

Research on Government Procurement of Competitive Intelligence Service Models for SMEs: A Case Study of Hunan Provincial Institute of Scientific and Technical Information (Postprint)

Authors: Luo Jian, Shi Min, Zhou Bin, Li Weisi, Wen Xiaofen, Liao Ting

Date: 2023-04-01T16:16:03+00:00

Abstract

[Purpose/Significance] Policies require expanding the supply of innovation services for technology-oriented small and medium-sized enterprises (SMEs), and competitive intelligence constitutes an important component of innovation service provision. Conducting research on government-purchased competitive intelligence service models for SMEs provides a reference for library and information institutions undertaking government-purchased competitive intelligence services for SMEs.

[Method/Process] This study employs a case research methodology, extracting and refining a government-purchased competitive intelligence service model for SMEs from the case of Changsha's purchase of competitive intelligence services for SMEs from the Hunan Institute of Scientific and Technical Information. The case of Huaihua's purchase of competitive intelligence services for SMEs is used as empirical evidence to validate the competitive intelligence service model for SMEs.

[Results/Conclusion] This study systematically analyzes the government-purchased competitive intelligence service model for SMEs, clarifies the responsibilities and main tasks of each stakeholder, and constructs a competitive intelligence service model for SMEs wherein government funds the procurement, service providers cultivate intelligence teams for enterprises through "resource importation + methodology training + one-on-one mentoring," enterprise intelligence teams produce competitive intelligence products, and service evaluation entities conduct performance assessments. Empirical evidence demonstrates the feasibility and effectiveness of the government-purchased competitive intelligence service model for SMEs.

Full Text

Preamble

Vol. 64 No. 21 November 2020

Research on the Government Procurement Model for Competitive Intelligence Services for Small and Medium-sized Enterprises: A Case Study of Hunan Institute of Science and Technology Information

Luo Jian¹, Shi Min¹, Zhou Bin², Li Weisi², Wen Xiaofen², Liao Ting²

¹Business School, Hunan Agricultural University, Changsha 410128

²Hunan Institute of Science and Technology Information, Changsha 410001

Abstract: [Purpose/Significance] Policy requires expanding the supply of innovation services for technology-based small and medium-sized enterprises (SMEs), and competitive intelligence constitutes an important component of this supply. This study examines the government procurement model for SME competitive intelligence services to provide a reference for library and information institutions undertaking such services. [Method/Process] Using case study methodology, we analyzed the case of Changsha City procuring competitive intelligence services for SMEs from the Hunan Institute of Science and Technology Information to develop a government procurement model, which we then validated through the case of Huaihua City purchasing similar services. [Result/Conclusion] We systematically analyzed this model, clarified the responsibilities and main tasks of each stakeholder, and constructed a framework where government funds procurement, service providers cultivate intelligence teams within enterprises through “resource import + method training + one-on-one counseling,” enterprise intelligence teams produce competitive intelligence products, and evaluation entities conduct performance assessments. The empirical validation demonstrates the feasibility and effectiveness of this model.

Keywords: government procurement of services; small and medium-sized enterprises; competitive intelligence service model

Classification Number: G250.2

DOI: 10.13266/j.issn.0252-3116.2020.21.009

SMEs play a vital role in tax revenue, economic growth, technological innovation, and employment. According to Ministry of Industry and Information Technology data, Chinese SMEs contribute over 50% of national tax revenue, more than 60% of GDP, over 70% of technological innovation achievements, and over 80% of employment [1]. Given this importance, governments worldwide have implemented procurement policies to support SME development, primarily focusing on purchasing existing products or services. Currently, the lack of technology services represents a major bottleneck constraining SME technological innovation [2], particularly competitive intelligence services that safeguard innovation. Based on the case of Changsha Municipal Commission of Industry

and Information Technology procuring SME competitive intelligence services from Hunan Institute of Science and Technology Information, this study develops a government procurement model, validated through the Huaihua case, to provide a replicable framework for other institutions.

1 Literature Review

1.1 Foreign Literature Review

Government procurement of services originates from government purchasing systems in Europe and America. E.S. Savas analyzed privatization methods, suggesting that delegation of authority can achieve different public service delivery modes through contract contracting, franchising, subsidies, vouchers, and statutory delegation [3]. H. Julien et al. investigated the role of non-profit organizations and key stakeholders in advancing federal government information policies through public libraries [4]. J. Stejskal et al. proposed methods for evaluating the effectiveness of digital public services in public organizations [5]. J. Cave et al. identified four key factors for designing effective innovation-promoting government procurement: the relationship between public and private demand, reasons for government intervention, types of innovation involved, and procurement model selection [6].

Foreign governments provide market information and intelligence training as important means to support enterprise innovation. In the 1980s, R. Rothwell et al. identified government information services as crucial policy tools for supporting industrial innovation, including market information and management skills [7]. The U.S. Small Business Administration provides market research and competitive analysis services to enhance SME competitive advantages [8]. In 1992, Canada's Department of Industry, Agriculture, and Foreign Affairs jointly launched a market information and intelligence training program [9]. The UK introduced patent information services in 2006 to assist government and commercial organizations with technology-related policy, strategic planning, and consulting, recognizing that patent analysis can extract valuable knowledge and information [10].

Foreign competitive intelligence research focuses on SME competitive intelligence frameworks, models, and the relationship between business intelligence and innovation. M.A. Koseoglu et al. proposed a competitive intelligence framework for small firms, emphasizing awareness-raising, knowledge sharing, data dissemination, and integrating competitive intelligence with employee responsibilities [11]. A.K. Mehmet et al. developed a competitive intelligence model comprising organizational needs, competitive intelligence pool, collectors, training, and intelligent gathering modules, addressing strategic, tactical, and operational levels [12]. B. Katerina et al., analyzing data from Slovenian large and medium-sized companies, found that business intelligence use positively correlates with innovation activities and improves firm performance [13].

1.2 Domestic Literature Review

Domestic scholars have extensively researched competitive intelligence service models. Zhang Canying et al. constructed a technology competitive intelligence service model supporting open innovation, using a three-element framework of resources, objectives, and support systems [17]. Zhao Xiaoyuan et al. noted that industrial competitive intelligence serves group enterprises with common needs rather than individual firms, proposing an analytical framework including service subjects, production methods, forms, and supply modes [18]. Zeng Dechao et al. built an SME technology competitive intelligence service model from an open innovation perspective [19]. Pan Xingmei et al. described the competitive intelligence service model for small and micro enterprises in Zhejiang, addressing weak independent innovation capabilities, resource scarcity, information access barriers, weak IP protection awareness, and insufficient government support [20]. He Jing et al. proposed that competitive intelligence service institutions should focus on “user service and problem-solving,” co-establishing intelligence stations with enterprises to provide streamlined, actionable solutions [21]. Zhang Liwei et al. studied laws, policies, and plans related to SME competitive intelligence services in China [22]. Li Jialu constructed a competitive intelligence system for university libraries serving enterprises under big data, including collection, analysis, and service modules [23]. Li Ming et al. proposed a “three-dimensional integrated” model for university libraries supporting SME innovation from perspectives of demand customization, driving mechanisms, and data supply [24]. Shi Jin et al. proposed a blockchain-based competitive intelligence sharing platform for SMEs lacking independent system-building capacity [25].

Some scholars have specifically studied the public nature of competitive intelligence. Zheng Yanning et al. identified industrial competitive intelligence as a quasi-public good between public and private products, exhibiting strong externalities, non-competitive consumption, and non-excludable benefits for enterprises within an industry, while proposing diversified supply theories [26,27].

Domestic scholars have also studied government procurement of services. Liu Yuzi et al., analyzing local regulations and implementation, identified the operational process as: planning, selecting providers, and contract management [14]. Xu Jialiang et al. identified four stakeholder types: purchasing, providing, using, and evaluating entities, with multiple actors participating in different stages [15]. Ge Daoshun noted that evaluating procurement effectiveness is challenging, as public service procurement cannot be measured solely by purchase scale or cost savings, but requires qualitative assessment of service content and user satisfaction, complicated by long service cycles and complex, changing demands [16].

In summary, foreign governments provide competitive intelligence services including market information, technical information, and intelligence training as important innovation support tools. Domestic scholars have extensively studied

competitive intelligence service models from a supply perspective and examined competitive intelligence attributes. However, few studies have specifically addressed government procurement models for SME competitive intelligence services. This study builds on existing research by examining the attributes and policy foundations of government-procured SME competitive intelligence services, constructing a scientific and reasonable model through case analysis of Changsha's procurement, providing theoretical and practical foundations for government and service institutions.

2 Attributes and Policy Basis of Government-Procured SME Competitive Intelligence Services

2.1 Attributes of Government-Procured SME Competitive Intelligence Services

Government procurement of services refers to the mechanism whereby government transfers certain public service matters and government-required services to qualified social forces and public institutions through market-based mechanisms, with payment according to contract agreements [28]. Government-procured SME competitive intelligence services provide such services to local SMEs through government purchasing. The purchasing subject is government, the using subject is local SMEs, the providing subject includes social organizations, public institutions, and enterprises capable of delivering these services, and the content is competitive intelligence services for SMEs, with government paying all or part of the cost through fiscal funds.

Competitive intelligence involves intelligence research on competitive environment, competitors, and strategies to maintain competitive advantage. Competitive intelligence commissioned or produced by individual enterprises has private goods characteristics. Government-procured SME competitive intelligence services differ in service objects and forms. The service objects are batches of SMEs in regional leading industries, distributed across several industries, with enterprises in the same industry sharing common or similar intelligence needs. Existing research confirms that industrial competitive intelligence has quasi-public goods characteristics [26,27]. In service form, the production of competitive intelligence with obvious private goods characteristics is assigned to enterprise intelligence teams, while the provision of essential industry information and intelligence method training is prioritized as common demand, supplemented by personalized counseling to ensure enterprise teams can proficiently apply intelligence methods to produce intelligence products.

Government-procured SME competitive intelligence services are quasi-public goods between public and private products, featuring non-competitiveness and limited non-excludability. Non-competitiveness means one consumer's use does not affect others' use. Once formed, information resources can be consumed multiple times without affecting others. Intelligence methods and counseling, once developed, can be repeatedly used, and their consumption does not affect

others. Limited non-excludability means consumers meeting certain conditions cannot be excluded. Changsha's service targets SMEs in Changsha, making it non-excludable for them but excludable for those outside Changsha.

These services also generate positive externalities. They enhance not only SME competitive intelligence capabilities but also the capacities of participating individuals and government departments. Participants gain industry competitive environment knowledge for better decision-making. Government departments can identify promising projects for regional industry support, discover candidates for high-tech and "gazelle" enterprise cultivation, and identify weaknesses in regional innovation policies for improvement.

2.2 Policy Basis for Government-Procured SME Competitive Intelligence Services

The "Implementation Regulations of the Government Procurement Law of the People's Republic of China" (State Council Decree No. 658), adopted on December 31, 2014, explicitly states in Article 6 that the State Council's financial department should formulate government procurement policies in coordination with relevant departments to achieve energy conservation, environmental protection, support for underdeveloped areas and ethnic minorities, and SME development through procurement demand standards, reserved procurement shares, price review preferences, and priority procurement [29]. Government procurement is an effective method worldwide for promoting SME growth, and China has made SME development an important procurement policy goal.

The "Law of the People's Republic of China on Promotion of Small and Medium-sized Enterprises," revised on September 1, 2017, dedicates Chapter 7 to service measures for SME development. Article 46 encourages service institutions to provide entrepreneurship training, IP protection, management consulting, information services, credit services, marketing, project development, investment financing, accounting and taxation, property transactions, technical support, talent recruitment, foreign cooperation, exhibitions, and legal services. Article 47 requires comprehensive SME promotion departments at county level and above to allocate funds for systematic training of SME managers [31]. These provisions show that providing information consulting services for SMEs is nationally encouraged and supported, with government funding required for relevant training.

The State Council's "Several Opinions on Accelerating the Development of Science and Technology Service Industry" (Guofa [2014] No. 49) explicitly supports developing competitive intelligence analysis, technology novelty search, and literature retrieval services [32]. The 2019 "Guiding Opinions on Promoting the Healthy Development of SMEs" from the General Office of the CPC Central Committee and State Council requires prioritizing high-quality and efficient information consulting services for SMEs [33]. The "Notice on Several Policies Supporting SME Technological Innovation" (Fagai Qiye [2007] No. 2797) issued

in 2007 proposed increasing support for SME technological innovation, requiring local governments to gradually increase environmental construction for SME technological innovation based on fiscal capacity, with key support for public service system construction [34]. The 2019 “Several Policy Measures for Supporting the Accelerated Innovative Development of Technology-based SMEs in the New Era” (Guokefaqu [2019] No. 268) requires expanding innovation service supply for technology-based SMEs [35]. The “Government Procurement of Services Management Measures” (Ministry of Finance Decree No. 102), effective March 1, 2020, states that government procurement aims to promote government function transformation and improve public service supply [36].

These policies establish a comprehensive policy system supporting government-procured SME competitive intelligence services. Promoting SME development is a government procurement objective, and information consulting and competitive intelligence analysis are key SME public services receiving national support. Expanding innovation service supply for technology-based SMEs is urgent, making government-procured competitive intelligence services fully consistent with national policy requirements.

3 Government Procurement Model for SME Competitive Intelligence Services

The research question of “how” to design a government procurement model for SME competitive intelligence services aligns with Y. Robert’s case study requirement to answer “how” or “why” questions [38], making case study methodology appropriate. First, we developed a theoretical framework from literature, combining stakeholders and operational methods in government procurement [14-15] with industrial competitive intelligence service model frameworks [18]. Second, as team members participated in designing Changsha’s procurement process, we optimized the framework through practice. In government-procured SME competitive intelligence services, intelligence products are produced by the using subject, while the providing subject’s service production is achieved through integrating service resources and implementing service processes. Therefore, we adjusted “service production method” to “service process and service resources.” Finally, based on two years of implementation, we enriched and perfected the framework, forming the government procurement model for SME competitive intelligence services shown in Figure 1 [Figure 1: see original paper]. We elaborate on this model from three aspects: service subjects, procurement content, and procurement mechanisms.

3.1 Service Subjects

Government-procured SME competitive intelligence services involve multiple stakeholders: purchasing subject (government department), using subject (SMEs), providing subject (public institutions and social forces), and evaluation subject (evaluation agency). The purchasing subject is typically government

departments responsible for regional enterprise innovation, mainly industry and information technology commissions and science and technology departments. The using subject is SMEs, which establish intelligence teams to produce new product development intelligence products, with enterprise decision-makers conducting acceptance. Enterprise intelligence teams consist of Chief Intelligence Officers (CIOs), market information specialists, and technical information specialists. The providing subject includes science and technology information institutions, libraries, and other public institutions engaged in intelligence services, as well as enterprises and social organizations providing intelligence consulting services. The purchasing subject (government department) first identifies needs of technology-based SMEs, selects capable institutions as service providers, signs contracts clarifying rights, responsibilities, and assessment methods, and provides funding. The providing subject delivers services to the using subject (SMEs), while government organizes and supervises services. The evaluation subject (evaluation agency) collects feedback from the using subject and conducts process tracking evaluations, forming service assessments for government feedback.

3.2 Procurement Content

Government-procured SME competitive intelligence services aim to enhance technology-based SMEs' competitive intelligence capabilities. To ensure long-term capacity, providing subjects adopt a “resource import + method training + one-on-one counseling” approach to cultivate enterprise intelligence teams, mobilizing service resources and implementing service processes. We elaborate on procurement content from three aspects: service form, service process, and service resources.

3.2.1 Service Form The service form is “resource import + method training + one-on-one counseling,” where resource import and method training are common services and one-on-one counseling is personalized. Providing subjects supply information resources including technical information, market information, and industry data. Intelligence method training is conducted uniformly for enterprise intelligence teams, covering information collection and intelligence analysis methods. After obtaining resources and learning methods, teams engage in practical exercises under provider guidance. Through one-on-one counseling during intelligence product production around new product development needs, enterprises gain both information resources and hands-on learning, achieving competitive intelligence capability enhancement.

3.2.2 Service Process The specific service process includes: Enterprise establishes intelligence team and selects a new product development project; Conduct centralized intelligence method training for the team, focusing on information collection and analysis methods; Provide information resources and free knowledge management software to facilitate information collection and internal sharing; Providing subject conducts one-on-one counseling while

enterprise team produces new product development analysis reports; After report completion, enterprise decision-makers conduct acceptance with purchasing subject (Changsha Municipal Commission leaders) invited to witness, gaining direct understanding of product value and identifying competitive projects; After acceptance, organize enterprise-patent agency 对接 for IP protection and enterprise-technology provider 对接 for open innovation to shorten R&D cycles.

The process combines common and personalized services. Steps , , and are common services; and are personalized; step includes both common resource 对接 and personalized enterprise-specific 对接. Even in personalized step , common and personalized approaches combine. First, enterprises receive a 10,000-word new product development analysis report template covering macro competitive environment analysis, competitor analysis, customer needs analysis, product development objectives, key technology intelligence analysis, and new product development strategies, with information collection forms and analysis chart examples for each section. Then, regular one-on-one counseling ensures quality production and answers questions.

3.2.3 Service Resources Service resources supporting implementation include human resources, information resources, and innovation resources. Human resources are the intelligence service teams of providing subjects, supporting all processes. Information resources include various industry databases, patent databases, and journal databases, mainly supporting resource import. Innovation resources include industry experts, intermediaries, academic institutions, and innovation platforms that providing subjects can coordinate, supporting innovation resource 对接.

3.3 Procurement Mechanisms

Procurement mechanisms include government procurement methods and evaluation mechanisms. Procurement methods should follow government procurement and service procurement laws. Purchasing subjects should select providers through fair competition based on procurement content, market conditions, supplier capabilities, and credit status [36]. Changsha Municipal Commission searched nationwide for candidate institutions and selected Hunan Institute of Science and Technology Information based on capability and credit. Procurement expenditure is determined by provider quotations, project characteristics, and relevant budgets. To ensure effectiveness, a comprehensive evaluation mechanism comprising purchasing, using, and evaluation subjects assesses performance from three dimensions: service quantity, quality, and effectiveness. Quantity includes number of served enterprises, cultivated teams, completed products, information items provided, training sessions, and counseling frequency. Quality is evaluated through satisfaction of enterprise intelligence teams and enterprise leaders with new product development reports. Effectiveness includes IP status and new product sales revenue.

4 Empirical Validation of the Government Procurement Model

In 2017, Huaihua Science and Technology Bureau, after investigating local technology-based SMEs' competitive intelligence needs, found that Hunan Institute's services for Changsha met local needs well. Through public service procurement, it contracted with Hunan Institute to provide competitive intelligence services for 10 Huaihua SMEs. Based on the Changsha case, we implemented the government procurement model in Huaihua.

4.1 Implementation in Huaihua

Huaihua's procurement maintained consistent service subjects: purchasing subject (Huaihua Science and Technology Bureau), using subject (local technology-based SMEs), providing subject (Hunan Institute), and evaluation subject (Huaihua Science and Technology Information Institute). The Bureau signed contracts and made payments; Hunan Institute provided services; Huaihua Institute tracked and evaluated services.

The procurement purpose was consistent with Changsha's: enhancing competitive intelligence capabilities. Service content was identical. The providing subject implemented a six-step process (team establishment, training, resource import, one-on-one counseling, acceptance, and innovation resource 对接) with "resource import + method training + one-on-one counseling," combining common and personalized services to help teams develop intelligence products. Table 1 details Huaihua's implementation with examples and outcomes.

To ensure smooth implementation, Hunan Institute allocated human, information, and innovation resources, detailed in Table 2. Since Huaihua's 10 enterprises belonged to biomedicine, agricultural product processing, and new materials, resources were strengthened in these domains.

In procurement mechanisms, Huaihua Science and Technology Bureau followed government procurement requirements, contracting Hunan Institute for 550,000 RMB based on quotations and budget. Following Changsha's evaluation mechanism, Huaihua Institute assessed performance from quantity, quality, and effectiveness, feeding results back to the Bureau, which expressed interest in continued procurement.

4.2 Effects and Optimization

Huaihua's procurement cultivated 10 CIOs and over 40 intelligence analysts (10 teams) across three industries. Enterprises obtained 3,565 patent information items, 403 technical documents, 100 competitor profiles, and 484 market information items, completing 10 new product development analysis reports, adding over 10 patents, and generating over 80 million RMB in new product sales revenue. All 10 enterprises reported improved intelligence capabilities and enhanced development efficiency.

Building on Changsha's experience, Huaihua made improvements. First, based on diagnostic results showing weaknesses in market research and patent early warning, training and counseling emphasized these methods. Second, personalized counseling was extended from product production to the entire process based on team quality, with advisors guiding information collection for each enterprise. This demonstrates that training content and counseling formats should be determined based on diagnostic results and team quality.

5 Conclusion

The government procurement model for SME competitive intelligence services offers two advantages: First, through government procurement, it helps SMEs develop competitive intelligence capabilities quickly and effectively. Using new product development projects as practical applications, project-driven teams learn and apply intelligence methods to produce intelligence products, rapidly enhancing capabilities. Second, combining common and personalized services reduces procurement costs while ensuring product quality. Providing information resources and method training as common services to multiple enterprises significantly reduces costs, while personalized counseling ensures high-quality intelligence production.

The model has two disadvantages: First, heterogeneous enterprises increase service difficulty. Variations in enterprise size and personnel absorption capacity require increased counseling frequency for weaker enterprises, raising difficulty. Second, performance evaluation is challenging. While tangible outcomes are easily evaluated, intangible outcomes like capability enhancement and efficiency improvement are difficult to measure. Future research should design more targeted training and counseling based on enterprise size and personnel quality, and strengthen performance evaluation studies.

References

- [1] Ministry of Industry and Information Technology: By the end of 2018, China's SMEs exceeded 30 million [EB/OL]. [2020-02-01]. <http://finance.sina.com.cn/china/gncj/2019-09-20/doc-iicezueu7164785.shtml>.
- [2] Wang Fengyan. Research on government procurement promoting SME technological innovation—Based on domestic and international practice analysis [J]. *Modern Management Science*, 2016(5): 79-81.
- [3] Savas ES. Privatization and Public-Private Partnerships [M]. Translated by Zhou Zhiren. Beijing: China Renmin University Press, 2002.
- [4] Julien H, Breuer D. Instructional practices in Canadian public libraries [J]. *Library & Information Science Research*, 2005, 27(3): 281-301.
- [5] Stejskal J, Hajek P. Effectiveness of digital library services as a basis for decision-making in public organizations [J]. *Library & Information Science Research*

search, 2015, 37(4): 346-352.

[6] Cave J, Frinking E. Public procurement for R&D [EB/OL]. [2020-06-12]. http://www2.warwick.ac.uk/fac/soc/economics/staff/jakcave/publications/pp_{{for}}_{{rd}}.pdf.

[7] Rothwell R, Zegveld W. Industrial innovation and public policy: Preparing for the 1980s and the 1990s [M]. London: Pinter Publishers, 1981.

[8] Market research and competitive analysis [EB/OL]. [2020-06-12]. <https://www.sba.gov/business-guide/plan-your-business/market-research-competitive-analysis>.

[9] Calof J. Competitive intelligence in Canada [J]. *Journal of Competitive Intelligence & Management*, 2002, 2(2): 1-21.

[10] Buchanan B. Unlocking the value of patent data: Patent informatics services at the UK intellectual property office (UK-IPO) [J]. *World Patent Information*, 2008, 30(4): 335-337.

[11] Koseoglu MA, Ross G, Okumus F. Competitive intelligence practices in hotels [J]. *International Journal of Hospitality Management*, 2016, 53(2): 161-172.

[12] Mehmet AK, Chanes W, Okumus F, et al. How do hotels operationalize their competitive intelligence efforts into their management processes? Proposing a holistic model [J]. *International Journal of Hospitality Management*, 2019, 83(10): 283-292.

[13] Katerina B, Vlado D. Business intelligence and analytics use, innovation ambidexterity, and firm performance: A dynamic capabilities perspective [J]. *The Journal of Strategic Information Systems*, 2019, 28(4): 1-20.

[14] Liu Yuzi, Liu Liantai. Old path or new path: Legislative approaches to government procurement of public services [J]. *Chinese Public Administration*, 2016(3): 98-102.

[15] Xu Jialiang, Wu Jing. Analysis of the legitimacy of government procurement of social organization services—From a policy legitimacy perspective [J]. *Journal of South China Normal University (Social Science Edition)*, 2017(1): 113-118, 191.

[16] Ge Daoshun. Public service procurement in China: From administrative drive to law-based governance [J]. *Journal of Chinese Academy of Governance*, 2017(3): 65-70, 130.

[17] Zhang Canying, Liu Dehong. Research on technology competitive intelligence service model for enterprise open innovation [J]. *Journal of Intelligence*, 2012, 31(7): 76-80.

[18] Zhao Xiaoyuan, Zheng Yanning, Zhou Yang, et al. Research and application of industrial competitive intelligence service model analysis process [J]. *Information Studies: Theory & Application*, 2014, 37(1): 74-78, 83.

- [19] Zeng Dechao, Xu Mingjin, Peng Lihui. Research on SME technology competitive intelligence service model from open innovation perspective [J]. *Library*, 2015(1): 101-103, 108.
- [20] Pan Xingmei, Fang Hong, Zhang Peifeng. Research on competitive intelligence service model for small and micro enterprises—Based on Zhejiang analysis [J]. *Science and Technology Management Research*, 2015, 35(21): 135-140.
- [21] He Jing, Lü Liangwen. Preliminary exploration of public competitive intelligence service system construction strategies [J]. *Science and Technology Management Research*, 2016, 36(5): 91-96.
- [22] Zhang Liwei, Zheng Yanning. Analysis of laws, policies, and plans for SME competitive intelligence services in China [J]. *Modern Intelligence*, 2016, 36(12): 14-18.
- [23] Li Jialu. Research on enterprise-oriented intelligence service model of university libraries under big data environment [J]. *Modern Intelligence*, 2016, 36(4): 44-47, 69.
- [24] Li Ming, He Wei, Dou Hongqing. Research on service model and operation mechanism of university libraries driving SME technological innovation [J]. *Research on Library Science*, 2018(1): 72-77.
- [25] Shi Jin, Shao Bo, Miao Jie. Research on blockchain-based competitive intelligence sharing platform for SMEs [J]. *Library and Information Service*, 2019, 63(20): 112-120.
- [26] Zheng Yanning, Zhao Xiaoyuan, Chen Feng. Analysis of industrial competitive intelligence [J]. *Journal of the China Society for Scientific and Technical Information*, 2009, 28(6): 917-922.
- [27] Zheng Yanning, Zhao Xiaoyuan, Chen Feng, et al. Basic issues of industrial competitive intelligence: Connotation, characteristics, and diversified supply [J]. *Information Studies: Theory & Application*, 2011, 34(3): 1-5.
- [28] Notice on Issuing “Government Procurement of Services Management Measures (Interim)” (Caizong [2014] No. 96) [EB/OL]. [2020-03-01]. http://fgk.mof.gov.cn/law/getOneLawInfoAction.do?law_{id}=83699.
- [29] Implementation Regulations of the Government Procurement Law of the People’s Republic of China (State Council Decree No. 658) [EB/OL]. [2020-06-12]. http://www.gov.cn/zhengce/2015-02/27/content_{2822395}.htm.
- [30] Li Xiyi, Deng Tianzuo. Policy research on using government procurement to support rapid SME development in China—Based on US government experience analysis [J]. *Forum on Science and Technology in China*, 2012(11): 122-126.
- [31] Law of the People’s Republic of China on Promotion of Small and Medium-sized Enterprises [EB/OL]. [2020-06-12]. http://www.gov.cn/xinwen/2017-09/02/content_{5222120}.htm.

[32] Several Opinions of the State Council on Accelerating the Development of Science and Technology Service Industry (Guofa [2014] No. 49) [EB/OL]. [2020-06-12]. http://www.gov.cn/zhengce/content/2014-10/28/content_{9173}.htm.

[33] Guiding Opinions of the General Office of the CPC Central Committee and State Council on Promoting the Healthy Development of SMEs [EB/OL]. [2020-06-12]. http://www.gov.cn/zhengce/2019-04/07/content_{5380299}.htm.

[34] Notice on Several Policies Supporting SME Technological Innovation (Fagai Qiye [2007] No. 2797) [EB/OL]. [2020-06-12]. http://www.gov.cn/ztlz/kjfzgh/content_{883659}.htm.

[35] Several Policy Measures for Supporting the Accelerated Innovative Development of Technology-based SMEs in the New Era (Guokefaqu [2019] No. 268) [EB/OL]. [2020-02-01]. http://www.gov.cn/zhengce/zhengceku/2019-12/03/content_{5457860}.htm.

[36] Ministry of Finance Decree No. 102, Government Procurement of Services Management Measures [EB/OL]. [2020-06-12]. http://www.ccg.gov.cn/gpsr/zhxx/zy/202002/t20200203_{13

[37] Shi Min, Liu Suhua, Li Weisi, et al. Research on enterprise information intelligence capability maturity diagnosis model for technological innovation [J]. Library and Information Service, 2013, 57(24): 106-111.

[38] Robert K. Yin. Case Study: Design and Methods [M]. Translated by Zhou Haitao, Li Yongxian, Li Qian. Chongqing: Chongqing University Press, 2004.

Author Contributions: Luo Jian: Conceived the study, wrote and revised the manuscript;

Shi Min: Wrote and revised the manuscript;

Zhou Bin: Participated in manuscript revision;

Li Weisi: Participated in manuscript revision;

Wen Xiaofen: Participated in manuscript revision;

Liao Ting: Participated in manuscript revision.

Abstract: [Purpose/significance] The policy requires expanding the supply of innovation services for technology-based SMEs, and competitive intelligence is an important component of this supply. This study examines the government procurement model for SME competitive intelligence services to provide a reference for library and information institutions undertaking such services. [Method/process] Using case study methodology, we analyzed the case of Changsha City procuring competitive intelligence services for SMEs from the Hunan Institute of Science and Technology Information to develop a government procurement model, which we then validated through the case of Huaihua City purchasing similar services. [Result/conclusion] We systematically analyzed this model, clarified the responsibilities and main tasks of each stakeholder, and constructed a framework where government funds procurement, service providers cultivate intelligence teams within enterprises through “resource import + method training + one-on-one counseling,” enterprise intelligence teams produce competitive intelligence products, and evaluation entities conduct performance assessments.

The empirical validation demonstrates the feasibility and effectiveness of this model.

Keywords: government procurement of services; small and medium-sized enterprises; competitive intelligence service model

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

Source: ChinaXiv — Machine translation. Verify with original.