Evaluation and comparison of four think tank influence evaluation index systems [J]. Library and Information Service, 2017, 61(22): 27-35.
- [43] Development Research Center of the State Council. 2018 final accounts of the Development Research Center of the State Council [R/OL]. [2019-12-05]. <http://www.drc.gov.cn/n/20190719/1-477-2898981.htm>.
- [44] Zhu Xufeng. Research on expert participation models in China's social policy changes [J]. Chinese Journal of Sociology, 2011, 25(2): 1-27, 243.

**Author Contributions:**

Zhang Lu: Designed the research framework, designed the questionnaire, collected and analyzed data, and wrote the paper.

Shen Jing: Determined the research approach, revised the questionnaire, and revised the paper.

**Abstract:** [Purpose/significance] Requirement has always been the key to improving service quality and level. Exploring effective knowledge service modes from the perspective of client requirements is of great significance to guarantee the knowledge service quality and improve the service level and influence of think tanks. [Method/process] Through literature review, this paper summarized the types of client requirements for think tank knowledge services and the knowledge service modes of think tanks. A questionnaire survey was used to collect data from two client groups: government employees and the general public. This paper analyzed clients' cognition degree, intensity of requirements, and service mode selection intention for think tank knowledge services, and analyzed the relationships between client requirements and knowledge service modes of think tanks through a partial least squares regression model. [Result/conclusion] The cognition degree of government employees to think tank knowledge services is significantly higher than that of the general public. Moreover, government employees have a better understanding of party and government think tanks, while the general public has a better understanding of university think tanks. The intensity of clients' requirements for think tank knowledge services, from high to low, is talent support, policy research, decision-making consultation, and public opinion propaganda. Clients' willingness to choose different knowledge service modes, from high to low, is open media, open publication, offline communication, and internal cooperation. Moreover, clients' various knowledge service requirements have a significant positive impact on different knowledge service modes of think tanks.

**Keywords:** think tanks; knowledge service; service mode; client requirement; relationship; PLS model

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

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