Research on Enterprise Human Resource Management Innovation in Big Data Era

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Abstract. With the rapid development of computer technology, the emergence of new media and intelligence has changed the traditional way of production and life. While bringing convenience to us, it also produces massive data. Therefore, big data technology emerges as the times require. Through the data integration and analysis ability of big data, it has an important impact on the development of enterprises, especially in the management of human resources, higher requirements. Therefore, this paper puts forward the research of human resource management innovation in the era of big data. This paper makes a detailed study on the traditional human resource management mode of enterprises, and finds that the existing management mode has obvious shortcomings such as incomplete overall planning and unreasonable performance appraisal. The big data technology can make up for these shortcomings. Based on big data technology, this paper puts forward an innovative attendance analysis algorithm. According to the actual needs of the existing enterprise human resource management, combined with the advantages of big data analysis, the algorithm solves the unreasonable problem of existing attendance analysis. In order to further verify the actual effect of big data human resource management mode, relevant investigation and evaluation are carried out. According to the survey results, the enterprise human resource management mode based on big data technology has been significantly improved in rationality, fairness, scientificity and so on, which can better meet the needs of enterprises for human resource management.

Keywords: Big Data Technology; Human Resource Management; Business Management; Data Analysis

1. Introduction
With the emergence of new media and the Internet, the trend of new media convergence is becoming more and more obvious, and big data has become the pronoun of new media. According to the relevant information of the Internet data center, the number of Internet users has exceeded 65% every year, doubling every two years [1-3]. As a result, more than 90% of the data has been generated. Research institutions define big data as information assets with large-scale, high growth and diversity [4-6].

In order to learn to understand, use and believe in data, business operators must master these skills,
and human resource management must learn big data [7-8]. Big data is used to improve the efficiency of human resource management [9-10].

In depth study found that the human resource management of enterprises in China has the defects of low information level and low data utilization rate. As a result, the overall planning of human resource management is not complete, the information asymmetry between candidates and enterprises, and the rationality of performance evaluation methods. This paper deeply analyzes the thinks that the information-based way can better and more comprehensively integrate the human resource data. It can scientifically analyze and solve some problems that may exist in the development, correction, early prevention effect. In the actual case investigation, through the survey results, we can see that the enterprise human resource management has a great impact on the development of enterprises, which is mainly reflected in the scientific and fair management mode.

2. Big Data Era and Enterprise Human Resource Management

2.1. Concept of Big Data Era
It is a key era when there are almost no obstacles to the transmission of network data information. Data transmission can accurately reflect all important information. However, this is only a surface based on big data. Big data will produce great social value. On the one hand, it can change our daily production and life. On the other hand, it will make the presentation and transmission rate of information by leaps and bounds. In the era of big data, enterprises can only combine human resource management with information management, and scientific, orderly and reasonable talent management can promote the development of enterprises.

2.2. Big Data can promote the Innovation of Human Resource Management
Which is closely related to enterprise development. Therefore, in today's society, if you want to better manage human resources, cultivate more talents for enterprises, and improve the efficiency of enterprise employees, we should pay attention to innovative human resource management methods, and realize that innovative human resource management methods are the needs of the times. In this era of big data, human resources are becoming more and more prominent in the new ideas and new technology environment. It can even be said that human resources are the core strength and pillar of the existence, development and participation of enterprises in social competition. The development of enterprises should attach importance to human resources, establish platforms, realize the value of employees, attach importance to staff resources, improve the efficiency of employees, improve the mechanism of career promotion, meet their personal ideals and aspirations, and give them full warmth and care, which will help to improve the cohesion of the core of the enterprise.

3. Comparative Analysis of Human Resource Management Mode in Enterprises
In actual work, due to the imperfect promotion mechanism, direct leadership incentive and low quality of performance management personnel, the final performance management lacks scientific and effective. Still continue the traditional management mode, and cannot combine various factors for effective scientific evaluation. This is a typical problem of traditional enterprise human resource management. As shown in Table 1.
Table 1. Main advantage analysis statistical results.

| Main problems                                                                 | Main advantages                                                   |
|-------------------------------------------------------------------------------|------------------------------------------------------------------|
| 1 One sided master plan                                                        | 1 Increase the diversification of human resource performance management data |
| 2 Information asymmetry between employees and enterprises                      | 2 Improving management                                            |
| 3 The old way of training doesn't attract employees                            | 3 Expanding data collection channels                              |
| 4 Dissatisfaction with relevant policies                                        | 4 Improve the efficiency of information                           |
| 5 Unreasonable performance appraisal                                           | 5 Innovative performance management system, sound performance    |

4. Discussion

4.1. Application Effect
This paper takes enterprise A as an example for a detailed analysis. Enterprise A has reformed its human resources through big data technology for one year.

According to the results of Figure 1, the scores of fairness, objectivity, scientificity and continuity of the human resource management mode adopting big data technology are significantly higher than those of the traditional human resource management mode, and the increase rate is more than 15%.

![Figure 1. Comparative analysis of main indicators](image)

Therefore, this paper makes a further investigation on the effect of management mode from the
perspective of employees. According to the survey results in Figure 2, most employees are satisfied with the human resource management mode, and the specific scores in the evaluation of various indicators are significantly higher than those. The analysis shows that the application mode can better meet the actual needs of employees in the enterprise, and have more confidence in their own development in the enterprise, especially in the change of performance appraisal, which makes the management fairer and fairer, and makes employees fewer negative emotions.

![Graph showing evaluation scores](image)

**Figure 2.** Comparative analysis of employee performance

### 4.2. Attendance Analysis Algorithm

Attendance data comes from the personnel management system, which is generally obtained through attendance machine. The indicators are calculated according to the daily attendance data, as shown below.

\[
Att_1 = \frac{\sum_{i=1}^{n} X_i}{n * W}
\]

(1)

Where \( X_i \) is the lack of working time, \( W \) is the specified daily working time, and \( Att_1 \) is full attendance. Some companies have fixed working days, so the number of delays and the proportion of nights should be taken into account, as shown below.

\[
Att_2 = \frac{p}{n}
\]

(2)

\[
Att_3 = \frac{\sum_{i=1}^{n} Y_i}{n * W}
\]

(3)

Where \( Att_2 \) is the index of being late, \( p \) is the number of times of being late, and \( n \) is the
number of times that should arrive; $\text{Arr}_t$ is the index of late arrival time, and $Y_i$ is the hour of being late for the $i$ time.

4.3. Innovative Management Concept
Enterprise human resource managers should understand the role, clarify the importance of innovative management concepts, ensure the management integration effect and human resource management big data, and then reform the management mode, improve the management quality and transmit more professionals to achieve the development goals of each stage of the enterprise.

Integrating big data thinking into the concept can analyze and plan the management work from a comprehensive perspective, so as to optimize the management level and advantages of human resource departments in enterprises. In addition, in practical work, human resource managers can use information means to collect data generated in employee activities.

4.4. Optimize Management Mode
This requires us to optimize the process and methods of human resource information management, so that employees can meet their professional ability, and better train employees for the enterprise. To clarify the important position of talents in human resource management of enterprises, and to consider the actual needs of enterprises for talents, optimize the management mode of human resources, and provide necessary conditions for talents to play their individual abilities. On the basis of the traditional human resource management, rely on science and technology to effectively connect all departments of the enterprise.

4.5. Strengthen the Training of Enterprise Staff
There are two main types of employee recruitment, one is employee recommendation, the other is through resume screening recruitment. The comprehensive quality of enterprise staff is directly related to the future development of the enterprise. Only in this way can each employee get more comprehensive development. At the same time, make different training plans according to different positions. Through strengthening the training of employees, every employee can fully understand their own value. We should improve the ability of each employee, actively use to fully understand the working ability of each employee, establish a perfect training organization, and stimulate the enthusiasm of employees.

5. Conclusions
Understands the influence of various factors in traditional mode, and verifies the lack of scientificity and fairness, especially the neglect of data, which leads to employee satisfaction. The analysis shows that the shortage of traditional enterprise human resource management mode is mainly due to the backward management concept in the era of big data. The mode of enterprise human resources based, to a certain extent, makes up for the shortcomings of traditional enterprise human resources management, and plays a positive role in improving the scientificity, fairness, objectivity and continuity of management. In practical application, the impact on employees is also significant, which effectively improves the comprehensive ability, satisfaction, work efficiency and enthusiasm of employees. The analysis shows that the development needs of enterprises are changing with the changes of external environment. As managers of enterprises, they should be good at using advanced science and technology to improve the management of enterprises. Human resources are the top priority in the development of enterprises.

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