

Research on enterprise intellectual Property management standard system based on artificial intelligence

Xiuping Zhu

Shanghai Institute of Technology

Xiuping101623@163.com

Abstract: With the steady development of modern society and economy, the requirements for intellectual property management of relevant enterprises are getting higher and higher. According to the enterprise intellectual property management of our country put forward normative analysis shows that the state intellectual property office, state administration of market supervision and management, the national standardization management committee in the draft for examination and approval, will this standard as enterprise intellectual property management system and management methods of important basis, provide strong support for enterprise sustainable development. Therefore, on the basis of understanding the development status of artificial intelligence technology and according to the construction and application of enterprise intellectual property management standard system in recent years, this paper deeply discusses the opportunities and challenges faced by enterprise intellectual property management standard system based on artificial intelligence, so as to provide effective basis for future enterprise technology research and development and application.

Keywords: Artificial intelligence; Enterprise; Intellectual property rights; Management standards; Explicit requirements

1. Introduction

"Standard of enterprise intellectual property management" as the only a recommended national standards, is at present our country the first about the intellectual property management enterprise standards, can help enterprise managers to build standard perfect intellectual property management system and working methods, to ensure that all activities of production and business operation links related to intellectual property rights is at a controlled range, Truly achieve the strategic goal of intellectual property rights, and provide strong support for the economic development of enterprises. In recent years, the relevant standards have played an active role in the management of enterprises' intellectual property rights, and thousands of enterprises have passed the standard certification. Combined with the accumulated experience of practice, although this standard has played an important role in improving the core competitiveness of enterprises and promoting technological innovation of enterprises, most enterprises use paper or forms to manage intellectual property information, which is not conducive to improving the efficiency and quality of intellectual property information management. Therefore, this paper starts with the relevant requirements of technical standards, deeply excavates the internal information management requirements of standards, and studies how to apply artificial intelligence in the information management of enterprise intellectual property according to the basic concepts and main contents of artificial intelligence.

According to practical investigation and research, at present, the artificial intelligence industry is transitioning from the development period to the maturity period, and has entered the stage of steady growth. In 2022, the scale of the core industry of artificial intelligence is expected to reach 247.6 billion yuan, driving the scale of related industries to 939.6 billion yuan. By 2026, the scale of the core industry is expected to exceed 600 billion yuan. Among them, the core products include computer vision, intelligent speech, conversational AI, machine learning (including autonomous driving), knowledge graph, natural language processing, AI chip, etc. Among them, Figure 1 below refers to the structure diagram of computer vision system, and the figure below represents the flow chart of natural language processing:[1.2.3]

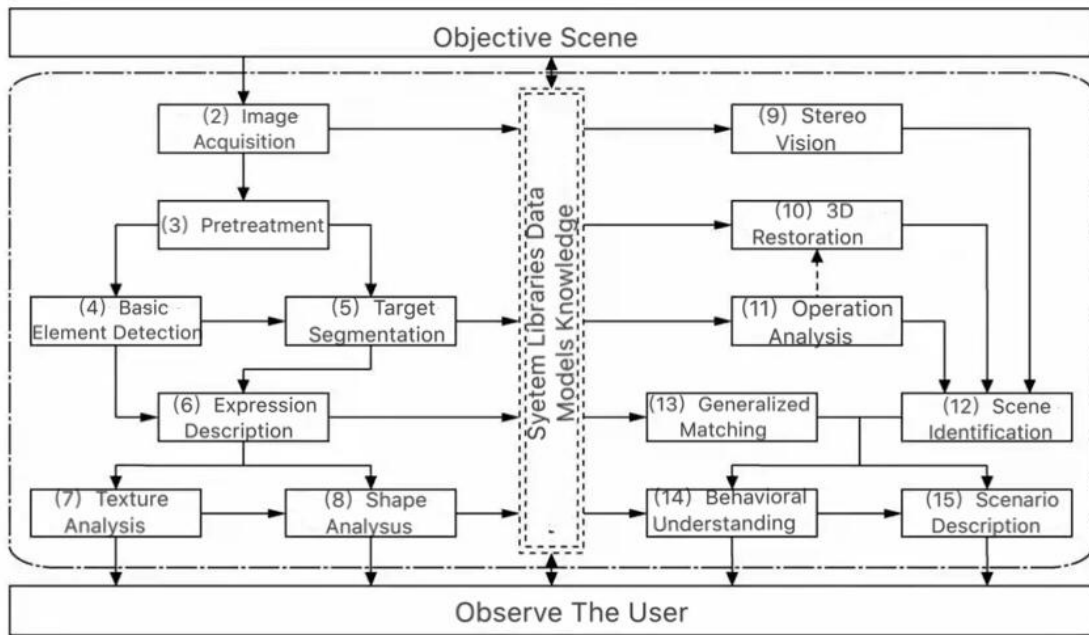


Figure 1 Structure diagram of computer vision system

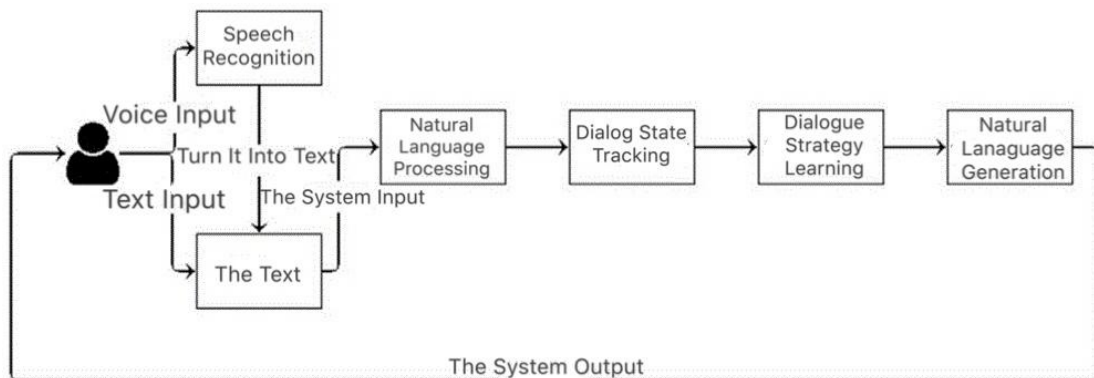


FIG. 2 Flowchart of natural language processing

With the development of artificial intelligence industry, a new round of urban and regional competition has been opened. According to the 2018-2021 tracking research on the competitiveness evaluation index of regional artificial intelligence technology industry conducted by China Academy of New Generation Artificial Intelligence Development Strategy, the total score of the Yangtze River Delta exceeded that of Beijing-Tianjin-Hebei for the first time in 2021, ranking first. Intellectual property is an important intangible asset. According to the survey of OCEAN TOMO, an intellectual capital commercial banking company, 83% of the market value of S&P 500 enterprises in 1975 was tangible assets (factories, machinery, real estate, etc.). By 2015, 84% of the market value of enterprises was determined by intangible assets, mainly intellectual property. In the situation where artificial intelligence is considered to be the commanding heights of international competition in the future, artificial intelligence enterprises, as the innovation subjects, must improve the management level of intellectual property rights, so as to ensure their competitiveness and sustainable development.[4.5.6]

Based on the analysis of intellectual property management of various enterprises in recent years, it is found that the application of artificial intelligence technology to standardize management and control should first determine the basic objectives of time management. From this perspective, there is no difference between AI enterprises and other industries. The fundamental purpose of AI enterprises is to improve the comprehensive competitive ability of enterprises while matching the

overall business objectives of enterprises. After determining the management objectives of intellectual property, it is necessary to further formulate the management strategy of intellectual property and determine the key and difficult points of practical management. In general, when determining an enterprise's intellectual property management strategy, it is necessary to fully consider financial budget, enterprise scale, business type and other influencing factors, and scientifically adjust the management strategy in different development stages to adapt to the long-term development of the enterprise more quickly. For example, innovative AI companies need to focus on how to protect their core intellectual property in their initial development. In particular, for the highly competitive independent innovation technology that occupies a segmented market, managers should, on the basis of understanding the quality of intellectual property rights, select the main market with improved legal system and larger product sales volume, and complete the best resource allocation within the limited financial budget. This paper mainly studies how to apply the concept of artificial intelligence technology in the standard system of enterprise intellectual property management.

2. Method

2.1 Internal Requirements

On the one hand, explicit demand. According to the analysis of Enterprise Intellectual Property Management Standards, it can be seen that there are two information management requirements, but there is no unified requirement at present considering the differences in the development of enterprise intellectual property and the ability of resource allocation. However, from the practical perspective of intellectual property information management, the information means such as intellectual property management software and database proposed by relevant standards are very important, which can not only deal with a large amount of information resources efficiently, but also show the internal relationship between data and push relevant information in a timely manner.[7.8]

On the other hand, implicit needs. In addition to determining the requirements of information management, relevant standards are also implied in other chapters. For example, in the document control section, it is proposed that the document should be reviewed and approved before the official release, and only after the revision, the document should be reviewed and approved before the release. If paper review and approval activities are used, it is difficult to track the status of approval in real time, let alone deliver to the countersigner for countersignature, ensure the consistency of approval opinions, and remind the approving personnel in time. This problem can be effectively solved and avoided by using the technical control method of workflow. All requirements in the system collation standards are found, among which the most representative ones involving hidden requirements of information management are shown in Table 1 below:

Chapter	The terms of	Information needs
4.2.2 File Control	A) Reviewed and approved before publication, and reviewed and approved again before publication after revision	Workflow control
	C) Manage files according to their categories and secret levels	Access control
5.3.3 Legal and other requirements	A) Identify and obtain applicable legal and other requirements and establish access channels	Automatic data collection
	B) Keep information on laws and other requirements updated and communicated to employees	The information release
6.4 Information Resources	A) Establish information collection channels to obtain intellectual property information of competitors in their respective fields in A timely manner	The information release
	B) Conduct classification, screening, analysis and processing of information and make effective use of it	Automatic indexing
7.6 confidentiality	A) Define the personnel involved in secret affairs, and set the confidentiality level and access authority	Access control
8.1 project	A) Analyze the intellectual property information involved in the project, including the number of patents of each key technology, geographical distribution and patentee information, etc	Visual analysis
	B) Identify potential partners and competitors of the product through intellectual property analysis and market research	Automatic collection and analysis
8.2 Research and Development	A) Search the intellectual property information, relevant literature and other public information in the field, and analyze the technical development status of the project, the status of intellectual property and the status of competitors	Visual analysis
	B) Timely evaluation and confirmation of research results, clear protection methods and ownership of rights and interests, and timely formation of intellectual property rights	Workflow control
	C) Keep records formed during R&D activities and implement effective management	Workflow control

Table 1 Analysis of hidden requirements of information management

Combined with the above table analysis, it is found that the implicit requirements of information management in the standard involve information collection, information retrieval, information release, workflow control, authority control, automatic collection and classification, visual analysis and so on.

2.2 Technical Support

As a hot topic of current technology research, artificial intelligence can simulate and analyze human intelligence theory, application method and technical structure in the development and research, which belongs to a new technology science. The common application fields are intelligent search, knowledge acquisition, knowledge representation, natural language processing, etc., which have application value in different disciplines and different industries. Related technical support involves the following points:

First, automatic collection and classification. This technology is mainly used to obtain competitive intelligence, such as competitor's patent information, which includes automatic identification and automatic classification. By using the information such as text classification, automatic identification technology, research the applicant for a patent, and the summary, the instruction content, determine the enterprise all patents and new public or other company authorized by the patent, similarity calculation analysis, extract the threshold more patents, determine the applicant achieve the purpose of automatic identification of competitors, use new public and authorized patent samples training every week, To improve the identification of competitors.[10]

Second, automatic indexing. Due to the strong technical nature of patent literature, related technologies are used for many applications. Therefore, in order to solve the problem of patent literature search more quickly, keywords in patent literature should be extracted. The process of automatic keyword extraction using computer technology is called patent automatic indexing. Today, research on this technique falls into three categories: statistical indexing, machine learning indexing, and linguistic indexing. The machine learning process is shown in Figure 3 below:

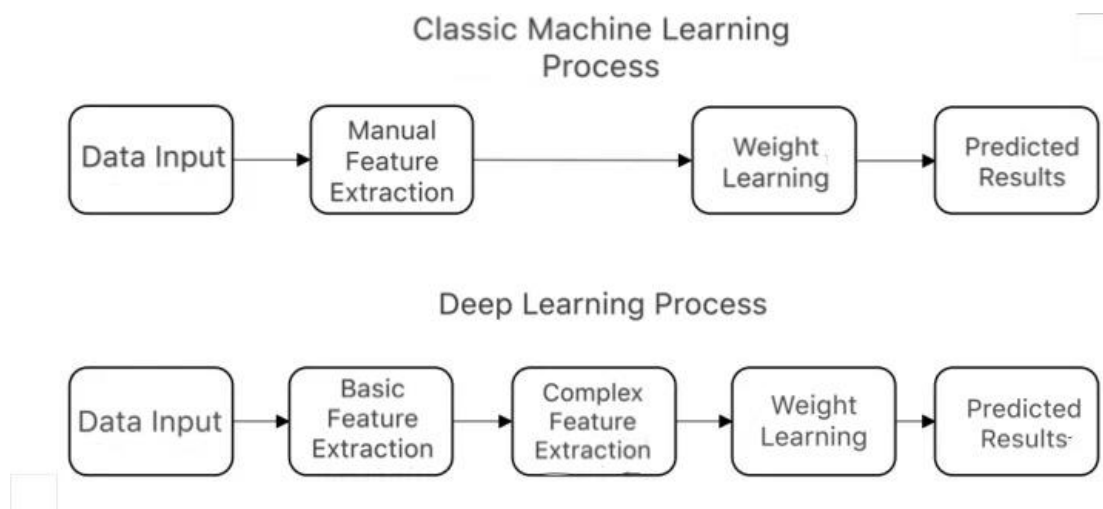


Figure 3 Flowchart of machine learning

Finally, visual analysis. In patent management, it is very important to master the business progress, the distribution of competitors, the relationship between partners and the overall development trend of technology, which can provide effective basis for practical management decisions. In essence, visual analysis is to regard visual perception as the main channel, use visual interactive interface to construct a two-way transformation process of human brain and machine intelligence, transform human knowledge and personalized experience into data analysis and reasoning decision-making, so as to reduce the complexity of data and expand the processing scope of machine intelligence. The specific structure is shown in Figure 4 below:

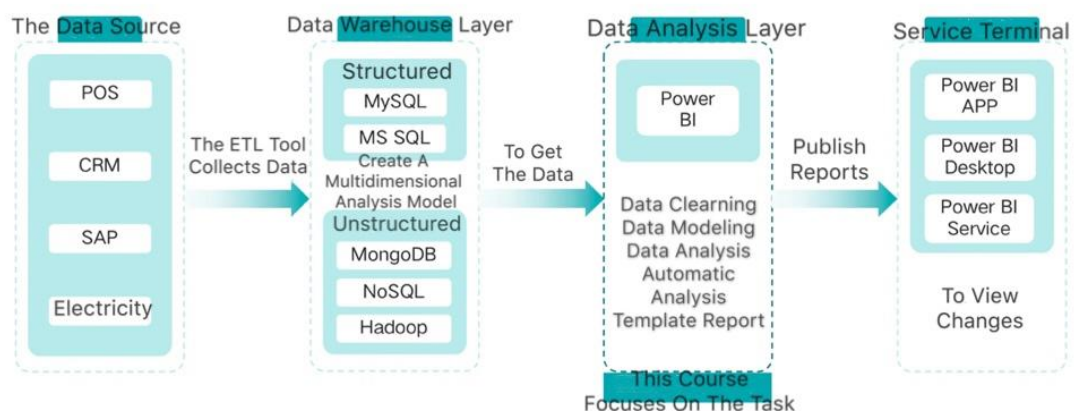


Figure 4. Structure diagram of visual analysis

3. Result analysis

In our core pace of construction gradually accelerating, how to promote the development level of modern manufacturing industry to pay more attention, and begin to combine the Internet and artificial intelligence technologies, deep integration of real economic development model, to improve the current enterprise management countermeasures. Because artificial intelligence has exerted a profound influence on enterprise intellectual property service industry and various legal systems, the enterprise intellectual property management standard system with artificial intelligence as the core is facing many challenges and development opportunities in the new era.

With the development of technology, the extension of the protection of intellectual property rights object has been extended, on the whole, including patents, trade secrets, Copyrights, trademarks, domain names, data types, such as different types of intellectual property rights have different characteristics, for example, a patent is a country in accordance with the law in a certain period of time granted patent holder or the right to the recipients the right to exclusive use of its invention, The scope of protection is wide, and it can protect products (including shape, structure or combination thereof), methods or new technical schemes related to their improvement, but the authorization needs to be reviewed by the State Intellectual Property Office, and meet the statutory requirements of novelty, creativity and practicability, and the process is relatively complex. Software copyright protects computer programs and related documents automatically from the date of completion of the work, but the protection does not extend to the ideas, processes, methods of operation or mathematical concepts used in the development of the software. Enterprises should be familiar with the characteristics of different types of intellectual property and grasp the direction of intellectual property management accordingly. Key elements of the development of artificial intelligence enterprises including algorithm, data, calculate force, therefore, in the direction of the intellectual property management, different from the traditional industry, artificial intelligence, the enterprise will be more focused on artificial intelligence algorithm, chip business secrets and patent protection, the copyright protection of computer software, data compliance and safety aspects of intellectual property management.

Combined with the above research and analysis, it is found that the rational use of the artificial intelligence architecture diagram shown in Figure 5 below can effectively reduce the pressure brought by human labor, and ensure that employees in various departments of the enterprise's intellectual property service industry have more time and energy to study how to achieve high-quality business analysis such as enterprise operation and intellectual property distribution.

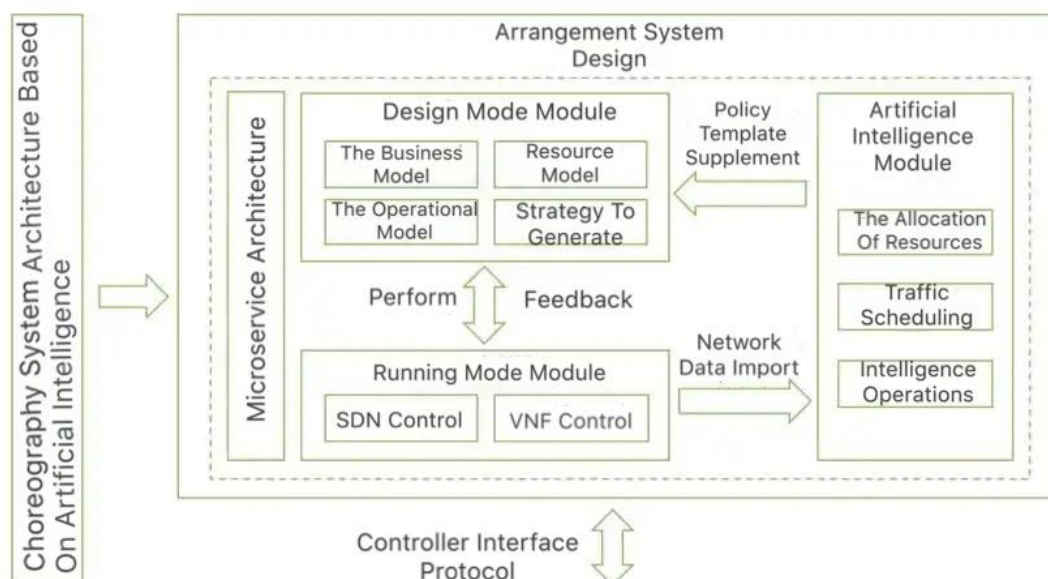


Figure 5. Architecture diagram of artificial intelligence

4. Conclusion

To sum up, in the 21st century, as the era of big data, the continuous increase of the total amount of data, although guaranteeing the perfection of human access to information, also increases the difficulty of information acquisition and application, and the use of artificial intelligence technology for data retrieval, can better meet the changing real needs of users. Therefore, when constructing the standard system of intellectual property management, enterprises should pay attention to the combination of practical business development needs and deeply explore the application direction of artificial intelligence, so as to reserve more excellent intellectual property for the development of enterprises.

Reference

- [1] Yicai Li. Thinking on the demand of intellectual property management system certification service of micro, small and medium-sized enterprises [J]. China Quality Regulation, 2022(4):3.
- [2] Zonghui Li. Research on intellectual property system promoting the development of artificial intelligence in aviation industry. China Invention and Patent, 2020, 17(12):7.
- [3] Yun Yang, Feiyang Zhao. Opportunities and challenges faced by human resource management of small and micro enterprises in the intelligent era [J]. Times Economy and Trade, 2020(29):3.
- [4] Ling Yi, Zhongjing Zhou. The Optimization path of Intellectual Property Management System under the Reform of "Releasing Regulatory Services" [J]. Journal of Nanjing Institute of Technology: Social Science Edition, 2020, 20(3):6.
- [5] Bo Zhao. Accelerating the construction of Standard System and Promoting the industrialization process of Artificial Intelligence -- Interpretation of the National New Generation of Artificial Intelligence Standard System Construction Guide [J]. Information Technology and Standardization, 2020(8):3.
- [6] Rong Xu, Zhixin Wang. Research on the impact of artificial intelligence technology on the financial management system of metallurgical enterprises [J]. China Metals Bulletin, 2020(1):2.
- [7] Binbin Sun, Lingguang Dong, Xiaoyu Cheng. Practice of Higher Vocational Colleges' Implementation of Intellectual Property Management Norms of Higher Education -- A Case Study of Shaanxi National Defense Industry Vocational and Technical College [J]. Shaanxi National Defense Vocational Education Research, 2021, 31(1):4.
- [8] Gang Wei, Jun Xue, Qian Yang, et al. Standard Assisted Intellectual Property Management System -- An Example of V2V Network of Vehicles Anti-collision System Patent [J]. Quality and Standardization, 2021, 000(005):54-57.
- [9] Biao Wang. Analysis on the Current Situation of Enterprise Intellectual Property Legal Risk Management System [J]. Legal Expo (Famous Scholar Forum, Classic Essays), 2021(6):2.
- [10] Yabin Gao, Xining Bian, Jiale Wang. Enterprise intellectual property management status and system construction ideas [J]. Enterprise Reform and Management, 2020(22):2.