

## Impact of Big Data Era on Corporate Recruitment

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**Abstract:** With the continuous improvement of technology, big data analysis has gradually penetrated into different aspects of society, ranging from national governance to daily life. In addition, big data is also used in various aspects of recruitment, such as resume screening, talent pool establishment, personality assessment, background investigation, etc. This study analyzes the influence of big data and the problems existing in recruitment, explores the specific impact of big data on recruitment, especially in the establishment of talent pools and personality assessment, to explain the advantages of using big data, and proposes the future development trend of using big data for recruitment based on the related influencing factors. Through this research, finding that some tools in the recruitment process can help companies solve their existing problems (1) Use big data analysis technology to assist in recruitment (2) With the development of 5G technology, the limitations of online interviews can be solved (3) The use of blockchain can realize the privacy protection of both employers and employees. Through this research, I hope to provide some practical solutions to recruitment problems and explore how to make better use of big data in future recruitment, achieve efficient recruitment, and match positions.

### 1. Introduction

In 2012, the term big data was mentioned more and more. People used it to describe and define the massive data generated in the era of information explosion and to name the technological development and innovation related to it. Has been on the cover of the column of the "New York Times" and "Wall Street Journal", entered the news of the White House official website, appeared in some domestic Internet-themed seminars and salons, and was even written by the sensitive scent of China National Financial Securities, Guotai Junan, Galaxy Securities, etc. Investment recommendation report. Data is rapidly expanding. It affects the future development of enterprises. People will become more and more aware of the importance of data to enterprises. The era of big data poses new challenges to human data control ability and provides unprecedented space and potential for people to gain deeper and comprehensive insights. In this era, there are still various problems in recruitment, such as difficulty in finding candidates, the inability of recruits to do the job, and a large loss of talent within the company. With the popularization of big data technology and the increasingly prominent recruitment problems, big data has gradually been cited in recruitment and has shown its advantages. What is more, big data technology can also be widely used in other specific human resource management tasks such as salary management, performance evaluation, etc., to comprehensively improve the human resource management level of the enterprise. With the continuous advancement of big data technology and the continuous deepening of the exploration and application of big data in the field of human resource management, it is believed that the human resource management of enterprises will be more scientific and efficient in the future.

To analyze the definition of big data and how it uses in human resources management. Pence and Harry did research that illustrated the concept of big data and showed that big data is so significant and found some research shows that the rate of data produced will only increase in the future. Big data can help a company better understand their customer. To students, big data can help them gain better employment. So, people living in the 21st Century should better understand big data [1]. And then, Zang and Ye finished the research about human resources management in the era of big data. The

research received that in major modules of human resources management, including recruitment, employee training, personality assessment. Also, the research gives us information that in the data age, big data helps employees improve work efficiency and achieve the firm's target easier. However, using big data in different human resources modules also has some problems, human resources manager needs to identify them and solve them [2].

Because big data is used in different aspects of recruitment, some researchers did different research on how human resource management changes due to big data and showed how big data is used in human resource management. Zhang and Xu researched the transformation strategy of human resources management in the era of big data. The research illustrates that six human resources modules have changed in the background of the big data era. It combines with big data, uses big data to solve a practical problem. In the study, all six modules are discussed. It holds that only the continuous promotion of the integration of large data technology and enterprise human resource management can guarantee the work quality [3]. To learn how AI use in recruitment. Albert researched AI- applications used in recruitment and selection. This research aims to find the use of AI in the recruitment and selection of candidates. From semi-structured thematic interviews with different types of recruitment and selection. This study presents that it identifies 11 areas across the recruitment and selection Progress where AI applications can be applied. However, practitioners currently seem to rely mostly on three: chatbots, screening software, and task automation tools [4]. Personality assessment is significant, so Alexander and other researchers did a study that pointed out some sights, guidance, and inspirations that help researched face the challenges and catch opportunities by using big data machines. The paper also shows that human resources can use big data to assess candidates' personality, which can help human resources identify whether this candidate is suitable for the position. What is more, big data machines can use in other sides of corporate. Finally, the paper shows the future trend for big data personality research [5]. To find the veracity of online personality assessment Wu and other researchers did the research and pointed out personality judgement by computers is more accurate than judged by humans. Judging other people's personalities is an important skill in social life. Although assess personality is always by humans, but now, due to the development of technology, a computer can also judge human personality. The research used a sample of 86,220 volunteers who complete a 100-item personality questionnaire. The study shows that judgement personality by computers is more accurate than by humans [6].

Big data can solve the certain recruitment problem, but big data has its own problem, such as the problem of personal information protection. Mehmood and other researchers give information that big data is facing a serious challenge. To make a profit, some corporate sell their customer's personal information, and others suffered a data breach due to a lack of approach to protect their private information. Also, the research showed that some privacy preservation mechanisms and pointed out some problems of existing mechanisms. The study discusses challenges and future directions of personal information protection in big data [7]. Another research shows the impact and challenges of big data. Al-Sai and other researchers did a review, which shows the challenges and influences of big data. Big data is used in every side of life, in the organization and in individuals. Understanding the definition of big data and its characteristics is significant. The research pointed out the definition of big data, summarized the most common definition of existing research. Also, it illustrates the influence and opportunities of big data. What is more, the research identified the challenge of big data and categorized it [8]. Big data easily cause privacy leak, so Wang and other researchers research the application of blockchain technology in the human resource management model. There is so much false information that affects the cost and efficiency of human resources management. Also, it brings economic loss and a decrease in credit. The research combines traditional technology with internet distributed technology to set up a human resources management model [9].

Recruitment methods are evolving and gradually diversified, so what is the future trend? Abdulmelike did the research and showed the future trend of big data use in human resources. The purpose of the article is to identify the roles of big data for human resource management, problems faced by human resource professionals in using big data, and provide solutions to the problems faced. With searched information from "Google Scholar" use the keyword "big data" "Human Resources"

between 2014 to 2016. The reviewer suggests that big data and its scope should be well defined; distinctive characteristics and types of big data should be understood regarding human resource management [10].

To analyze how recruitment will change under the influence of big data, this study focuses on explaining the positive and negative impacts of big data on recruitment and analyzing the future development trend of recruitment.

## 2. Introduction of big data

### 2.1 Concept of big data

In the past time, people search for data that they need to analyze just by paper research, which is high cost and low efficiency. However, with the development of the web 2.0 era, the amount of data on the Internet is exploding. To meet the needs of information search, large-scale data storage put forward a very strong demand, so big data came into being. But what is big data? Big data, also called a huge amount of data, means that the amount of data involved is too large to capture, manage, process, and organize the information in a reasonable time through the current mainstream software tools to help enterprises make more active business decisions. With the rapid production of data and the high demand for data analysis, big data analysis has become the most important skill for company managers. Big data analysis collects large and complex data sets that are difficult to store and process using traditional data processing applications. The challenges include capturing, managing, storing, searching, sharing, transferring, analyzing, and visualizing this data. Big data analysis has four characteristics, which is volume, variety, value, and velocity.



Figure 1. Characteristics of big data

Volume is a large amount of data. The starting unit for big data is at least P (1000 T), E (1 million T), or Z (1 billion T). Variety is the variety of data types. Multiple data types, including network logs, audio, video, pictures, geographic location information, etc., have put forward higher requirements on data processing capacity. Value is the processing speed, high timeliness requirements. This is the most significant feature that distinguishes big data from traditional data mining. Velocity is the data value density is relatively low. Data is everywhere, the huge amount of data just some part of them are really useful and can be sued in a corporation. How to find a method to help people to "purification" information is a big challenge.

### 2.2 Introduction of recruitment

The human resources department is an important part of a company. Among the six human resources modules, recruitment, as the first module, is the key to whether a company can achieve its organizational goals. Recruitment means that human resources manager via search resume or another way to find a suitable labourer to suit the positions.

The fundamental purpose of enterprise talent recruitment is to obtain the personnel to meet the needs of production. According to the actual needs of enterprise development, it uses various scientific selection techniques to select the most suitable candidates for different positions. How to obtain high-quality talents, improve the competitiveness of enterprises is the biggest challenge of human resources. However, with the development of society, the sustainable development of the human resources department faces a huge challenge. Tradition way to recruit, training employees, calculate salaries does not work anymore. In the era of big data, human resources managers need to learn to use big data to finish their jobs.

But there are several problems that human resource managers face. They already have a fixed mindset to deal with human resources-related issues. Most of them engaged in human resources for a long time. They solve the problem in their own way and do not easily accept the new method because it should take a lot of time and energy. One of the problems is hard to recruit. With the development of the countryside, the economy of the countryside has become better, and laborers prefer to stay in their hometown rather than go to the urban city to find a job. Therefore, the corporate located in city central is hard to recruit. Another problem is the single recruitment channel. Most enterprises in China have few recruitment channels. Some middle and senior managers are promoted through internal recruitment, while the basic staff is promoted through external recruitment. What is more, the online interview should base on a smooth network environment. Still, sometimes due to the network delay, employers and employees do not have enough communication, which reduces recruitment efficiency.

### 3. Impact on recruitment in big data ear

#### 3.1 Present situation of big data and recruitment

Since the development of big data, people can learn knowledge of big data from a different channel, which makes them have a better understanding and suing of big data analysis. As a result, this variety of big data information systems are gradually used in corporate governance, especially in the human resource department.

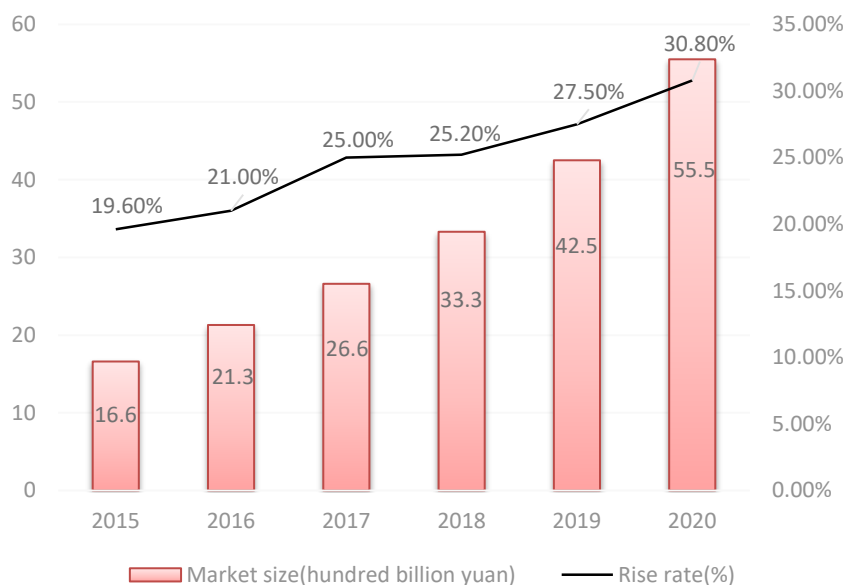


Figure 2. Growth of big data BI market in China from 2015 to 2020

Figure 2 gives the information that the rate of the market size has experienced an increase from 16.6 hundred million yuan to 55.5 hundred million yuan between 2015 and 2020. Figure 1 also reveals a dramatic increase from 19% in 2015 to 32% in 2020. The growth of this data illustrates that the market of big data use sees an increase. With this development trend, big data will be applied in different industries, such as human resource management, especially in recruitment. To achieve the golden condition of corporate, recruitment needs to break down into different parts, as shown in Figure 3.

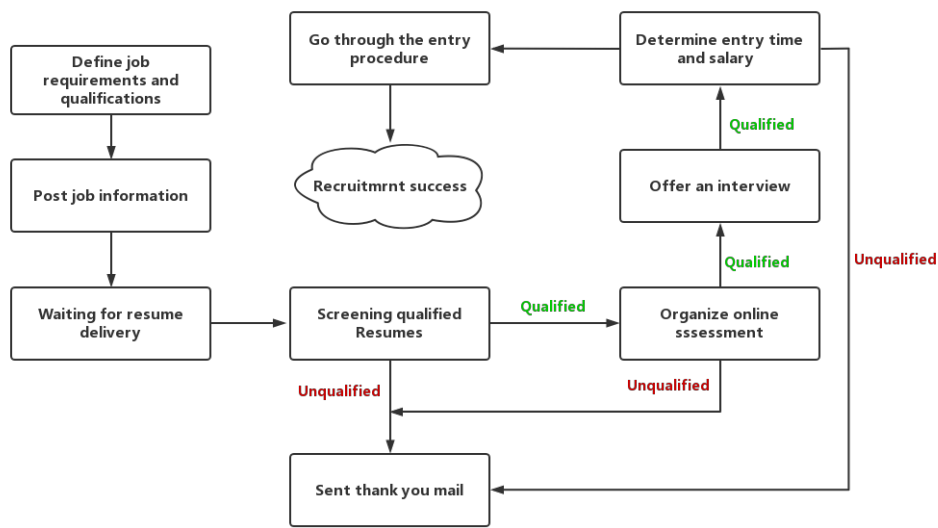


Figure 3. Flow chart of recruitment

Figure 3 illustrates that online recruitment needs 8 steps. According to the flow, the most important two parts need big data to help human resource managers to select candidates - screening qualified resumes and organize online assessments. Big data can screen suitable resumes to select the appropriate staff in the database. Also, staff can search keywords to find suitable candidates, reducing the workload of selecting resumes.

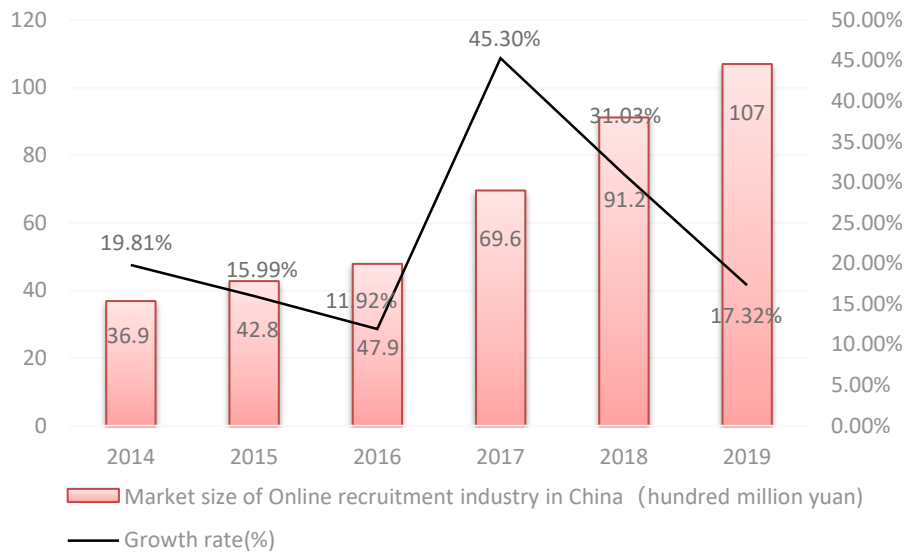


Figure 4. Statistics on market size and growth of Online recruitment industry in China from 2014 to 2019

As shown in Figure 4, it is obvious that the market size and growth of the online recruitment industry in China experienced a significant increasing trend. More and more companies choose online recruitment. The convenient support signals that the use of big data is becoming more widespread in different industries, including human resource management.

### 3.2 Advantage of this impact

Actually, the size of online recruitment saw a rising trend from 21.8 hundred million yuan in 2011 to 107 hundred million yuan in 2020. The significant growth illustrates that online recruitment has its own advantage, which gets human resource manager's attention and quotes. In the traditional way of the newspaper and other methods, a lot of time waste between posting and receiving applications. Then

the applications will be analyzed, which is another time needed. On the other hand, modern methods are quicker. Jobs can be posted instantly, and applications are received in real-time.

(1) In establishing a talent pool

Big data has several advantages when using in human resource management. It can help human resource managers set up the company's own database. When candidates send their applications to the company, their resume will be automatically stored in a database. Therefore, the company has its talent pool, which can help recruitment from the screening of suitable talent. But not all the candidate's information will be selected into the talent pool. Talent management needs to fully consider the allocation of resources. There are some openings, the request is not high, or the need different skills of recruiting role may not need to establish talent pool, on the other hand, it is very important to establish a talent pool. (Such as technology development, sales with core leads, etc.) If you reserve talent in advance, job demand can be solved. In the rapidly developing and changing market, enterprises are prone to face the problem that the speed of talent recruitment gradually falls behind the speed of brain drain. The primary function of the talent pool is to help corporate to reserve quality talents early and effectively so that human resources managers can respond quickly and timely mobilize the resources of the talent pool to fill the vacancy. This means it will be able to respond in a shorter period without being slowed down by vacancies. Also, the talent pool can save costs of recruitment. Different styles of resumes from different channels easily lead to repeated downloads of the same resume. At the same time, complicated information is difficult to organize in a unified manner, resulting in a lot of channel costs. Information through the talent reserves can help human resource managers quickly screen out repeated resumes, effectively avoid the second purchase, and reduce hiring costs.

In Personal quality assessment

Finding the best candidates for corporate is the most important part of corporate governance. How to find suitable talents has always been a real problem for human resource managers to consider. And now, more and more human resource managers choose to offer a personality assessment before an interview, which can help to conduct preliminary screening and reduce time costs. Personality assessment often includes Competency assessment, Cognitive assessment, psychological risk assessment, Online examination system and General personality assessment, and so on. According to industrial-organizational psychology, personality fit has a direct effect on job performance. Personality fit depends on how a person's personality fits into the job and company culture. For example, extroverted candidates may perform better in sales positions than introverts. In the past, reading about a candidate's personality fit was often little more than intuition. Now, personality assessments allow recruiters to quantify and measure this previously "hidden" quality, identifying the most promising talent early in the process and sifting out the least suitable candidates before it's too late.

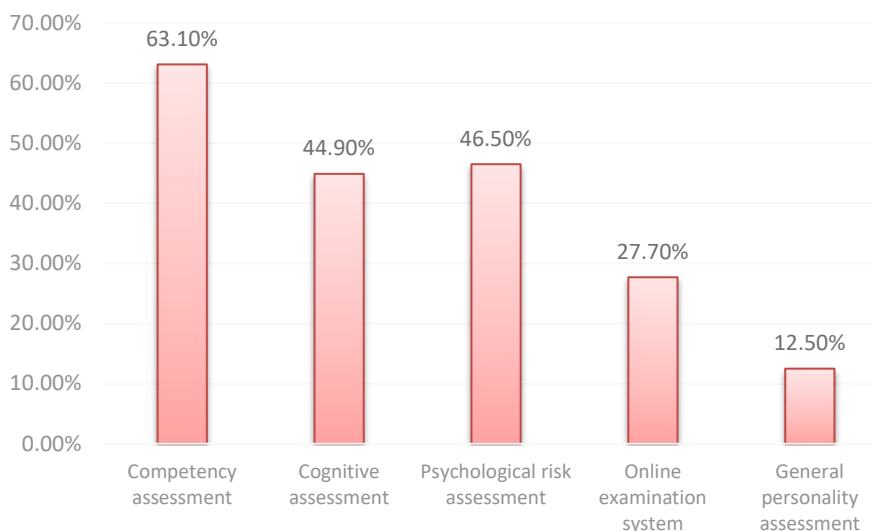


Figure 5. Selection of talent assessment tools by all enterprises in campus recruitment

Figure 5 gives information about the selection tool used in recruitment. It is obvious that human resource management focuses on whether the candidate is qualified for the post rather than focusing on the candidate's characteristics.

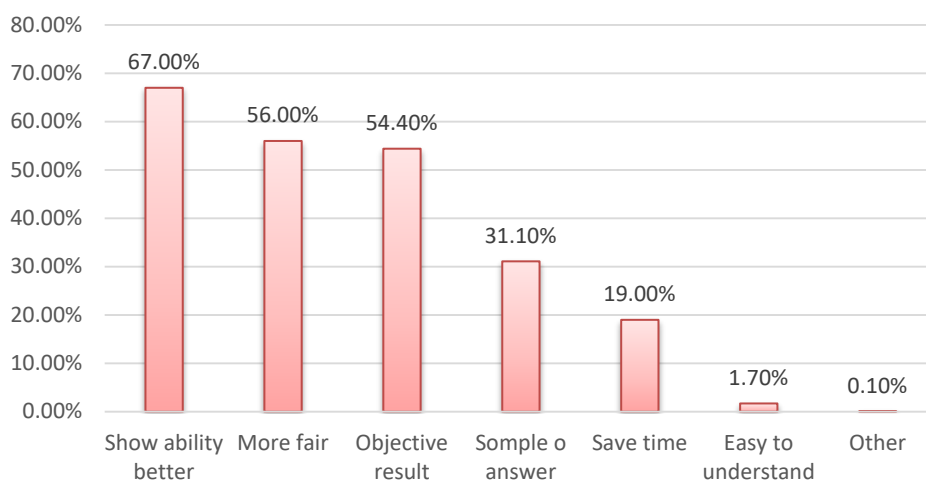


Figure 6. The value of talent assessment tools in campus recruitment according to Chinese enterprise HR in 2018-2019

Figure 6 shows different advantages of personality assessment, the figure of personality assessment can help candidates better show their ability was the largest. More sophisticated personality tests can tell human resource managers what candidates' strengths are, not just what they lack. Also, personality tests enable redirection rather than rejection. Personality tests can easily turn rejections into unsuitable candidates if they are not suitable for the job they are applying for. Still, the data shows that the potential for success in different roles is high, so this candidate might be suitable for other departments. It is no doubt that personality assessment plays a key role in the process of recruitment. However, it also has some disadvantages.

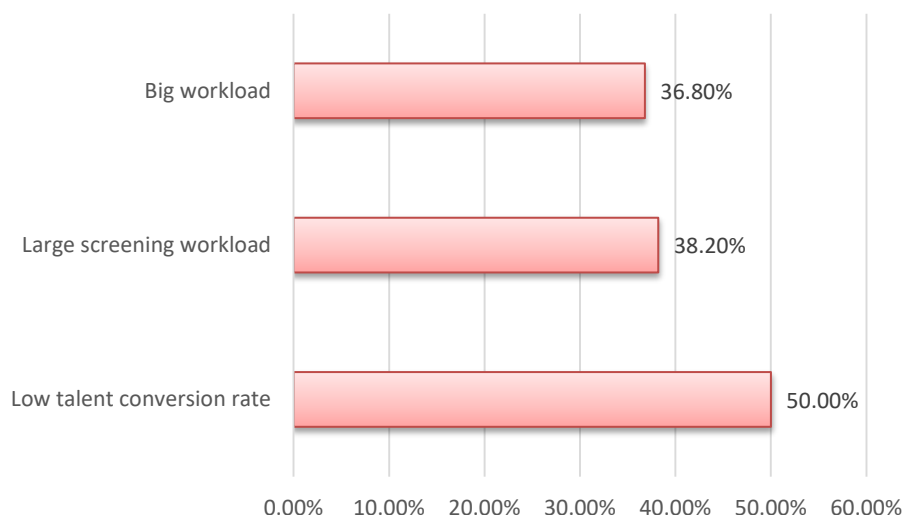


Figure 7. The problem of Chinese companies most eager to solve in the recruitment process in 2021

### 3.3 Disadvantage of this impact

#### (1) Low talent conversion rate

With the development of technology, people seek employment through different channels, but most of them choose to send their resumes through e-mail or APP. For this reason, some candidates will send multiple resumes to different companies at the same time to choose the company they prefer. Especially if they receive multiple offers simultaneously, they may choose the company with the better

salary or welfare. As a result, many companies see a lower percentage of applicants who actually become their employees.

**Communication efficiency**

Due to the impact of COVID-19, many interviews change into online interviews, which led to the rapid development of online office software. However, shortages of online interviews are beginning to appear, such as network delays. When recruiting, communication efficiency becomes low due to network delays, and it is a common problem in online recruitment, especially in some interviews that need timely feedback or need scenario simulation.

**4. The trend of Bid Data in retirement**

In China, human resource management has been developing for decades. But actually, the work had not been fully carried out until 1992. Since the promulgation of the Labor Law of the People's Republic of China in 1994, both sides of workers and employers in China have better legal protection. Human resource management experienced four stages, and we are now in phase four.

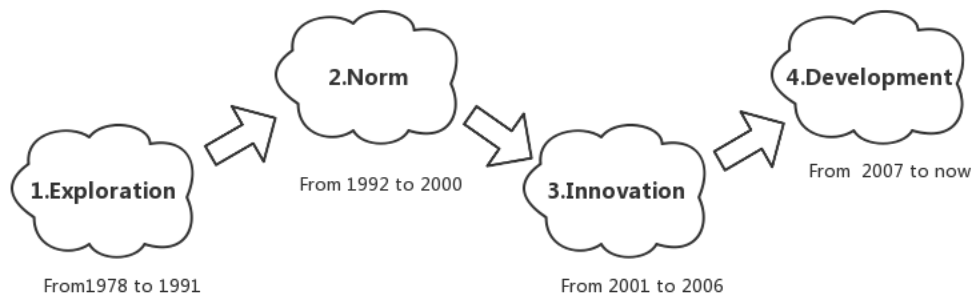


Figure 8. The human resource development process

In the 13th Five-Year Plan for promoting the development of human resource services, a plan was proposed that we need to promote the integration of human resource services with Internet technology and carry out "Internet + Human Resource Services". The plan gave information about the trend of human resource management. In the next few years, the scale of human resource industries was constantly expanding. According to research statistics, the market scale of the human resource service industry reached 1.18 trillion yuan, increasing about 22.4%. By economic forecast, the market size of human resource industries will increase to 2.5 trillion yuan in 2023.

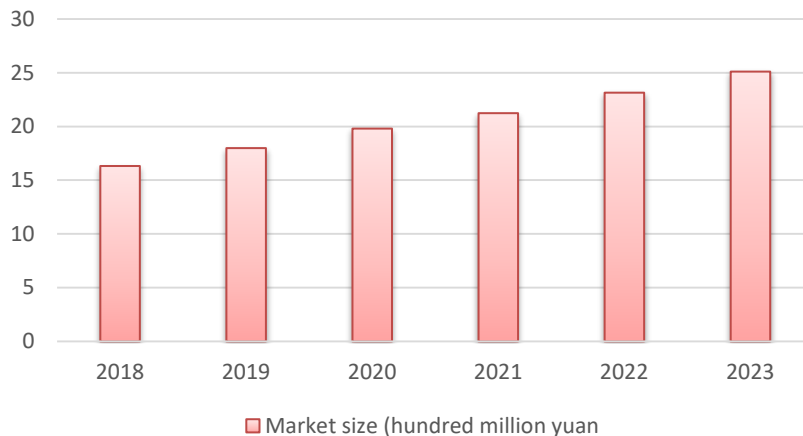


Figure 9. Market size forecast of Human resource industry in China



#### **4.1 Big data analysis technology**

Therefore, there is a clear trend that recruitment must combine with technology in the context of the development of the Internet. Human resource managers need to follow the time and learn knowledge about Internet big data and then use into different parts of work such as screening resumes, making a training plan and organizing performance assessment. Big data analysis can better meet the personalized needs of enterprises and employees in recruitment because employees can use Applications to search keywords to find suitable companies. Similarly, employers can use big data to analyse the result of personality assessments to confirm whether such employees are needed. This can greatly reduce the problem of mismatch between personnel and posts.

#### **4.2 5G wireless technology**

Affected by COVID-19, more and more companies prefer to interview online, which can reduce the travel time cost of candidates and improve the efficiency of recruiters. But, if the interview needs a timely response or in-depth explanation and scenario simulation, the drawbacks of online interviews will be revealed. Because sometimes, the network will be delayed, making it hard to continue giving feedback or answering questions in time. So, it is necessary to combine recruitment and 5G wireless technology. 5G is about speed. With a predicted 5G speed of up to 10 Gbps, new networks will be up to 100x faster than their predecessors. So, with the development of communication technology, the problem of network latency will be greatly improved. This allows recruiters to better communicate with candidates and conduct different kinds of interviews.

#### **4.3 Blockchain**

Actually, blockchain is a data platform, and if corporate apply blockchain to recruitment, it is necessary to build a complete recruitment data platform. The platform should include basic information of the company, job recruitment, and other materials and include the candidate's personal information, work experience, etc. And then use the decentralized characteristics of the blockchain, a secure recruitment environment can be constructed. When recruiting, only the recruiter and the interviewer do not need to share information on a third-party platform, which can achieve peer-to-peer interviews. Blockchain can protect the information not only the company but also the candidate.

#### **4.4 Difficult to retain talent**

Finding talent has been hard and complicated work for a long time. However, with the development of the Internet and social media, human resource managers can interview candidates quickly. So, recruitment is not as difficult as before because of a single channel. But because of this, employees have more opportunities to choose other jobs, and how to retain the staff has become a difficult task. So, the company should improve career development channels, provide employees with more opportunities for promotion. What is more, the company needs to carry out dual-track promotion instead of a signal-track system, which allows technical employees to work in technical positions, rather than becoming a manager.

### **5. Conclusion**

With the development of communication technology, the application of big data for human resource management will be the future trend, especially in recruitment. However, using these advanced tools in recruitment indeed has some drawbacks. According to the results of this paper, it can be solved by the development of technology. For example, the 5G wireless technology and blockchain. To ensure the smooth progress of recruitment, human resource managers should be good at accepting new things and adopt them in recruitment.

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