

A New Model of Human Resources Management Based on Employee Personas

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Abstract

Human resources are vital to the survival and success of companies in the age of big data. Based on the innovative application of big data in human resource management, the concept of "employee personas" is refined. It is guided by the people-oriented management concept, employee personas was applied to the enterprise human resource management, and some ideas and suggestions for the application of employee representation in various businesses of human resource management was given.

Keywords

Big data; Employee personas, Human resource management, New model.

1. Introduction

The development and application of Internet technology has become an important production factor and prompt big data gradually integrated into the various sectors [1]. With the application of big data in company management, companies have made tremendous progress in business development, market operations, and competitiveness enhancement. At the same time, big data has had a huge impact on traditional human resource management models [2]. The development of big data technology has transformed the concept of human resource management. Management technology has become more mature and tends to be scientific. The collection, storage, analysis, and sharing of big data will help promote the professionalization of modern strategic human resources management. No matter what time period, human resource management plays an important role in the survival and development of the enterprise. In the era of big data, it is necessary to deeply interpret big data and explore ways and methods to apply big data technology to human resource management so as to enhance the management efficiency of companies [3].

From the perspective of fully leveraging big data technology to assist enterprise human resource management, this paper considers the innovative application of big data in various specific business of human resource management, summarizes and refines the concept of "employee personas", and put forward relevant ideas and suggestions so that employees personas can play a significant role in the specific business of human resources management and promote companies to achieve "people-oriented".

2. Literature Review

2.1. Section Headings

Although research on big data in business management has made some progress, the research and application in the field of corporate human resources management has just begun. With the

development and application of big data, the company has shifted from focusing only on the application of big data technology to focusing on the big data in the field of corporate management, and has focused on creating considerable high economic value. Currently, big data applications include various industries such as national security, education, health care, government administration, food safety, financial investment, supply chain management, marketing, and human resource management. It has become one of the important factors affecting the development of the country, society and enterprises.

Big Data to be effectively used in human resource management, will inevitably encounter various difficulties and obstacles. In 2013, the American Management Association (AMA) and the Institute of Enterprise Productivity carried out a survey. The results of the survey showed that the analysis capability of corporate human resources managers is actually the worst among financial, operations, and R&D personnel [4]. The ability of data analysis is a major factor in whether big data can be effectively used in human resource management. Therefore, we must find ways to improve the data analysis capabilities of human resources management personnel, and we must take measures to gradually eliminate the unease and resistance of HR.

The human resources departments of more and more companies around the world began to use big data technologies and methods to predict employee performance and make more scientific talent decisions, and help companies to do a good job of human resources planning in advance [5]. In 2017, the Deloitte Global Human Capital Trend Report pointed out that human resources departments not only need to establish a digital human resource management platform, but also need to develop a digital work environment and a digital workforce, and adopt technologies to change people's working methods and ways of dealing with them [6].

The real study of big data in China began in 2012. Although it started relatively late, the application of human resources management has also achieved certain results. At present, the application of big data in human resource management of Chinese Enterprises is mainly reflected in the analysis of talents [7]. More and more companies apply big data technology to the prediction of employee performance, and regard big data as an important basis for corporate talent decisions [8]. Big data human resource management encourages companies to make more choices in data-based human resource decisions, which helps to improve the accuracy of human capital value measurement and achieve a high degree of matching between employee characteristics and positions, thereby reducing management costs.

HAN(2016) analyzes the opportunities and challenges that big data brings to human resource management in companies, and explains the value of big data profoundly, that is, mining and analyzing complex, multifaceted and abstract data to obtain valuable information from it and make it as a basis for the decision-making of corporate human resource management practices [9]. PENG(2015) pointed out that big data helps companies accurately predict the dynamic changes and future trends of human resources, and is a reliable basis for enterprises to make human resource decisions [10]. XU(2016) believes that the use of big data technology in the work of human resources management can tap the real needs of employees, contribute to the flat management of the organization, improve the degree of information management of human resource performance management, and ultimately achieve high efficiency of human resources management work [11]. HE etc. (2014) believe that big data will transform human resources management thinking and generate strategic human resource management through the interpretation of big data. At the same time, big data can promote the upgrading of human resources management content and systems, and promote the reform of human resources management model [12]. WANG (2017) holds that the application research of big data in the field of human resources management integrates data science, human resource management, and company information construction, and applies data modeling in the field of data science in the human resources management of companies. The research model can provide a quantitative reference for personnel decisions [13].

Regarding the issue of how big data uses the core resources in human resource management to create competitive advantages for companies, the existing literature has not been further explained. ZHANG etc. (2015) also questioned the accuracy of Big Data in portraying employees' work needs and organizational activities [14]. In addition, digital human resources have become one of the trends in human capital development. As shown in Tab.1, the importance of digital human resources is increasing day by day, and it is common in the world, in different regions, in different industries, and in enterprises of different sizes[6].

Therefore, companies must make full use of big data, quickly collect, organize, dig, analyze, to fully demonstrate the complex characteristics of employees' work behavior and performance, use the data to make personas for employees, form a "employee personas" database, and promote "employee personas" are applied in various specific businesses of human resource management in order to further realize the full use of company information data.

Tab 1. The importance of digital human resources

Type	Importance (%)	
Region	Global	73
	Latin America and South America	73
	North America	81
	Africa	65
	Central and Eastern	79
	Europe	69
	Middle East	76
	Northern Europe	72
	Western Europe	67
	Asia	79
	Oceania	67
	FMCG	74
	Energy and resources	75
	Financial Services	74
Industries	Life Sciences and Health	75
	Manufacturing industry	72
	Professional services	75
	Public Sector	72
	Real estate	68
	Technology Media and Communications	76
Business scale	Large scale	69
	Medium	72
	Small	67

3. Human Resource Management System Based on Employee Personas

The application of big data in human resource management is mainly based on the unstructured data generated by employees in working. Through data mining and analysis, employees and managers are provided with timely and effective personnel decision-making references. Employee personas are based on this concept.

3.1. Employee Personas

The development and application of big data technology prompted the company to gradually shift its attention to using big data to achieve accurate and personalized employee management, so the concept of "employee personas"[15] came into being. The significance of employee personas lies in understanding employees, accurately positioning employees, excavating and analyzing employees' real needs and psychological appeals, fully understanding employees' differentiated characteristics, helping companies find the direction of human resources management, and comprehensively improving the management efficiency of the company.

At present, more and more companies have built the E-Learning platform, the behavior of employees on the platform, including browsing behaviors, interaction behaviors, and self-evaluation behaviors. These behavioral trajectories and employee basic information, such as name, gender, education level, and location posts, skill levels, performance output, employee preferences, etc., record employee data from an all-round and three-dimensional perspective, called as “employee personas”.

Employees personas are tagged with employee information. Based on the employees’ basic attributes, work behavior and other information, employee’s personal or certain employee group’s tags are extracted, and employee information is structured and processed. Employee personas reflect the status quo and needs of employees, and are the source of information and decision-making basis for companies to implement precise and personalized management of employees.

3.2. The Construction of Employee Personas Database

Human resources management based on employee personas is to build a database of employee personas and apply big data technology to the management of employees in order to meet the individual needs of employees. Specifically, data management of employee information includes two aspects. On the one hand, basic information refers to the employee’s personal name, gender, age, education, position, etc. On the other hand, behavioral information includes online behavioral information and offline behavioral information. The online behavior information mainly comes from the E-learning learning platform, including employees’ resource browsing behavior records, employee practice and examination behavior records, and online interaction records. The corresponding mining task is the feature recognition of employee browsing behavior, employee comments, and likes, messages and other online interactive behavior analysis, employee online learning self-evaluation results and other information collection and acquisition. Offline behavior information refers to employee’s work performance, output and other information, including employee’s daily attendance, others’ evaluation, performance, skill proficiency, and the gap between the actual work performance and the acceptable performance standards, the gap between skill proficiency and skill mastering standards.

All these information is provided by the person responsible for the performance assessment, and the relevant data is regularly entered into the employee database. On the basis of collecting the above information, using data mining techniques to form a “employee personas” (as shown in Fig.1), accurately positioning employees to make HR management more meticulous and accurate.

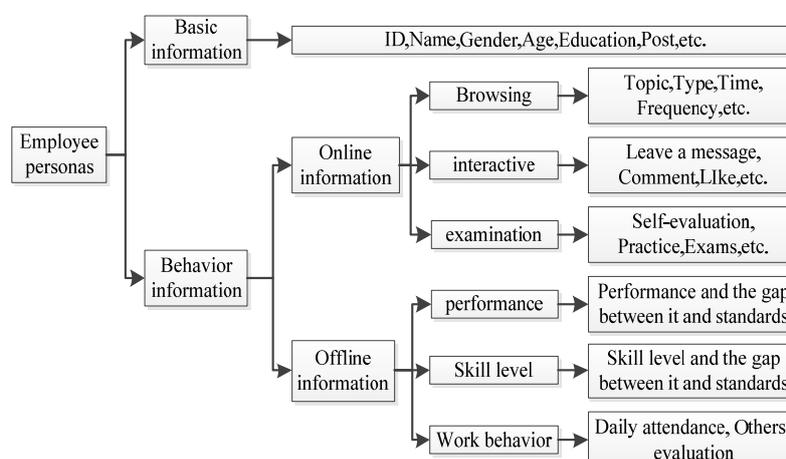


Fig 1. Employee personas

3.3. The Construction of System

Big data technology provides new methods and methods for employee personalized management. Making personas for employees is to build a huge database of employee personas with the aid of big data technology to achieve high efficiency in human resource management. In the specific operations of human resource management, gradually replace the traditional manual method with data and platform management. As a result, the extensive recruitment and selection of employees has gradually become more accurate, the performance appraisal of employees has gradually changed from the initial simple management to comprehensive management, the incentive system gradually replaces simple salary incentives with comprehensive compensation incentives, and employee training achieves individualized goals. As shown in Fig.2, human resource management based on employees personas is to form a database of employee personas through the collection of basic attribute information and behavior information of employees, and analyze employee needs attributes, and then use data mining and other related technologies to group employees and implement accurate management to achieve high efficiency in human resource management.

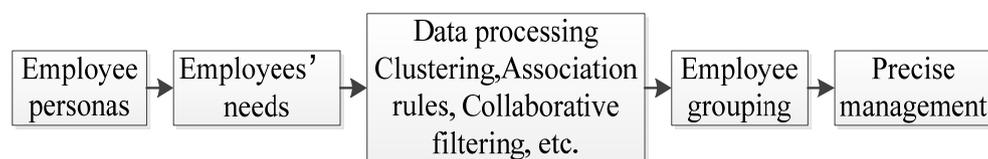


Fig 2. Human resource management system based on employee personas

4. Human Resource Management Practice Based on Employee Personas

4.1. Employee Personas and Human Resources Planning

Reasonable human resources planning and management can effectively reduce the cost of the enterprise, so that the company's investment in human resources, reduce the income. Whether or not human resources planning and management can be reasonably implemented has become a necessary prerequisite for a company to adapt to social development, which is related to the scientific sustainable development of the enterprise. The reasonable arrangement of human resources planning has become a goal that the company team actively strives to achieve. It can stimulate the enthusiasm, potential, and expectations of the company, create more value for the company, and have a broader space for development. big data technology is applied to the work of human resources planning and management, using the correct analysis of large amounts of data, and using facts as a precondition to rationally allocate talents in order to achieve the best results for people and employees. Therefore, the transformation of human resources planning in the era of big data is crucial.

Based on the Employee Personas Database, companies can master the specific circumstances of each employee and keep track of the number of employees needs and training needs of specific posts. After obtaining daily training data, human resources department can determine which employee can be promoted to which position according to the specific training that each employee participates in and his or her training attendance status, participation, and training performance.

All internal personnel decisions are conducted in the form of "fact + data", which will have an inestimable impact on the formulation and implementation of personnel policies and the establishment of internal fairness in organizations.

4.2. Employee Personas and Employee Recruitment and Selection

In the absence of big data, discovery and selection are difficult to achieve "full information." In other words, it is very likely that talent selection will be conducted when the selected personnel

are not adequate. That is, it is only possible to select talents among a small number of people. Big data can help people solve this problem[16]. In 2013, The New York Times reported that IBM had spent \$1.3 billion to acquire Kenexa, an online recruitment and training organization. Each year, 40 million job seekers are surveyed through Kenexa, and the characteristics of job seekers based on big data are analyzed to provide reference for recruiting talents[17].

SUN (2015) pointed out that big data technology can achieve a more efficient and accurate match between business positions and candidates, and this matching problem is precisely the most fundamental appeal of the recruitment process [18]. Relying on big data technology, in the recruitment of employees and the selection of internal talents, information mining is conducted on candidates through quality assessment, personality tests, and occupational suitability tests to form “personas”; portray for employees through mining the information of employees’ personal abilities, personality traits, and behavioral orientation, etc. In terms of information mining, employees are “personas”.

The recruitment and selection is essentially the process of matching the Employee personas to the post portrait. As shown in Fig.3, There are many areas of overlap in knowledge, personality, and attitudes between candidates and job requirements. That is, when the match is high, the chance of successful recruitment will be large.

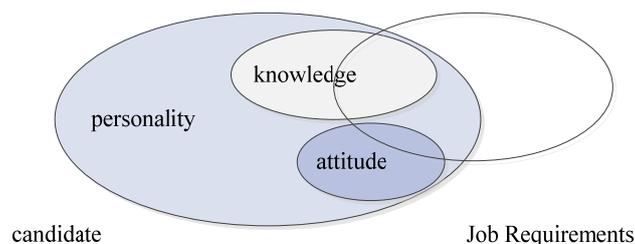


Fig 3. Employee personas and employee recruitment and selection

According to “personas”, it is possible to discover and accurately predict the external invisible motives, intentions, and pressure adaptability of candidates and employees. It helps companies find new employees who are similar to their values, or who are easy to assimilate, and who are willing to share values. It can also help companies make the right internal personnel decisions and gain higher employee loyalty and organizational commitment.

Relying on employees personas, the human resources department can continuously enrich the company’s talent assessment and competency analysis tools to help companies find more suitable high-matching talents, and make the internal and external personnel decisions more scientific. Employee personas is a powerful expression of the full use of big data in human resource management. It not only helps in the rational allocation of human resources, but also improves the informatization level of the enterprise management work. At the same time, it helps to achieve the scientific system of enterprise employment.

4.3. Employee Personas and Training

With the advent of the “Internet Plus” and the era of big data, the training function of employees for employees has rapidly changed. At present, companies have begun to upgrade their training functions to create a “tossing system for talents”, comprehensively accelerating the rapid interaction of knowledge, and fully strengthening the company’s self-iterative abilities. This can be called “new training 3.0”[19]. The biggest innovation of the “New Training 3.0” is “to train products”, and we should use the product manager’s perspective to develop training as a product, treat employees as users, generate training products in interactions with employees, and make employees online. Data feedback becomes the material for training product iterations.

In the era of big data, the “employee personas” composed of data not only reproduced the overall image of employees as training product consumers, but also reflected their training needs. It is also the basis for enterprises to tap employees' training needs, conduct employee segmentation, and achieve accurate training. The development and application of big data technology has led to the training management of company employees such as training needs analysis, training plan formulation, training implementation, and training effect evaluation, gradually changing the previous heavy and complex work patterns. Training based on employees personas is based on the establishment of employees personas database, collecting data on employees in the library, and viewing the data employees' feedback as materials for continuously updating and improving the training system.

The role of employee personas in the training planning stage is mainly reflected in the analysis of employees' training needs. At this stage, the main contribution of employee personas is to make up for the previous training model that only focused on employee performance and skills while ignoring the interest and preference of employees. While valuing the actual needs of employees, it also considered the psychological appeals of employees, and fully integrate “what employees must learn” and “what they want to learn”. In the implementation phase of the training, the main purpose of the employee personas is to keep track of employees' perceptions of the training work. Including employees' perceptions and evaluations of training content, training forms, training instructors, etc., as well as employees' knowledge of training content. The work of employee personas in the training evaluation phase mainly focuses on the training evaluation of “what employees want to learn” and “what employees should learn” and judge whether the training can change the work behavior of employees, determine whether their skills and performance levels have improved, and evaluate the benefits of changes in their behavior to individuals and businesses.

4.4. Employee Personas and Performance Appraisal

The core of performance appraisal is value incentives, and the key is data. Big data thinking should be an important link for enterprises to promote performance appraisal, and weaken the role of directly collected data as performance appraisal and assessment. The hidden value of behavior behind the data should be the focus of performance assessment.

In the era of big data, the assessment of employees is no longer based on simple and limited records, but it has broken the assessment model based on the subjective evaluation of reviewers. The performance appraisal department can use the big data technology to evaluate each employee objectively and impartially, after the data on the production and performance of each employee of the company was obtained.

The key to performance appraisal based on employee personas lies in the definition of standards, which is embodied in data-driven so that the rapid construction of standards is realized through fetching and analyzing employee big data. Based on employee personas, companies can evaluate employees' work behaviors in combination with employees' online learning behaviors and offline evaluations. At the same time, on the basis of employee personas, companies can more accurately define the gap between employees' performance and standard levels based on the results of online self-assessment and off-line assessment of employees, and determine the gap between employees' skill levels and competency requirements, and analyze the specific reasons for these gaps.

Personas-based employee assessment helps to eliminate employee opportunistic behavior, while helping grassroots managers to break away from the arduous task of assessment, and concentrate more time and effort on the improvement of business process and production technology.

4.5. Employee Personas and Motivation

In the era of big data, enterprises must be more humane, ensure the rights and interests of employees, make employees satisfied, and enable employees to better serve the enterprise and create greater value. Based on objective facts and data, employees are allowed to participate in a greater degree and the data is comprehensively analyzed. This allows employees to be treated more objectively and fairly, and thus leads to more active work, thereby nurturing the professional ethics of employees and achieving self-development. In addition, through a large number of data records of the work of employees, thus analyzing and evaluating outstanding employees who contribute to the company, adopting a variety of incentives, increasing the intensity of the rewards, so that employees have a more sense of achievement, the ownership of the company sense.

Traditional human resource management focuses on group behavior, while employee personas change from “standard” to “personality”. We can use employee personas to analyze unstructured data such as basic personal information, work performance, skill level, and hobbies of employees to find employees’ driving needs. Based on the analysis of employee-driven needs, we can personally motivate employees in a targeted manner.

Employee personas help companies analyze the key factors that affect employee job satisfaction and motivation, loyalty, and organizational commitment. It also helps companies to develop targeted incentive mechanisms, including orientation training for employees' performance and skill levels, and a diversified welfare system for employees' individual needs, which can be used for employee development in training, education for children, social security, etc. It provides differentiated benefits and services. Through a series of resource adjustment and configuration activities to meet the actual needs of employees and psychological appeal, the effectiveness of employees and companies is maximized.

5. Conclusions

With the development of the Internet, data comes from employee management platforms has grown dramatically. How to use big data to finely manage employees and how to effectively and successfully apply employee personas to various business activities of human resources management? Business managers should think about this issues.

In the era of big data, the collection and analysis of data, and the extraction of useful and valuable information is an important work method for enterprise human resource management. The human resources of enterprises need to be quantified managed, mainly starting from the three major aspects. Firstly, senior corporate managers should establish big data thinking, fundamentally change the ideology of managing and making decisions based on experience and feelings, and at the same time, treat the impact of big data technology on companies with an open and development perspective. Secondly, establish human resources information management hardware platform, while making full use of internet information technology, we will focus on strengthening the construction of big data literacy for all employees including information platform technicians and human resources management personnel. Thirdly, the implementation of data management of human resources management. Human resources management must have the function of integrating the comprehensive data of human resources of the enterprise in order to complete a comprehensive modern information management[20].

In the era of big data, the “employees personas” composed of data not only reproduced the overall image of employees as training objects, but also reflected their real needs. It is also the foundation for the company to tap out employees’ training needs, conduct segment employees, and achieve accurate training. The innovation of this article lies in applying the concept of data-based human resource management to practice, applying the concept of “personas” to the

management of employees in companies, and defining the concepts of “employee personas”.At the same time, this paper proposes relevant ideas and views for the application of employee personas in specific human resource management business such as employee recruitment and selection, employee training, employee assessment and motivation.

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