Research on the Application Value of Data Analysis in Enterprises

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Abstract: With the advent of the information age and the development of economic globalization, enterprise data is growing at an alarming rate. Although this has bid farewell to the lack of factual data in the past, how to make better use of this data has become a new era. The challenges of various enterprises, so intelligent data analysis system is emerging. This paper combines the application of intelligent data analysis in China and the development of intelligent data analysis at home and abroad. It mainly discusses the meaning and main technology of intelligent data analysis, analyzes the problems existing in intelligent data analysis in China, and proposes the improvement suggests of intelligent data analysis suitable for China's national conditions.

1. Introduction

With the continuous development of various informatization constructions, the processing of massive data and how to realize the transformation from data to information, from information to knowledge, from knowledge to profit, has become a huge topic facing enterprises, facing the vast data. Companies are more eager to get moderate, effective information from complex data, and can turn it into knowledge to make effective and fast decisions. However, the traditional analytical tools have long been unable to meet the requirements of many enterprises, and the problems they have revealed are increasing: the integration ability is limited, the timeliness and the liquidity are poor, and the answers to the questions are not thorough. It is precisely for such needs that intelligent data analysis comes along. It deepens informatization from management to decision making, allowing business managers and decision makers to view business data in a clearer way, improve business efficiency, increase profits and build good customer relationships, and enable companies to discover in the shortest possible time. At present, intelligent data analysis is increasingly favored by governments and enterprises all over the world. However, the development of intelligent data analysis in China started late and the development between regions is relatively unbalanced. Therefore, there are still many imperfections in the application of intelligent data analysis. This paper mainly expounds the connotation, inevitability and related application of intelligent data analysis, and analyzes the current situation of intelligent data analysis in China at the present stage, and puts forward suggestions in line with China's national conditions.

2. The Main Technology of Intelligent Data Analysis

The role of intelligent data analysis tools is to turn data into knowledge, turn potential knowledge into knowledge that can be used for work, and help us make timely judgments and take sensible actions in business management and development. How to effectively convert data into information, knowledge and wisdom is the core issue of BI. It involves four main technologies: Data Warehousing (DW) technology, Online Analytical Processing (OLAP) technology, Data Mining (DM) technology and Data Visualization (DV) technology.

2.1 Data Warehouse

Data warehousing is the foundation and core of intelligent data analysis. It is a collection of data to better support the decision analysis process of enterprises or organizations. It has four characteristics: subject-oriented, integrated, relatively stable, and changing over time. Techniques

include data extraction, cleaning, conversion, loading, and maintenance. The data warehouse completes the data collection, integration, storage, management, etc., extracts or loads a large amount of original information for intelligent data analysis, and merges data of various data sources to support enterprise management and business decision-making. To fully realize the potential of intelligent data analysis, it must be combined with the development of data warehouse.

2.2 Online Analytical Processing (OLAP)

OLAP is a complex analysis technology based on massive data and belongs to data warehouse applications. It enables management decision-makers at all levels to perform complex and multi-dimensional analysis of data in data warehouses from different perspectives for a specific topic, and to present query and analysis results to decision-making in an intuitive and understandable form. Including multi-dimensional online analytical processing, relational online analytical processing and hybrid online analytical processing. This process generally includes three options: pre-calculation, instant calculation and storage, and calculation at any time. The technology can be used in multiple areas such as market profit analysis, logistics analysis, economic budgeting and forecasting, tax planning, cost, accounting, and more.

2.3 Data Mining (DM)

DM refers to the process of extracting information and knowledge hidden in it from a large number of incomplete, noisy, fuzzy, random data that people do not know beforehand but are potentially useful. Its value lies in scanning data warehouses or building very complex queries, having parallel processing capabilities, and supporting multiple acquisition technologies. Data mining tools have good extension capabilities and can support a variety of data (or documents) that may be encountered in the future. And the computing environment. Data mining can perform correlation analysis, classification and prediction analysis, cluster analysis, heterogeneous analysis, and evolution analysis to help you obtain the various knowledge required for decision making. Data mining can find complex or subtle answers that are not possible with online analytical processing.

2.4 Data Visualization Technology

DV is a theory, method and technology that uses computer graphics and image processing technology to convert data into graphics or images and display them on the screen. It is interactive, multidimensional and visual. Information visualization not only uses images to display multi-dimensional non-spatial data, but also allows users to deepen their understanding of the meaning of the data, and uses visually intuitive images to guide the retrieval process and speed up retrieval. The combination of data mining data visualization technology enables analysts to have a deeper and more intuitive understanding of the data.

Online analytical processing and data mining are data value-adding technologies that acquire two different goals based on the data warehouse. Data visualization displays the data as an intuitive graphical image. If these three technologies can be integrated to a certain extent, the analysis operation will be intelligent, the mining operation will be standardized, and the platform will be humanized, thus enhancing the practical value of intelligent data analysis technology.

3. Analysis of Problems in Intelligent Data Analysis

3.1 BI market is difficult to establish good sales channels

At present, the domestic BI market is very chaotic. Before 2004, most of the mainstream BI vendors in the world used agents to enter China. Only the Brio family personally made the Chinese market. The vicious competition of agents led to chaotic market prices. The implementation of the same system, the price may vary greatly, and even the piracy in the market, resulting in chaos in the BI market. However, most domestic companies need localization services in the future, so now most BI vendors are selling through branches or offices, and this approach will change. However, China started relatively late in this field. The sales and service requirements of intelligent data analysis

require agents to have strong capabilities. How to select, train and develop these agents will be a problem faced by domestic intelligent data analysis.

3.2 Product implementation and service issues

In a chaotic market environment, there are many product implementation and service issues. Foreign BI-software often discourages customers due to its high price. Sometimes, due to foreign products, the implementation of various services and service problems, and even customer complaints. Although the domestic BI-commerce has the advantage of being familiar with China's national conditions, but because of the late start, the understanding of BI is not clear enough, all aspects are relatively weak, the BI system is still not perfect in function, and its products are difficult to convince customers.

3.3 Lack of BI specification

The bi-implementation is characterized by the fact that once the data is extracted and integrated into the data warehouse, the system structure of BI is relatively stable. The theoretical research and model establishment of the domestic data warehouse part is relatively mature, and the source part of the data is extracted and integrated into the data warehouse from the information processing system based on business processing. At present, these systems lack standards. The structure of various original data is varied, and the products of different manufacturers are different products of the same manufacturer. Different modules between the same product and different versions of the same module are not uniform. Therefore, for the implementation of the BI system, the workload of data extraction and integration is very large.

3.4 The enthusiasm of adopting the BI analysis system is low

Due to the limitations of the subjective conditions of the subject, the information required for the current business enterprise business analysis mainly comes from the relevant information within the enterprise (such as statistical reports), and the analysis work is mainly to query, summarize and report the information and data. Market and consumer research is not done enough, and it is quite unfavorable to enhance the competitiveness of enterprises. Due to the lack of in-depth analysis of business development and the low utilization of internal information, business analysis cannot fully reflect the information forecasting and decision-making functions, and provide various types of consulting services for leadership decision-making, which affect the construction of highly intelligent data analysis and analysis systems.

3.5 Lack of professional BI talent

The development potential of the BI market is huge, but at present, there are very few enterprises engaged in bi in China. Coupled with the late start, the corresponding professional training institutions have not yet formed. The domestic mature and professional intelligent data analysis implementation consultants are few, resulting in a lack of domestic adequate professional human resources. Moreover, in a small number of domestic BI-enterprises, the vast majority are only taking care of the BI-system integrator when the customer needs it. There are relatively few talents in the fields of data warehousing, data mining, and business modeling. The composite type of talents is even more difficult. It is difficult to meet the manpower requirements of BI-development, consulting, implementation, and maintenance brought about by the rapid development of the BI market. In the past two years, foreign BI manufacturers have directly entered the Chinese market on a large scale, and they have been mining high-paying talents with high salaries, but they often recruit fewer qualified candidates.

4. Analysis of Enterprise Function Application

Every function of the enterprise should recognize the important role of intelligent data analysis. Intelligent data analysis tools can be used to improve efficiency and improve results in key enterprise

functions such as enterprise resource planning, supply chain management, customer relationship management, finance, and human resources. In addition, there are many cross-functional corporate strategy areas that are beginning to use intelligent data analytics tools, including budgeting and forecasting, activity-based management, building profitability models, strategic planning, balanced scorecards, and value Basic management and so on. Intelligent data analysis can not only help analyze and improve the internal operation and development of the enterprise, but also help analyze and improve communication and communication between enterprises, thus providing a powerful driving force for the new business model of “collaborative business”.

4.1 Supply Process Analysis

Supply management is a collection of all business activities between trading partner communities to meet the needs of end customers. Supply management can be divided into planning, procurement, manufacturing, distribution and other processes. Intelligent data analysis analyzes and optimizes each process in supply management to achieve the goal of improving supply chain management efficiency. Intelligent data analysis improves the performance of the entire supply process, improves efficiency, efficiently allocates resources, and reduces the total cost of the entire supply process by analyzing the supply cycle, time of sale, and cost in the planning process. When intelligent data analysis is used in procurement analysis, it can help enterprises select suitable suppliers and integrate upstream and upstream resources. When intelligent data analysis is applied to manufacturing analysis, it can detect production schedule and production efficiency, strengthen product quality control, and reduce unnecessary Inventory; when intelligent data analysis is applied to distribution analysis, through analysis of inventory flows and losses, monitoring transportation time and distribution costs, selecting and managing vehicles for products, and optimizing delivery performance.

4.2 Business Analysis

Business analysis includes three parts: business indicator analysis, business performance analysis and financial analysis:

(1) Analysis of business indicators refers to indicators of different business processes and business links of the enterprise, such as: effective use of raw materials, working hours, human resources structure, yield, sales rate, inventory, inventory structure, sales structure, Collect and analyze the sales of single products and the proportion of business, risk procurement and inventory evaluation indicators. However, these indicators can only reflect local business conditions. In order to understand the overall business situation of the enterprise, it is necessary to scientifically organize and analyze these indicators, and use intelligent data analysis management technology to form a mathematical model that reflects the overall situation of the enterprise. In this way, by observing the total indicators and setting alarms and sensitivity analysis of the model, the operating status of the entire enterprise can be relatively well obtained.

(2) Business performance analysis refers to the statistics of the turnover and sales volume of each department. On this basis, comparative analysis, receivable analysis, profit and loss analysis, risk analysis of various commodities, and so on. The analysis of business performance is conducive to the enterprise to grasp its own development and operation in real time, which is conducive to the timely adjustment of business operations and the resolution of operational risks.

(3) Financial analysis refers to the effective analysis of profits, expenses, asset-liability ratio, current ratio, quick ratio, capital occupation and other specific economic indicators in the financial data of enterprises. Through financial analysis, it is possible to timely grasp the actual situation of the company in terms of capital occupation, financial risk status and corporate solvency, and provide data basis for timely adjustment and reduction of enterprise costs and financial risks.

4.3 Decision Support

Based on the analysis of the data generated in the enterprise management activities, the data and information are highly summarized and summarized to form an analysis report of the business

operation status, which provides support and basis for senior decision-makers to make strategic decisions. The advantage is.

The support of intelligent data analysis for strategic decision-making is reflected in the support of corporate strategy, business strategy and functional strategy. At the company's strategic decision support level, we can choose a reasonable portfolio strategy based on the company's strategic business unit's business performance and business positioning; at the business strategy decision support level, because the business intelligence system integrates more external Data, such as external environment and industry information, each strategic business unit can formulate its own competitive strategy based on the company's strategy; at the functional strategic decision support level, due to various information from within the enterprise, there is a steady stream of Enter it and provide decision support for marketing, production, finance, and human resources.

By continuously inputting data from within the enterprise, the decision-supporting role of bi in enterprise management cannot be underestimated. It mainly includes: improving the visibility of enterprise data, making accurate predictions on customer needs; real-time based on generated data. Analysis, improves the ability of enterprises to respond quickly to the market; analyze the market activities of enterprises from different perspectives, and provide support for selecting suitable suppliers.

4.4 Performance Management

Performance measurement is an important part of enterprise management, and it is also an advanced application of intelligent data analysis software in management. Intelligent data analysis technology can extract various basic performance indicators and key performance indicators from various enterprise application systems. Intelligent data analysis measures both internal performance and external performance. By analyzing key metrics for performance measurement, we provide visual performance measurement results that fully reflect the performance of business processes, rather than just reflecting the operations of individual node companies.

Business intelligence technology can extract various basic performance indicators and key performance indicators from various enterprise application systems. In order to assess the performance of employees, companies can first quantify the work that employees want to do, and then use business intelligence tools to enable managers to track, measure, and evaluate employee performance, and guide employees' thinking and actions with the company as a whole. The goal remains consistent.

Through the application of intelligent data analysis tools, enterprise information sharing can optimize the performance of the entire enterprise. Improve the efficiency of management processes, reduce unnecessary costs; analyze data, fully understand customer needs, achieve information sharing, and achieve a win-win situation.

5. Intelligent Data Analysis Construction Measures

5.1 Regulate the domestic BI market and establish national BI standards

In view of the price confusion in China's bi market and the existence of loopholes in various systems, government agencies and rights organizations should formulate strict laws and regulations, and set up special institutions to regulate and control the bi market and establish domestic bi standards. Various vicious competitions disrupt the domestic bi market environment. Of course, it is also necessary to carry out corresponding investment promotion, so that foreign advanced enterprises will bring new technologies and thus have more resources to make our bi market flourish, instead of building a car behind closed doors.

5.2 Development of BI's support industry

In China, a dedicated data analysis department can be established. As we all know, the use of the bi system will eventually implement the corresponding data analysis department.The purpose of optimizing data for enterprises is to find the most valuable data. After the valuable data is mined, if

there is no corresponding person to track it, his value will only stay quickly. The level of the report is also a common problem in the current domestic situation. If the data analysis that can bring value-added benefits to the enterprise is ignored, the core value of bi is also abandoned. We should use the data resources of each business more efficiently, so as to provide enterprises with strategic thinking.

5.3 Standardized integration of BI

Due to the complexity of the bi structure, it involves many departments, and the data is often distributed in different departments of the enterprise, different branches or sales offices, and even different countries and regions. A more difficult but common problem is that even if different departments of different companies and different subsidiaries of the same company use information systems of different manufacturers, the mix and combination of products are not the same. On the basis of the implementation of bi, the system must be able to meet these complex heterogeneous systems, and to do heterogeneous to isomorphic processing. According to the characteristics of DW's extraction and integration of raw data, the development of a metadata industry standard or national standard of a business processing system helps to improve the difficulty of product implementation and the difficulty of product service between different business processing systems. In this way, different combinations of different service processing systems can have a unified metadata structure, which greatly reduces the heterogeneity between systems. For example, a standard dimension table library can be built for DW.

5.4 Support domestic bio-manufacturers and establish a BI-training mechanism

We should realize that the application of bi is quite extensive, which can be related to the key industries of the national economy and the people's livelihood and the institutions and departments related to state secrets, such as military industry, finance and taxation, social security, family planning, statistics, etc., when these departments choose to implement bi , generally preferred domestic software vendors. At present, foreign software companies are not satisfied with China's foreign land, and the expensive price of foreign software has also left an opportunity for domestic enterprises. It can support the development and research of domestic bio-software vendors through policy support and establishment of scientific research institutions in the domestic software industry. While cultivating local bi-enterprises, we must also promote the importance and cultivation of bi-national talents in domestic enterprises. At the same time, through the combination of production, learning and research, we can set up a special bi research room or training institution to help enterprises cultivate bi talents, so as to meet the huge demand of bi talents in China.

6. Conclusion

The ideal intelligent data analysis system provides close-up and close-up for enterprise managers to provide a large picture of various business activities and conditions. It can be described as “seeing both leaves and forests”, so whether it is good at using intelligent data analysis from very To a large extent, it determines the development of the company.It can be said that intelligent data analysis is really related to the success or failure of the enterprise and its survival.The article comprehensively expounds the connotation, significance and important technology of intelligent data analysis. It mainly analyzes the application and current situation of intelligent data analysis in enterprises. By comparing with the intelligent data analysis research abroad, it points out the shortcomings of intelligent data analysis in China. And put forward suggestions for the improvement of China's national conditions.

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