

Research on the Improvement Effect of Informatization Level After the Implementation of IS in Aluminum Enterprises

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Abstract: *With the rapid development of a new generation of information technology such as the Internet, big data, Artificial Intelligence Applications and other information technologies, the informatization construction of aluminum enterprises has also received unprecedented attention and support. Through informatization, aluminum enterprises can achieve the goals of automation of the production process, intelligent management decision-making, and precise marketing, and improve the efficiency and competitiveness of the enterprise. However, the development of informatization in aluminum enterprises faces many challenges and opportunities. On the one hand, traditional informatization systems are difficult to meet the complex and changing business needs of modern aluminum enterprises; on the other hand, emerging information technologies such as cloud computing, Internet of Things, blockchain, etc. bring more possibilities and opportunities for aluminum enterprises. Therefore, aluminum enterprises need to continuously explore and innovate to actively respond to the challenges and opportunities of information technology development. In this paper, we will analyze the current situation of information technology development in aluminum enterprises and discuss its future development trend.*

Keywords: Aluminum Enterprises, Information Technology Development, Construction, Current Situation

1. Introduction

Aluminum industry belongs to the sunrise industry and is an important part of domestic material industry. Facing many market demands and challenges such as Industry 4.0 and Made in China 2025, enterprise decision makers need to realize enterprise development goals and business strategies with the help of enterprise informatization strategy, improve the competitive advantages in the future new environment, continuously enhance the core competitiveness of enterprises, pay attention to the development and utilization of their own information resources, and continuously improve the level of enterprise informatization construction¹.

In the new era, China's aluminum industry is shifting from high-speed development to high-quality development, facing the severe test of slowing growth and declining efficiency, but also showing positive changes such as structural optimization and enhanced innovation². China's aluminum enterprises gradually recognize the importance of information technology construction, and began to vigorously promote the construction of information technology, the use of information technology by enterprises can significantly improve staff efficiency, enhance operational capacity, and create new market opportunities and compete for new market

share. With the rapid development of science and technology and the advancement of globalization, informatization construction has become a necessary way for aluminum enterprises to enhance their competitiveness and achieve sustainable development.

2. Literature review

The enterprise scale is expanding, the complexity of business content is more and more obvious, the enterprise relies more and more on the degree of information system, and the functions carried by the enterprise are more and more comprehensive. In order to ensure the continuous operation and healthy development of enterprises, information technology has become the main optimization path. However, from the point of view of the overall informationization construction of modern enterprises, there is still a need for continuous improvement.

2.1 Dynamics of academic research in China

(1) Aluminum enterprise IS system

In aluminum enterprises, the application of IS system is very important. For example, Shenyang Aluminum & Magnesium Technology Co. Ltd, which is mainly engaged in the design of the overall network architecture of the whole plant, PLC/DCS control system, automation instrumentation system, programming and debugging of on-site PLC/DCS control system software, research and application of APC software, development of MES system for the aluminum industry, industrial Internet platform and security and protection construction business, serves all major domestic and foreign alumina plants, electrolytic aluminum plants, Carbon plant and self-provided power plant at home and abroad.

In addition, the Ministry of Emergency Management has promoted nationwide the risk monitoring and early warning system for aluminum-processing enterprises, which can realize the effective "technological prevention" means of moving the production safety gate forward and preventing and curbing accidents. At present, the monitoring and early warning platform has been accessed by 533 dust and explosion-related enterprises, 56 iron and steel enterprises, and 52 aluminum processing enterprises.

In the academic world, research on IS systems for aluminum companies is also very active. For example, the Chinese Academy of Engineering has initiated the project "Basic Research on Improving the Quality of Aluminum", which aims to improve the quality of aluminum and thus promote the development of the aluminum industry.

(2) A study of the effect of the implementation of the IS system in aluminum enterprises on the level of informationization of the enterprises.

Design and implementation of a DCS-based business system for an aluminum smelter: This study examines how DCS (Distributed Control System) can be used to design and implement a business system for an aluminum smelter. The study points out that aluminum smelting companies face the challenges of data collection and system integration due to the differences in production processes and procedures. By introducing DCS system, these problems can be effectively solved to improve the informationization level of the enterprise.

Guizhou Aluminum Processing Plant Enterprise Informatization Realization Scheme and Application System Design: this master's thesis studies how Guizhou Aluminum Processing Plant realizes informatization and designs the corresponding application system. The thesis points out that through in-depth analysis of the needs of enterprise management and its specific

connotation, combined with the development trend of the architecture of modern network system, the guiding ideology and design principles for realizing enterprise network management information system can be put forward. At the same time, the thesis also makes a detailed discussion on the design and realization of the function, process and database of the file management module of the office automation system³.

(3) Evaluation of the Implementation and Effectiveness of Environmental Cost Management in Aluminum Corporation of China (Alcoa): This study evaluates the effectiveness of the implementation of environmental cost management in Alcoa⁴. The study shows that environmental cost management can be used as an important basis for corporate decision-making, which can help enterprises realize green and sustainable development.

2.2 Foreign Academic Research Dynamics

(1) Aluminum enterprise IS system.

Professor Zhu Qiang, who has conducted academic exchanges at Aluminum Canada and Siemens Germany, as well as at the University of Irving, etc., has been involved in the development of on-line monitoring and control technologies based on the temperature-occasion deformation field inhomogeneity and its influence on the tissue changes during heat deformation. During his research fellowship at the University of Sheffield and the University of Cambridge, Professor Zhu Qiang was engaged in the research of thermal deformation behavior and organization of metallic materials, focusing on the research of on-line monitoring and control technology based on the unevenness of the deformation field at temperature during the thermal deformation process and its influence on the organization change. He worked as Chief Metallurgical and Materials Engineer at Cummins Turbo Technologies Ltd. in the UK, engaging in global turbocharging .

(2) A study of the effect of the implementation of the IS system in aluminum enterprises on the level of informationization of the enterprises.

Generally speaking, enterprise information systems are implemented in foreign aluminum enterprises mainly to improve the operational efficiency of enterprises, reduce costs and enhance competitiveness. This kind of system usually covers various departments of the enterprise, including production, sales, finance, human resources, etc.⁵, which can help the enterprise realize information sharing and improve decision-making efficiency.

In addition, with the development of emerging technologies such as cloud computing, big data, and artificial intelligence, more and more organizations are adopting these technologies to improve their IS systems. For example, the use of cloud computing can greatly reduce the investment costs of IT hardware and software, the use of big data can better understand and predict market demand, and the use of Artificial Intelligence Applications can automate some repetitive tasks and improve work efficiency.

3. Research methodology

This survey was analyzed descriptively by SPSS so as to analyze the relationship between enterprise informatization and Enterprise Information Concept, organizational management, Information Marketing Methods, Production and Processing Informatization, Artificial Intelligence Applications, and employees' own level of information literacy.

4. Implementation of IS in Aluminum Enterprises

4.1 Enterprise informatization status before IS implementation

China's aluminum industry after years of development, showing the characteristics of cluster development and globalization development trend. East China, South China and other regions account for more than 70% of the national share of aluminum production, has formed a number of representative industrial clusters such as Shandong Binzhou, Guangdong Nanhai, Henan Gongyi. At the same time, different enterprises through wholly-owned factories, cooperative factories, cross-border mergers and acquisitions, etc., in the United States, Thailand, South Korea, Italy and other countries to actively plan the implementation of the global layout⁶.

Global risk challenges are obviously rising, domestic energy resources and environmental constraints are intensifying, the industry's internal industrial structure and other issues accumulated and released, the development of aluminum enterprise differentiation is obvious, which can be mainly divided into primary elements are different and higher elements are different⁷.

4.2 IS selection and implementation method

In aluminum enterprises, the selection of information system (IS) IS usually based on the following key factors: (1) business needs: The IS system should be able to meet the daily operational needs of the enterprise, including production management, sales management, financial management and other links. (2) Complete functions: The IS system should contain all the necessary functional modules, such as order management, inventory management, financial statements, etc., and there should be good integration between these functional modules. (3) Ease of use: The IS system should be easy to use, so that employees can quickly familiarize and master its use. (4) Stable performance: The IS system should have good performance and be able to maintain stable operation under high concurrent access. (5) Security: The IS system should have adequate security measures to prevent data leakage or illegal access. The implementation of IS system usually includes the following steps: (1) Requirement analysis: First, it IS necessary to clarify the business requirements of the enterprise, determine what functions the IS system should have, and how these functions can meet the actual needs of the enterprise. (2) System design: After clarifying the requirements, it is necessary to carry out system design, including database design, interface design, interface design, etc., to ensure that the system can meet the business needs. (3) System development: According to the system design, start to develop the system, including writing code, testing, etc. (4) System deployment: After the completion of system development, it is necessary to deploy the system, including hardware configuration, software installation, data migration, etc. (5) System training: In order to enable employees to proficiently use the IS system, it is necessary to conduct system training, including system operation training, system fault handling training, etc.

4.3 IS Maintenance and Future Development Direction

For the information system (IS) maintenance strategy of aluminum enterprises, we can consider from the following aspects:

(1) Upgrade the system

With the development of technology, the information system of enterprises also needs to be upgraded regularly to adapt to new business needs and technological changes. For example, the introduction of new technologies such as cloud computing and big data can help enterprises process and store data more efficiently, thereby improving business processing speed and accuracy.

(2) Rectify the fault

The stable operation of information systems is essential to the daily operation of enterprises⁸. Therefore, enterprises need to carry out regular system inspection and maintenance to discover and eliminate potential faults in time to ensure the normal operation of information systems.

(3) Data backup

Data is an important asset for your business, so you need to back it up regularly to prevent data loss. In addition, enterprises also need to establish a sound data recovery mechanism, once the data is lost, it can be quickly restored to ensure the normal operation of the enterprise.

As for the future development direction of the IS maintenance strategy of aluminum enterprises, it can be considered from the following aspects: 1. Automation and intelligence with the development of Artificial Intelligence Applicationstechnology, the maintenance of enterprise information systems can also gradually realize automation and intelligence. For example, through machine learning algorithms, system failures can be automatically detected and diagnosed, greatly improving maintenance efficiency and accuracy.

Go cloud. With the popularization of cloud computing technology, the maintenance of enterprise information system can also gradually realize the cloud. This can not only save the enterprise's hardware equipment investment, but also achieve access and management anytime and anywhere, which greatly improves the work efficient⁹.

Go mobile. With the development of mobile Internet technology, the maintenance of enterprise information system can also be mobile. In this way, it is not only convenient for employees to carry out system maintenance anywhere, but also to understand the operating status of the system in real time, and find and solve problems in time.

Different elementary elements. The resource advantages of different regions affirm its first position in production development. However, with the development of resources and the development of science and technology, its decisive decline in competition, such as labor, natural resources and so on. Labor scarcity, resource depletion, environmental pollution and so on have become the first element of trouble.

The information construction of aluminum enterprises in China is gradually being paid attention to and promoted. However, due to the particularities of the aluminum industry, such as complex business processes, difficult data access, weak infrastructure, high input costs, and low quality of personnel, it will be more difficult to achieve digital transformation. With the increasingly stringent environmental regulations and the reduction of carbon dioxide emissions, aluminum alloy has become an important green material. Scientific and technological breakthroughs will accelerate the upgrading of the aluminum industry, making it more competitive and a broader market.

5. Investigation on The Improvement Effect of Information Level After the Implementation of Aluminum Enterprise IS

5.1 Data Sources

The data in this paper are from the 2020 project of basic scientific research ability improvement of young and middle-aged teachers in universities in Guangxi, a research topic entitled "Research on the impact of the implementation of IS in aluminum Enterprises on performance". This topic mainly selects the employees of different domestic enterprises as the research object,

through the sample investigation and analysis of these employees. A total of 130 samples were sampled by random sampling method and 120 valid questionnaires were obtained. The sample survey information is shown in Table 1.

Table 1: Basic situation of research objects of aluminum enterprises N= 120

Item	Description
Aluminum business naturet	- There are 52 state-owned enterprises, accounting for 43%. - There are 68 private enterprises, accounting for 57%.
Enterprise siz	- Micro companies (1-25 employees), 9.2%. - Small companies (26-99 employees), 17.5%l. - Medium-sized companies (100-999 employees), accounting for 56.7% - Large companies (1000+ employees) account for 16.7%
Position in the company	- Senior management (decision-making level), accounting for 7.5%. - Middle management (implementation level), accounting for 25%. - Bottom management (execution level), accounting for 39.2% - Production employees, accounting for 11.7% - Sales employees, 16.7%.
Gender	- Female, accounting for 52.5%. - Male, accounting for 47.5%.
Age	- 18-24, accounting for 15%. - 25-34, accounting for 58.3% - 35-44, accounting for 16.7% - 45-54, accounting for 6.7% - Those aged 55 and above accounted for 3.3%
Information technology investment	- Less than 1 million RMB, accounting for 15.8%. - 2 million yuan--5 million RMB, accounting for 26.7%. - 5 million yuan--8 million yuan, accounting for 30%. - More than 8 million yuan, accounting for 27.5%.

5.2 Determination of information level measurement indicators

(1) Enterprise Information Concept: Based on the content proposed by Alalwan J A and Weistroffer H R in 2012, combined with field research and expert opinions, six questions are set: "The degree to which you think enterprise management depends on informatization", "the degree to which you think enterprise production and products depend on informatization", "the degree to which you think enterprise technological innovation depends on informatization", "the degree to which you think enterprise resources and talents depend on informatization", "the degree to which you think enterprise marketing depends on informatization" and "the degree to which you think enterprise risk management and control depends on informatization" Degree ". The answer was designed by using the Likert scale, and the answer was designed into 5 levels: very small, small, average, large, and very large. Scores of 1, 2, 3, 4 and 5 were assigned respectively and treated as distance variables in regression analysis.

(2) Organizational Management Informatization: 6 questions were set to measure: "The quality of the information tools (such as OA, personnel system, financial system, etc.) managed by your enterprise", "the information level of the process management of your enterprise", "the level of the application of information tools by the personnel managed by your enterprise", "the importance of information management by the leaders of your enterprise in the change management" and "the commitment of the leaders of your enterprise in management Frequency of use of information technology ". The answer was designed by using the Likert scale, and the answer was designed into 5 grades: very poor, poor, average, good, and very good. Scores of 1, 2, 3, 4 and 5 were assigned respectively and treated as distance variables in regression analysis.

(3) Information Marketing Methods: Based on the content proposed by Holliman G and Rowley J in 2014 and combined with field research and expert opinions, four questions are set: "Your company will implement digital marketing content", "Your company will use network, big data, stream quantification, short video and other information strategies in marketing strategy", "Your company will use network, big data, stream quantification, short video and other marketing effect indicators in marketing", and "Your company will emphasize the use of network marketing, digital marketing, and other marketing indicators in marketing". Big data marketing, live marketing and other skills." The answer was designed by using the Likert scale, and the answer was designed into 5 levels: very small, small, average, large, and very large. Scores of 1, 2, 3, 4 and 5 were assigned respectively and treated as distance variables in regression analysis.

(4) Production and Processing Informatization: Based on the content proposed by Bogner E, Voelklein T, and Schroedel O in 2016, combined with field research and expert opinions, four questions were set: "The degree of automation in the production and processing of your products", "the degree of digitization in which your production processes are broken down into specific sub-processes", "the degree of networking of your production processes" and "The degree of systematic increase in the flexibility of your products and processes through information and communication technology data collection and integration". The answer was designed by using the Likert scale, and the answer was designed into 5 levels: very small, small, average, large, and very large. Scores of 1, 2, 3, 4 and 5 were assigned respectively and treated as distance variables in regression analysis.

(5) Artificial Intelligence Applications : Based on the content proposed by Lee J in 2020 and Furman J and Seamans R in 2019, four questions are set in combination with field research and expert opinions: "Enterprises consider a systematic approach to industrial AI using advanced sensing, communication and big data analytics platform technologies", "Leveraging the power of industrial AI can improve enterprise production line uptime, productivity and operational efficiency", "In predictive maintenance, AI can detect early changes in production systems and predict remaining useful life," And further optimize maintenance tasks to avoid operational disruptions "and" The application of Artificial Intelligence Applications in the management of enterprise organizations." The answer was designed by using the Likert scale method, and the answer was designed into 5 levels: very small, small, average, large, very large or very poor, poor, average, good, and very good. Scores of 1, 2, 3, 4 and 5 were assigned respectively and treated as distance variables in regression analysis.

(6) Employees' own information literacy level: Based on the content proposed by Lee C C, Lin S P, Yang S Lin 2013, combined with field research and expert opinions, four questions are set: "I will find this EIT system useful for my work", "using this EIT system enables me to complete tasks faster", "using this EIT system improves my work efficiency" and "If I use the current EIT system, my chances of getting a raise will increase". The answer was designed by using the Likert scale, and the answer was designed into 5 levels: very small, small, average, large, and very large. Scores of 1, 2, 3, 4 and 5 were assigned respectively and treated as distance variables in regression analysis.

(7) This study used SPSS19.0 to test the reliability and validity of the data of the above variables. Among them, the independent variables: Cronbach 'α value and KMO value of the promotion effect of enterprise concept are 0.791 and 0.791 respectively; The Cronbach 'α value of organization management was 0.812 and the KMO value was 0.795. The Cronbach 'α value and KMO value of marketing means are 0.781 and 0.775 respectively. Cronbach 'α value and

KMO value were 0.815 and 0.781 respectively. The Cronbach ' α ' value and KMO value of Artificial Intelligence Applications application (AI) are 0.838 and 0.811 respectively. The Cronbach ' α ' value and KMO value of employees' information literacy level were 0.744 and 0.738 respectively. This indicates that the reliability and validity of the measurement scale of 6 variables are relatively high, and the next empirical analysis can be carried out.

5.3 Analysis of the effect of improving the informatization level after the implementation of IS

(1) Enterprise Information Concept to enhance the effect

Table 2: Enterprise Information Concept N= 120

Degree of conformity item	very small	smaller	common	Larger	very large
Enterprise management relies on the degree of informatization	0.8%	5.0%	10.0%	73.3%	10.8%
The degree to which an enterprise's production and products rely on informatization	0%	5.0%	10.8%	47.5%	36.7%
The degree to which an enterprise's technological innovation relies on informatization	0%	3.3%	5.8%	53.3%	37.5%
The degree to which an enterprise's resources and talents rely on informatization	0.8%	2.5%	12.5%	50.8%	33.3%
The degree to which an enterprise's marketing relies on informatization	0.8%	4.2%	8.3%	51.7%	35.0%
The degree to which an enterprise's risk management and control relies on informatization	0.8%	3.3%	15.8%	53.3%	26.7%

As can be seen from Table 2, in the existing survey, 73.3% of the respondents believe that enterprise management relies heavily on informatization, and more than 45% of the respondents believe that enterprise production and products, enterprise technological innovation, enterprise resources and talents, enterprise marketing, enterprise risk management and control rely heavily on informatization. This shows that most respondents believe that the production and products of enterprises, technological innovation of enterprises, resources and talents of enterprises, marketing of enterprises, and risk management and control of enterprises are inseparable from informatization. In other words, from the above table, we can see that more than 80% of respondents believe that informatization promotes the development of enterprises.

(2) Organizational Management Informatization

Table 3: Organizational Management Information level N= 120

Degree of conformity item	very small	smaller	common	Larger	very large
Quality of information tools for enterprise management (such as OA, personnel systems, financial systems, etc.)	1.7%	3.3%	14.2%	49.2%	31.7%
Process informatization level of enterprise management	4.2%	17.5%	44.2%	34.2%	4.2%
The level of application of information tools by enterprise management personnel	0.8%	3.3%	18.3%	50.8%	26.7%
The importance that business leaders attach to information management in change management	4.2%	7.5%	41.7%	46.7%	4.2%
The frequency with which business leaders commit to using information technology in management	5.8%	14.2%	60.0%	20.0%	5.8%

As can be seen from Table 3, 49.2% of the respondents think that their enterprise management information tools are good, more than 70% of the respondents think that their enterprise management process information level is above average, and more than 80% of the respondents think that their enterprise management personnel are satisfied with the application of information tools. More than 50% of the respondents believe that their enterprise leaders attach a high degree of importance to information management in change management, and more than 80% of the respondents believe that their enterprise leaders commit to the use of information means in management. In other words, respondents are satisfied with the use of information in their organizations.

(3) Marketing means informatization

Table 4: Marketing Means Informatization level N= 120

Degree of conformity item	Degree of conformity				
	very small	smaller	common	Larger	very large
Enterprises will digitize their marketing content	0.8%	5.0%	15.0%	44.2%	35.0%
Enterprises will use information strategies such as networking, big data, traffic, and short videos in their marketing strategies	1.7%	5.8%	7.5%	50.8%	34.2%
Companies will use networking, big data, traffic, short videos, etc. as marketing effect indicators in marketing	1.7%	10.0%	10.8%	54.2%	23.3%
Enterprises will emphasize the use of online marketing, digital marketing, big data marketing, live broadcast marketing and other skills in marketing	1.7%	8.3%	9.2%	55.0%	25.8%

As can be seen from Table 4, more than 70% of the respondents believe that their enterprises will implement digital marketing content, and more than 80% believe that their enterprises will use information strategies such as networking, big data, streaming quantification and short video in their marketing strategies. More than 70% of the respondents believe that their enterprises will use networking, big data, stream quantification, short video and other marketing effect indicators in marketing, and more than 70% of the respondents believe that their enterprises will emphasize the use of network marketing, digital marketing, big data marketing, live marketing and other skills in marketing. In other words, more than 70% of the respondents believe that their enterprise informatization will diversify Information Marketing Methods.

(4) Production and Processing Informatization

Table 5: Production and Processing Informatization Level N= 120

Degree of conformity item	Degree of conformity				
	very small	smaller	common	Larger	very large
The degree of automation of production and processing of the company's products	5.0%	7.5%	8.3%	44.2%	35.0%
The degree of digitalization of the company's production process into specific sub-processes	3.3%	6.7%	11.7%	50.0%	28.3%
The degree of networking of the production process of the enterprise	1.7%	5.8%	11.7%	43.3%	37.5%
Enterprises use information and communication technologies to collect and integrate data to systematically improve the flexibility of products and processes.	1.7%	5.8%	12.5%	50.0%	30.0%

As can be seen from Table 5, more than 79% of respondents believe that their enterprises have a high degree of automation in Production and Processing Informatization, more than 78% of respondents believe that their enterprises have a high degree of digitization in which the

production process is decomposed into specific sub-processes, and more than 77% of respondents believe that their enterprises have a high degree of networking in the production process. More than 80% of the respondents believe that their enterprises will systematically improve the flexibility of products and processes through information and communication technology data collection and integration. In other words, more than 75% of the respondents believe that the informatization of their enterprises will make the production and processing of products beneficial.

(5) Artificial Intelligence Applications (AI)

Table 6: Artificial Intelligence Applications Level N= 120

Degree of conformity item	very small	smaller	common	Larger	very large
	Enterprises consider a systematic approach to industrial artificial intelligence using advanced sensing, communication and big data analysis platform technologies	0.8%	8.3%	11.7%	52.5%
Leveraging the power of industrial artificial intelligence can improve enterprise production line uptime, productivity and operational efficiency	2.5%	7.5%	10.0%	46.7%	33.3%
In terms of predictive maintenance, artificial intelligence can detect early changes in production systems and predict remaining service life, and further optimize maintenance tasks to avoid operational disruptions	1.7%	6.7%	13.3%	50.0%	28.3%
Application of artificial intelligence in enterprise organization management	7.5%	16.7%	43.3%	32.5%	7.5%

As can be seen from Table 6, more than 78% of the respondents believe that their enterprises consider adopting advanced sensing, communication and big data analysis platform technology systematic industrial Artificial Intelligence Applications methods, and more than 79% of the respondents believe that their enterprises can use industrial Artificial Intelligence Applications to improve the uptime, productivity and operational efficiency of their production lines. More than 78% of the respondents believe that their enterprises in predictive maintenance, Artificial Intelligence Applications can detect early changes in the production system and predict the remaining service life, and further optimize maintenance tasks to avoid operational disruption, more than 75% of the respondents believe that their enterprises in the application of Artificial Intelligence Applications in enterprise organization management is not good, in other words, More than 75% of respondents believe that their enterprise informatization and Artificial Intelligence Applications applications are inseparable.

(6) Employees’ Own Information Literacy Level

Table 7: Employees’ Own Information Literacy Level N= 120

Degree of conformity item	very small	smaller	common	Larger	very large
	I will find this enterprise information system useful for my work	1.7%	0.8%	9.2%	53.3%
Using this enterprise information system enables me to complete tasks faster	0.8%	2.5%	6.7%	55.0%	35.0%
Using this enterprise information system has improved my work efficiency	0%	3.3%	8.3%	45.8%	42.5%
If I use the current enterprise information system, my chances of getting a salary increase will increase.	3.3%	5.0%	24.2%	45.0%	22.5%

As can be seen from Table 7, more than 88% of the respondents believe that the enterprise information system is very useful for their work, more than 88% of the respondents believe that their use of the enterprise information system enables them to complete tasks faster, and more than 87% of the respondents believe that their use of the enterprise information system improves work efficiency. More than 67% of the respondents believe that their use of the current enterprise information system will increase the chance of salary increases, in other words, more than 65% of the respondents believe that their enterprise information is conducive to personal development.

6. Conclusions and policy recommendations

6.1 Research conclusion

In summary, the results of this study are as follows: Enterprise informatization is beneficial to the development of enterprises and employees.

Through the analysis of the questionnaire results of the above six aspects of enterprise informatization level, we find that respondents have a relatively high evaluation of enterprise informatization evaluation, and the theoretical model also verifies that the effect of enterprise informatization has a significant positive effect on the development of enterprises and the development of employees themselves, and has a significant positive impact on the result of enterprise informatization through its intermediary role, and its influence coefficient is also large. Therefore, the future trend of aluminum enterprise informatization development will pay more attention to data-driven and intelligent applications. With the advent of the era of big data, aluminum enterprises need to establish a sound data collection, storage, processing and analysis system, mining the value of data, and improving the level of corporate decision-making. At the same time, the application of Artificial Intelligence Applicationstechnology will also be more and more extensive, such as machine learning, natural language processing, image recognition, etc. These technologies will further promote the development of aluminum enterprise information to the intelligent direction.

(1) Digital transformation In the face of increasingly saturated markets and intensifying competition, the defects of rough management are increasingly revealed, and the efficiency of industry management is declining. In order to further meet the individual needs of aluminum enterprise customers, adapt to the current and future development direction, and greatly earn profits, enterprises need a set of industry-wide information solutions and operation management system to help manage the company. Enterprises can also use information management to collect opinions and suggestions from employees to lay a solid foundation for future innovation and development.

(2) Intelligent construction

For itself, the intelligent information construction transformation of the aluminum industry is not only an opportunity to catch up with advanced enterprises in the industry, but also an opportunity to improve its own structure. Through the introduction of artificial intelligence, machine learning and other advanced technologies, to achieve process optimization, predictive analysis, decision support and other functions, reduce redundant and repetitive work, improve resource utilization efficiency, and further improve the operational efficiency and profitability of enterprises.

(3) Green development

Climate change and environmental protection have been important topics in global discussions. The aluminum industry must follow the principles of sustainable development, environmental protection and energy saving, and pay more attention to energy conservation and emission reduction and green production. The global aluminum industry is gradually transforming to a more environmentally friendly, low-carbon and sustainable direction.

(4) International Development

The development of the aluminum industry will be more international, open up the global market, strengthen international cooperation, optimize the global supply chain and other means, and constantly expand the market vision.

(5) Large-scale technology promotion: The Ministry of Industry and Information Technology, the National Development and Reform Commission, and the Ministry of Ecology and Environment have focused on the promotion of large-scale technology for aluminum electrolytic cells and alumina production lines, key technologies for energy management in aluminum electrolysis, and new technologies for stable flow and thermal insulation aluminum.

(6) Intelligent Production

With the development of artificial intelligence, big data and other technologies, aluminum enterprises will realize the intelligence of the production process. Through the introduction of intelligent equipment and the establishment of intelligent production lines, aluminum enterprises can realize the automation and intelligence of the production process, and improve production efficiency and product quality.

(7) Supply chain Informatization

Supply chain is an important link of aluminum enterprises, and information technology will play an important role in supply chain management. By establishing a supply chain information platform to realize information sharing and collaboration in all links of the supply chain, the operational efficiency and flexibility of the supply chain can be improved and the cost can be reduced.

(8) Internet of Things technology applications

The Internet of Things technology will be widely used in the production, storage, transportation and other links of aluminum enterprises. Through the Internet of Things technology, aluminum enterprises can achieve remote monitoring of equipment, fault warning and other functions, 12 to improve production efficiency and equipment utilization.

(9) Information security guarantee

Information security is an important guarantee for the informationization development of aluminum enterprises. Aluminum enterprises need to strengthen information security awareness, establish a sound information security management system, and protect the information assets of enterprises and customer privacy.

In general, the development status and trend of aluminum enterprise information construction is in a transition period, facing many challenges, but also full of opportunities. With the progress of technology and changes in market demand, aluminum enterprise information construction will have more possibilities and opportunities.

6.2 Policy suggestions

Based on the above research conclusions and the personal experience of field research, this paper puts forward the following policy suggestions: From conclusion 1, it can be seen that enterprise informatization plays a positive role in promoting enterprise production, technological innovation, resources and talents, market influence and risk control. But after all, enterprise construction informatization will lead to the transfer of work, if only to settle the unemployed employees, reassure employees, and can not directly solve the problem. In the follow-up of enterprise informatization construction, can we consider arranging employees to learn the way of informatization construction to participate in informatization construction, and regularly announce the progress to achieve mutual benefit and win-win situation? Conclusions (1) and (2) show that enterprise informatization plays an important role in the future development of enterprises, and enterprises should consider using informatization to make enterprises move forward stably on the road of development and innovation. From conclusion (3) and Conclusion (4), it can be seen that the future trend of enterprise development is inseparable from greening and internationalization, and enterprise informatization, as a tool, can make enterprises better fit these concepts. It is suggested that the enterprise informatization program should be set around green and international. Conclusions (5) and (6) show that enterprise information plays an optimized and convenient role in the production and processing of enterprises, so it is suggested that the enterprise information program should be adapted to the innovative production and processing Settings. From conclusions (7), (8) and (9), it can be seen that enterprise informatization can ensure information sharing and security, and can reduce a lot of troubles and even costs in actual production. Therefore, it is suggested that enterprises learn more from mature enterprises in information security.

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