

Construction and Implementation of Multi Collaborative Service Platform Based on Industrial Competitive Intelligence

Jia Wang

Library, Lingnan Normal University, Zhanjiang, China
Email: 402261608@qq.com

How to cite this paper: Wang, J. (2023) Construction and Implementation of Multi Collaborative Service Platform Based on Industrial Competitive Intelligence. *Open Journal of Applied Sciences*, 13, 335-342.
<https://doi.org/10.4236/ojapps.2023.133027>

Received: November 14, 2022

Accepted: March 18, 2023

Published: March 21, 2023

Copyright © 2023 by author(s) and Scientific Research Publishing Inc.
This work is licensed under the Creative Commons Attribution International License (CC BY 4.0).

<http://creativecommons.org/licenses/by/4.0/>



Open Access

Abstract

With the economic globalization and the increasingly fierce industrial competition at home and abroad, the importance of industrial competitive intelligence service is becoming increasingly prominent. Under the policy background of cooperation and sharing, pluralistic coordination has become a new trend in regional economic development. The multi collaborative online service platform of industrial competitive intelligence is jointly constructed by all service subjects. The platform is guided and promoted by the government. Colleges and universities provide support for industrial competitive intelligence theory and professionals, scientific research institutes provide talent and advanced technology support, industry associations are responsible for dynamic monitoring of industrial development, and profit-making institutions are responsible for supplementing industrial competitive intelligence achievements. All service subjects integrate and explore existing intelligence resources and services through the unified online industrial competitive intelligence sharing platform, so as to realize benign cooperation, collaborative management, resource integration, user integration and service integration among subjects, so as to realize multiple collaborative services of industrial competitive intelligence.

Keywords

Industrial Competitive Intelligence, Multiple Collaborative Services, System Construction

1. Introduction

With the economic globalization and the increasingly fierce industrial competition at home and abroad, the importance of industrial competitive intelligence

services has become increasingly prominent. Under the policy background of cooperation and sharing, pluralistic coordination has become a new trend of regional economic development. Under the influence of industrial innovation driven development, industrial competitive intelligence service must keep pace with the times, and try to accurately grasp the demand for industrial competitive intelligence. In view of the fierce domestic and international competition in the current economic field, competitive intelligence research shows a trend of diversification and globalization, and its research field and service scope are further extended and expanded. According to the three different perspectives of micro, meso and macro, competitive intelligence in the economic field can be divided into enterprise competitive intelligence, industrial competitive intelligence and national competitive intelligence. Competitive intelligence has a certain public attribute, and the industrial competitive intelligence under its jurisdiction also has a public attribute. Industrial competitive intelligence can help promote the industrial development of a region or even a country, and win the core competitiveness for the industry. Collaborative innovation effectively gathers innovation resources and innovation elements. According to the goal of innovation driven development, it eliminates obstacles for innovation subjects, realizes the cooperation, integration and complementarity of multiple elements and multiple subjects, fully demonstrates the innovation vitality of multiple subjects, and seeks in-depth cooperation between multiple subjects. With the concept of competitive intelligence, it is the new mission of competitive intelligence work given by the concept of collaborative innovation in the new era to stimulate innovation vitality, release innovation demand, open up new patterns, and guide industrial transformation and upgrading development.

The construction of multiple collaborative service mode of industrial competitive intelligence provides new ideas for optimizing industrial competitive intelligence services. In addition to leading enterprises, the industrial intelligence supply and demand chain also includes information consulting institutions, colleges and universities and other relevant subjects. In the existing research, enterprises are only regarded as the demander of industrial competitive intelligence, ignoring the information supply capacity of enterprise subjects, and non enterprise subjects are regarded as the supplier of industrial competitive intelligence, ignoring the demand of non enterprise subjects for industrial competitive intelligence. In this way, the participation of enterprise subjects in information service is not strong, and the enthusiasm of non enterprise subjects in information service is damaged. The proposal of multi-service of industrial competitive intelligence can solve this problem well.

Etzkowitz and Leydesdorff jointly put forward the competitive intelligence service model of “government-industry school” triple helix structure [1]. The United States has always insisted on leading by a single institution, forming the joint participation of major education departments, industry associations, private institutions and other parties, forming a pattern of “small core, large network”, jointly establishing a comprehensive information service system to help

industrial development, and providing effective information supply according to regional characteristics [2]. T. V. De Carvalho and others showed how to improve the supply structure of business intelligence under the global economic and financial crisis in 2008-2010 [3]. Canada focuses on the competitive intelligence supply activities of small and medium-sized enterprises. The government sets up a business service network or selects a small and medium-sized enterprise as the key support object, gradually establishes a competitive intelligence service system, and constantly improves the service system through practice. As for the research on the construction of industrial competitive intelligence service model, most domestic scholars pay attention to the research on multi-agent supply and the construction of industrial competitive alliances. Zheng Rong organically combines national competitive intelligence, industrial competitive intelligence and enterprise competitive intelligence based on the synergy theory to build a competitive intelligence alliance system [4]. Zhao Jie took the strategic emerging industry as an example, analyzed the demand for competitive intelligence services from the three levels of government, industry and enterprise, and built a "133" system [5]. Chen Jiefeng and others proposed an industrial competitive intelligence service model based on the triple helix hybrid organization of government, industry and university [6].

2. Multi Collaborative Online Service Platform for Industrial Competitive Intelligence

The online service platform of industrial competitive intelligence multi collaboration is an important carrier of industrial competitive intelligence multi collaboration services to provide industrial intelligence, which is crucial in the process of multi collaboration services. The development of big data technology and cloud computing provides new opportunities for the diversified collaborative services of industrial competitive intelligence. Big data technology can effectively process and integrate massive and multiple types of data. The online service platform is used to provide multiple collaborative services of industrial competitive intelligence, provide high-quality and multi-dimensional industrial competitive intelligence services, and reduces the service costs of service providers. The multi collaborative online service platform of industrial competitive intelligence is jointly constructed by all service subjects. The platform is guided and promoted by the government. Colleges and universities provide support for industrial competitive intelligence theory and professional talents, scientific research institutes provide talent and advanced technology support, industry associations are responsible for dynamic monitoring of industrial development, and for-profit institutions are responsible for supplementing industrial competitive intelligence achievements. The contents of the multi collaborative service of industrial competitive intelligence will be displayed on the platform, and the enterprise subjects will visit as required and provide online service feedback based on the service effect. The government, colleges and universities, scientific research institutes, industry associations and for-profit institutions will also give feedback according

to their use of the service platform. All service entities integrate and explore existing information resources and services through the unified online industrial competitive intelligence sharing platform to achieve benign cooperation, collaborative management, resource integration, user integration and service integration among the entities, thus realizing the diversified collaborative services of industrial competitive intelligence. The multi collaborative online service platform for industrial competitive intelligence is composed of six layers: intelligence collection layer, technology layer, information processing layer, management layer, service layer and application layer. The specific structure of the online service platform is shown in **Figure 1**.

The intelligence collection layer needs to continuously collect various types of industrial competitive intelligence data from service subjects, and intelligence collection is the basis of the entire online service platform. Each service subject has a certain amount of industrial intelligence resources. Gathering the information resources of service subjects can lay a foundation for the diversified and collaborative services of industrial competitive intelligence. The technology layer can provide support for big data technologies such as engine search, data mining, machine learning, natural language processing, statistical analysis, and knowledge map. A large number of industrial competitive intelligence resources and achievements are easy to duplicate, cross and correlate with each other. The knowledge base, method base, project base, decision base, case base and other data resources are integrated to form an integrated resource base. Only by classifying, processing, refining and integrating the information resources and achievements collected by the intelligence collection layer can we generate industrial competitive intelligence with high added value. The management needs to clarify the overall planning, ownership of rights and responsibilities, quality management, system specifications, emergency handling and other issues of the service platform to ensure the smooth operation of the online service platform. The management needs to achieve management collaboration, resource collaboration, demand collaboration and data collaboration among multiple service entities to provide high-quality information collaboration services. There are various ways of industrial competitive intelligence service. The service layer mainly integrates functions related to industrial competitive intelligence service, including research strategy, information navigation, risk early warning, government information, query and retrieval, conference forum, user management, etc. According to the content published by the service layer, users can choose to browse, retrieve and other information acquisition behavior modes, and can also access the platform from the customized APP port.

3. “Online + Offline” Joint Service of Industrial Competitive Intelligence Multi Collaboration

Combine the online service of industrial competitive intelligence multi collaboration with the offline fixed-point service to form the “online + offline” joint service of industrial competitive intelligence multi collaboration. Service subjects

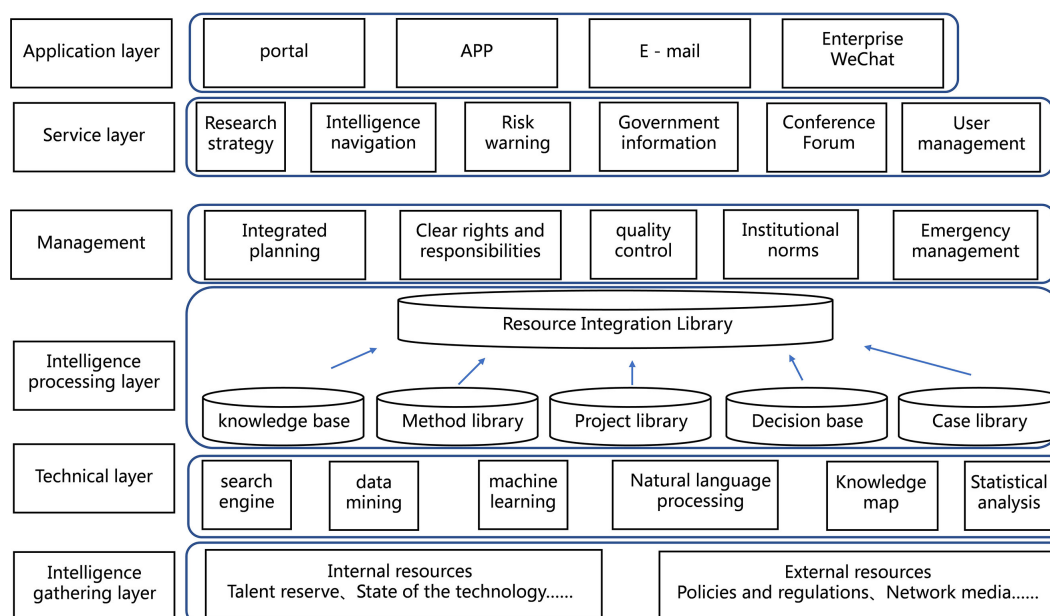


Figure 1. Multi collaborative service platform for industrial competitive intelligence.

rely on online service platforms to release industrial competitive intelligence information, and users can choose as needed. For enterprises with vague needs or special needs, offline fixed point services can be selected. Offline experience exchange meetings, technology sharing meetings, product fairs and other relevant information are released via online platforms, and open information resources are available to all service providers by means of the Internet. The “online + offline” joint service of industrial competitive intelligence multi collaboration organically combines online services with offline services to make up for the shortcomings of a single approach, integrate regional intelligence resources in a diversified way, coordinate all parties, complement each other’s advantages, and promote the formation of a multi collaboration service pattern.

4. Multiple and Collaborative Service Mode of Industrial Competitive Intelligence

In the process of industrial competitive intelligence service, services involving basic resources, services satisfying demands and services sharing data, the multiple collaborative service mode of industrial competitive intelligence starts from these three perspectives to ensure the effective supply of resource intelligence, demand intelligence and data intelligence. The multi collaborative service of industrial competitive intelligence can centralize the allocation of industrial competitive intelligence resources, the intelligence demand among collaborative service subjects, and the integration of data intelligence of industrial competitive intelligence. Therefore, the multi collaborative service mode of industrial competitive intelligence is divided into resource intelligence collaboration, demand intelligence collaboration, and data intelligence collaboration. Through multiple coordination, the collaborative sharing of industrial competitive intelligence

among enterprises, governments, colleges and universities, scientific research institutes, industry associations and for-profit institutions are realized, and the in-depth coordination of industrial competitive intelligence services is completed. Data intelligence collaboration is to use cloud computing and other big data technologies to filter the original intelligence and process the data, so as to share industrial competitive intelligence and complete the whole process of industrial competitive intelligence multi collaboration. Resource intelligence collaborative service, demand intelligence collaborative service, and data intelligence collaborative service jointly promote the realization of multiple collaborative services of industrial competitive intelligence.

5. Data Intelligence Collaborative Service

In the age of big data, data is the basis of scientific research, and people can acquire cognition of behavioral knowledge through data research. Under the current research background, researchers' emphasis on data has evolved from simple object processing to strategic research. As data is the research object of information science, the research on collaborative services of industrial competitive intelligence cannot be separated from data collaborative services. Industrial competitive intelligence data intelligence collaboration service is shown in **Figure 2**. Data is the final form of knowledge and information. The data comes from all aspects of the production and operation of the service subject, including policies and regulations, website public data, market analysis report, intellectual property release, technical talent reserve, infrastructure construction, etc. Basic industrial information can be collected through network collection, questionnaire, telephone consultation, offline research and other ways. The initial data creation will digitize all the collected industrial basic intelligence resources, eliminate outdated and invalid information, integrate the filtered basic intelligence, and modularize the data by means of data mining, mathematical statistics and analysis and other big data analysis methods to achieve data intelligence collaboration. Modular data is targeted industrial competitive intelligence formed by demand-oriented collaborative service subjects to complete data intelligence collaborative services. The service mode of data intelligence collaboration is the product of adapting to the development and change of the times. In the fierce industrial competition, effective industrial competitive intelligence service mode is the key to ensuring competitive advantage.

6. Conclusion

In the multi collaborative services of industrial competitive intelligence, resource integration, demand collaboration and data fusion are the basis of multi collaborative services. Only when each service subject has a clear division of labor and performs its own duties can it ensure that industrial competitive intelligence is highly comprehensive and targeted. The multiple collaborative services of industrial competitive intelligence depend on the collaborative services of resource

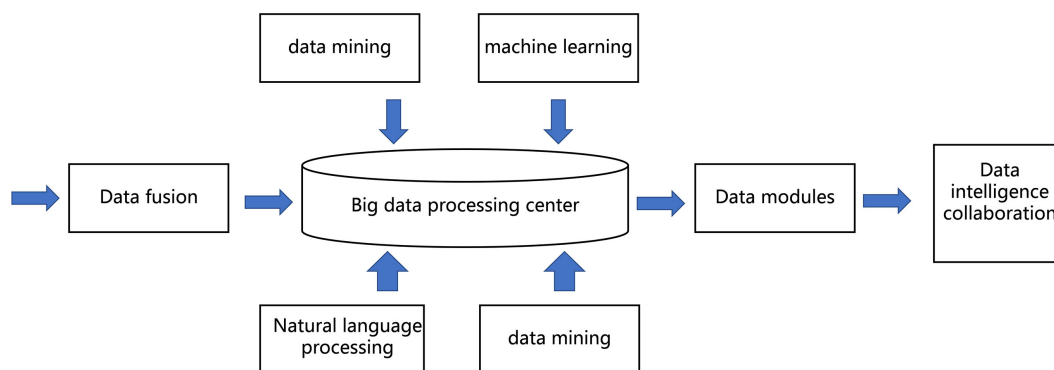


Figure 2. Industrial competitive intelligence data intelligence collaborative service system.

intelligence, demand intelligence and data intelligence. The multiple collaborative services of industrial competitive intelligence help service providers reduce operating costs, give full play to the synergistic effect, and promote the appreciation of industrial competitive intelligence. The multiple collaborative service subjects of industrial competitive intelligence are complementary, interdependent, interactive, and adaptive, which can improve the comprehensive efficiency of industrial competitive intelligence while optimizing the organizational structure of the system.

Acknowledgement

This work was supported by the Science and Technology Tackling Plan of Zhanjiang (Design of SME patent information recommendation system based on knowledge map and application demonstration research in Zhanjiang, 2022B01044).

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

References

- [1] Etzkowitz, H. and Leydesdorff, L. (1994) The Triple Helix of University-Industry-Government Relations: A Laboratory for Knowledge-Based Economic Development. *EASST Review*, **14**, 14-19.
- [2] Zhao, X.Y. and Liu, Z.H. (2012) Research on the Competitive Intelligence Supply System for Small Enterprises in the United States. *Library and Information Work*, **56**, 6-11.
- [3] De Carvalho, T.V., and Sassi, R.J. (2013) Business Intelligence as a Competitive Advantage on a Brazilian Chemical Industry in the Global Crisis of 2008, 2009 and 2010. *Advanced Materials Research*, **634-638**, 3883-3886. <https://doi.org/10.4028/www.scientific.net/AMR.634-638.3883>
- [4] Zheng, R., Liu Y.T. and Peng, Y.F. (2013) Research on the Construction of Competitive Intelligence Alliance from the Perspective of Synergetics. *Information Science*, **31**, 27-31.
- [5] Zhao, J., Ma, Z., Wang, X.Y., *et al.* (2014) Competitive Intelligence Service for Strategic Emerging Industries: Demand Analysis and System Construction. *Information*

Theory and Practice, **37**, 22-27.

- [6] Chen, J.F. and Liu, D.H. (2014) Research on Industrial Competitive Intelligence Service Model for Regional Industrial Clusters. *Information Science*, **32**, 32-36.