

Research on Human Resource Management based on Data Mining

Ying He *

Business School, Nanjing University, Nanjing , 210093, China

*318091626@qq.com

Abstract. with the continuous development of China's social economy, human resources management has been paid more and more attention by more and more people, but in today's fierce market competition, many enterprises still do not attach importance to human resources management, which makes their overall work efficiency is not high. Therefore, to improve the quality of human resource management, data mining technology should be adopted to carry out work so that the whole enterprise can develop stably and for a long time in the fierce market competition.

Keywords: Data mining technology; Enterprise human resource management; Application.

1. Introduction

With the progress of technology, many personnel information management systems have been established and a large number of data have been accumulated. At present, these data are mainly used to provide all kinds of statistical reports and information queries, and it is a pity that there is no mining and utilization of its hidden regenerative value. The emergence of data mining technology opens a window for human resource managers to make effective use of a large number of seemingly boring static data, which can deeply explore the hidden information and rules behind the data through the surface layer. Using this technology to make a multi-angle and multi-level analysis of the historical data of human resources management, looking for valuable relations and laws, will play a positive auxiliary role in the practical work of personnel employment, selection and training, to provide more objective decision-making support for talent demand planning, talent recruitment, salary distribution plan and so on.

2. The Concept of Data Mining

Data mining is a new cross-discipline in the fields of mathematical statistics, artificial intelligence and knowledge engineering, which refers to a complete process. This process identifies novel, effective and applicable patterns and knowledge from large databases, and uses this information to make decisions or enrich the knowledge. In practical application, it is often equal to the concept of knowledge discovery KDD (KnowledgeDiscoveryinDatabases). The KDD process includes a series of steps, such as extracting the model with mining algorithm in the specified database, preprocessing and result in expression around data mining, etc., which can be summarized into three processes

Data preparation: it includes three sub-steps: data integration, data selection, and data preprocessing. Data integration combines the data in a multi-file or multi-database running environment to solve semantic ambiguity, omission in data processing and cleaning wrong data. The purpose of data selection is to identify the data sets that need to be analyzed, narrow the scope of processing, and improve the quality of data mining. Preprocessing is to overcome the limitations of current data mining tools and convert data into the format required by data mining tools. Data mining: first determine the mining task, then select the appropriate tools to mine knowledge, and finally confirm the discovered knowledge. Expression and interpretation of the results: analyze the extracted information according to the decision purpose of the end-user, distinguish the most valuable information, and submit it to the decision-maker through decision support tools.

3. The Present Situation of the Application of Data Mining Technology in Enterprise Human Resource Management

With the continuous development of China's human resources management system, the problems hidden in the management work have been gradually exposed, although the senior managers of many enterprises have attached great importance to human resources management, enterprises often hope to manage talents through the use of related systems. based on the continuous development of the overall economic strength of our society and the arrival of the Internet information age. Mining technology has been paid more and more attention by more and more enterprises and has adopted this technology to manage their human resources. at the same time, they also regard the human resources management system as the core part of the whole information construction process. Data survey shows that data mining technology has been openly introduced into their human resources management work by much foreign software, and a complete set of the human resource management system has been gradually formed within themselves. Also, data mining technology is widely used in the basic human resources file management of enterprises. With the arrival of the era of information technology, the traditional computer management model is often not efficient for human resources management. Data mining technology is of no use to enterprise human resources management. [1]

4. Application of Data Mining Technology in Enterprise Human Resource Management

4.1 Recruitment of Talents

Any enterprise is inseparable from the injection of fresh blood in the process of development. with the continuous growth of the competitive trend of China's market economy, if enterprises want to develop steadily, they must introduce human resource management to improve their economic benefits and social benefits. For this reason, enterprises should recruit talents, which is also an important means to obtain human resources by using data mining technology to attract all kinds of talents in the society and adopt effective talent management process to screen talents. finally, choose the talent resources of the best quality. At the same time, the excellent and good quality of talent recruitment in enterprises will also have a certain impact on their internal employees and human resources. In other words, talent recruitment is often the early stage of enterprise human resources management work, but in the actual talent recruitment process, many enterprises are always unable to find suitable candidates, and a large number of high-quality talents are also very difficult to find suitable jobs, which makes it more difficult for enterprises to recruit talents. It also further increases the cost of recruitment so that enterprises adopting data mining technology can effectively reduce the cost of talent recruitment so that they can obtain greater economic and social benefits. [2]

4.2 The Management of Talents

With the increasing demand for talents in the society, the data recording and management methods of employees are gradually optimized. However, in the process of human resource management in many enterprises, there are still many problems. The existence of these problems also hinders the future development of enterprises. To ensure the stable and long-term development of enterprises in the future, data mining technology should be adopted to manage talents. in the past, the traditional management mode is often to manage the basic information and daily assessment of employees, which can no longer adapt to the trend of the development of the times. For this reason, mining construction enterprises must comply with the development trend of the current era and take effective measures to carry out the modern management model of human resources management. The main emphasis is on the ability to analyze and sort out the relevant data, and form a summary with practical guidance through the analysis of the data, to provide a valuable reference for enterprise human resource management. For example, in the actual process of human resource

management, data mining technology can be used to analyze the salary level of employees in the enterprise and put forward effective suggestions for cost control of the enterprise. we can also use data mining technology to analyze the older employees in the enterprise, and evaluate them scientifically to put forward more favorable reference value and the basis for them.

5. Human Resource Management based on Data Mining

5.1 Division of Talents

Personalized management of personnel has become a trend of most talent management nowadays. In the process of human resource management, if we can better grasp the information such as talent structure and talent classification, it has important strategic significance for the selection of excellent talents, the establishment of talent team and the personalized management of talents. The classification technology can mine and analyze a large number of personnel management data, find out the connections and patterns about the personality and generality of talents, and then use reasonable algorithms to divide the staff and workers, to fully reflect the composition of talents in the internal organization. in this way, managers can clearly understand the types and characteristics of each employee, and formulate targeted talent management methods. [3]

5.2 Prevention of Brain Drain

At present, brain drain has become a serious problem facing many universities, especially ordinary universities, the loss of outstanding talents has brought serious losses to the school, how to prevent brain drain has become an urgent problem to be solved. The main reason for brain drain is the lack of understanding of the characteristics of teachers and staff, ignoring some special needs of talents so that the talents of outstanding talents can not be brought into full play. Use the relevant technology of data mining to deeply mine the information of the lost personnel and establish the identity of the lost personnel. The analysis model and correlation of characteristics and turnover reasons provide an important basis for managers to prevent brain drain. [4]

5.3 Reasonable Performance Appraisal

Performance appraisal plays an important role in the effective implementation of human resources management, and it is one of the important contents of human resources management. However, many human resources management systems only stay in data collection. Accumulation and statistics, there is no real sense to grasp the factors that affect the performance of employees. The application of data mining technology to mine valuable information hidden behind the performance evaluation data to provide decision support for managers, but also to find effective methods of human resources development, but also for employees in work improvement, career development to provide a reference. First of all, the method of mining is to extract the variables which are closely related to the performance evaluation to form the evaluation index, such as the level of knowledge. Scientific research ability, teaching effect, organization and coordination ability, innovation ability, service local ability, professional accomplishment and so on, and then construct the corresponding performance evaluation system. It is mainly applied in two aspects, namely, the correlation analysis between the assessment index variables, and the correlation analysis between the assessment index and the original index. The original index can be selected from the database in the personnel management information system. [5]

6. The Specific Application of Data Mining Technology in Enterprise Human Resources Management

6.1 Applied to Corporate Talent Recruitment

With the progress of the times, big data and modern network information technology have been widely used in the internal management of enterprises. Enterprises establish and improve the talent

data information database, effectively apply data mining technology, and do effective analysis to understand the advantages of enterprise development and Insufficient, it is easy for enterprise leaders to gradually improve and improve the human resources management model. In enterprise operation management, talent recruitment is an important channel for companies to add vitality. The Human Resources Management Department recruits talents through different channels such as campus recruitment fairs, talent markets and talent network recruitment, and then attracts talents according to different recruitment methods. Process, select excellent talents for the enterprise to participate in the operation and development of the enterprise. At this stage, in the talent market, the contradiction between outstanding human resources and the contradiction of demand is becoming increasingly prominent. Companies cannot recruit high-end talents, and many excellent candidates cannot find their own satisfactory positions. Blind recruitment is an important factor that causes the status quo of corporate talent use. . This problem can be effectively solved by using data mining technology. According to the resumes of job applicants, a corresponding data information database is constructed, and important data such as the identity and characteristics of talents are integrated and analyzed, in order to summarize employee turnover data, build a reason model, and facilitate the human resources management department Master the actual job requirements of job seekers, so as to recruit more talents for the enterprise through the adjustment of the company's office environment and salary and welfare, and at the same time reasonably predict their job requirements, and ensure that the recruitment department recruits excellent candidates.

6.2 Applied to Enterprise Employee Management

In enterprise operation management, employee management is not simply to record employee information and statistics related data, such as employee basic information. Important application of relevant data mining technology statistics and analysis of various assessment information of employees, for example, the use of data mining information technology to grasp the overall business ups and downs of the enterprise, analysis of employees' actual wages, and cost control information, these effective data information is beneficial to enterprises Effectively carry out personnel recruitment, deployment and training.

6.3 Reasonable Allocation of Human Resources

In enterprise talent management, in addition to the problems of imperfect systems and brain drain, the unreasonable allocation of human resources is an important issue-straight, the optimal allocation of resources, as much as possible to maximize the work enthusiasm of employees, simplify work processes, and improve Staff efficiency and quality. Specifically, the following aspects can be used to rationally allocate the human resources of the enterprise: (1) Use mining technology to discover historical post information, understand its actual workload, and allocate work to employees through quotas to form corresponding production standards. (2) Record the daily workload of employees in the human resources system of the enterprise, compare the actual workload and requirements of employees, adjust in time, discover their information, select excellent talents, and stimulate the work potential of employees, thereby creating more economic benefits for the enterprise The improvement of enterprise human resource management level lays a good foundation.

6.4 Apply to Enterprise Employee Resignation

The enterprise's human resources management is in the red, and the application of data mining technology is convenient for enterprises to effectively establish a brain drain management mechanism. By establishing this management mechanism, the rate of brain drain of enterprises is reduced, and the losses caused by brain drain are reduced as much as possible. Using data mining technology, first analyze the data of the departing staff, organize and draw the data into a table. Delete irrelevant and redundant data. Then build a model to summarize and analyze the root cause of employee turnover. It must be noted here that the tree-shaped model is usually used for this analysis, which helps decision makers to find effective decision points from massive information. In

actual operation, you can set the reason for employee turnover as the target tree of the model, set other attributes as independent variables, divide and classify the different reasons for employee turnover, summarize the real factors of employee turnover, and on this basis, understand the potential turnover Employees, if they are excellent employees, companies must pay attention and take appropriate protective measures to retain talents.

6.5 Applied to Employee Salary Design Work

In terms of enterprise operation management and employee stability, employee compensation management is very necessary. The reasonable formulation of the company's compensation system is conducive to creating maximum economic benefits for the enterprise and improving the efficiency of human resource use. In the traditional salary design of enterprises, there is a lack of data analysis foundation, so the problem of unreasonable salary is widespread, so that the job requirements of candidates cannot be met. Or, enterprises have a lot of data information, but they have not effectively analyzed and sorted it out, but the application of data mining technology can solve this problem. In addition, the company's human resources performance appraisal work involves a lot of information, specifically including employees' work ability, learning ability and professional literacy. Apply data mining technology to enterprise human resource work, mine and analyze massive data, and master the internal influence factors of salary design, so as to provide corresponding data reference for salary setters, so as to ensure that the salary management system for enterprises is reasonable. In addition, we should accurately position the salary requirements of job seekers, accurately recruit the required talents for enterprises, and reduce the recruitment costs of enterprises.

7. The Challenge

Enterprises have collected huge amounts of management data, which has caused a lot of confusion to enterprise managers on the use of massive data and how to use it. First, the problem of using large amounts of data. The application of big data in the field of human resource management is essentially to use quantifiable means to solve management problems as much as possible. For enterprise managers, they have more data, but the credibility of the data Become the focus of data management. Because big data has low-density characteristics, it cannot be equated with good data, and the collection methods are endlessProblems such as the influence of beauty and human factors can easily affect the authenticity of the data, which in turn affects the final application effect. Even if it can ensure the authenticity of data, enterprise management is the result of the combined effect of managers' cognitive models, knowledge, emotions, and decision-making environment. A large number of psychological and organizational behavior studies have shown that it is still people who can play a decisive role in enterprise management. "Too much reliance on data, to do your best" is not as good as "innumerable."

8. Conclusion and Prospect

To sum up, with the rapid development of the social economy, the field of construction has been improved step by step, but there are still many problems in human resources management, which also seriously hinder the stable development of the social economy in our country. Therefore, only by fully using data mining technology to carry out human resources management can we improve the level of human resources management in enterprises. Data mining technology has been initially applied in human resource management, and there are still many theories and methods to be explored and practiced by researchers. Such as the visual representation of knowledge. Intelligent applications and user participation are important research directions. In the future, managers can analyze the accumulated personnel information through mining software, get intelligent suggestions and schemes, and visualize graphics, which is more suitable for understanding and grasping. Data

mining tools will also be more operable and can be easily mastered by non-professionals. Also, the networking of data mining is a direction worth studying.

References

- [1]. flying the flag. Application and Research of data Mining in Human Resources Market [D]. Jilin University in 2016.
- [2]. Lai Huaqiang, Wang Sanyinzhong, the application prospect of data mining in the field of lofty human resource management 1. Take the empirical analysis of turnover management based on the color-aversion correlation model as an example. Jiangsu Commercial Theory 2018 (08): 4247.
- [3]. Research on the Application of Ma Qin Zhangjiang data Mining Technology in Enterprise Human Resource Management [J]. China New Communications 201820 (15): 232.
- [4]. Sun Mingbiao's enterprise human resource management research based on big data's digging and grasping technology [J]. Modern Marketing (late issue) 2018 (01): 166.
- [5]. Trong Tuan Luu. Integrating green strategy and green human resource practices to trigger individual and organizational green performance: the role of environmentally-specific servant leadership[J]. Journal of Sustainable Tourism,2020,28(8).