

# Application of Job Analysis in Recruitment Based on Big Data Technology: Take F Company as an Example

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**Abstract:** Job analysis provides essential support for corporate strategic planning and is the basis of human resource management. It can help organizations comprehensively analyse the work that needs to be performed. In this paper, the work method of job analysis is used to analyze the structure of the key work elements of the recruiting position. This meets the requirements of the company's general manager and the employment demand department, hoping to determine the key work elements of each position to improve the suitability of newly hired employees with the company.

**Keywords:** Job Analysis, Recruitment, Big Data, Human Resource Management.

## 1 INTRODUCTION

With the advent of the era of digital innovation, big data technology has received the most attention in various fields and has been applied in practical work. Its functions of information integration, mining, and analysis provide organizations with accurate and scientific information. Support (Xiao et al., 2022). Big data technology has also been well-practised in human resource management in enterprises. As the most important part of human resources, recruitment is one of the key fields where big data technology can be used (Zhang al., 2020). Company F is a high-tech enterprise in China, mainly engaged in the R&D and manufacturing of marine engineering equipment. Although the company provided employees with market-competitive salaries and benefits, the performance of the recruited new recruits during the trial period did not satisfy the managers. In view of this situation, the general manager analyzed the various situations that exist at the moment. In order to verify the real cause of the problem, he discussed and communicated with the human resources department and the employment demand department, and asked the person in charge of the human resources department to provide an authentic analysis report, explaining the specific situation of the company's recruitment. The goal is to study the key elements in all aspects of recruitment, so as to improve the accuracy of recruitment and meet the actual needs of enterprises.

## **2 LITERATURE REVIEW**

### **2.1 Job analysis**

Job analysis allows the company to clearly understand the job content, job responsibilities, and qualifications of employees in their positions, and allows managers to clearly see the workflow between various departments and positions (Andhi et al., 2019). In recent years, many companies have begun to pay attention to the importance of recruitment, how to recruit the right people, and find a way to quickly recognize the company's corporate culture with high-fit level employees, so as to achieve a win-win situation for the company and employees (Nasution et al., 2019).

Job analysis is a method of comprehensively analyzing a certain job or task, and will determine its key elements. During the process, different research methods can be used for the job analysis (Nasution et al., 2020), such as the questionnaire method, interview law etc. Each method has advantages and disadvantages. Different research methods are used for different situations so that key information can be found more accurately. In complex cases, different research methods may be used for analysis work. The determination of research methods depends on the researcher's work experience and Professional knowledge has higher requirements.

Job analysis has made an important contribution to recruitment work, and has attracted the attention of the company's management. Applying scientific and technical means to analyze the recruited positions, so as to determine the key work elements, targeted work can improve efficiency and reduce manpower Resource input (Lohman al., 2020).

### **2.2 Big data**

In the summary of the characteristics of big data, many experts believe that big data has the characteristics of Value, Volume, Velocity, Variety, etc., combined with the definition of big data by domain experts, we can conclude that we need to collect a large amount of data, through a certain logic Computational methods, analysis and classification of the integrated data (yin al., 2020).

The difference between big data technology and previous data is that the amount of data information is larger, the analysis is more precise, and the integration is more comprehensive (Xiao et al., 2022). Big data analysis has broken through the limitations of previous data analysis. With the rapid development of digital information technology, the amount of global data is growing at an unprecedented rate. People can refer to more data when dealing with work. Not only can they learn from previous information, but they can also obtain the latest and new information and data at the first time, conduct analysis more objectively, and form pertinent evaluations and solutions (Zhang al., 2019).

Under the application of big data technology, the human resource management of enterprises collects information through the network information base, and provides decision-making for the formulation of strategies after analysis. The data-driven approach makes human resources work faster and saves time, and gradually drives the improvement of the work efficiency of other departments of the enterprise, providing useful help for the better and faster development of the enterprise (Zhang al., 2020).

### 3 RESEARCH METHODOLOGY

This study adopts the technology of determining key work elements, conducts qualitative and semi-structured interviews with the heads of employment demand departments, uses questionnaires to collect information on employees in the same position, and reflects the work background based on big data. The application of job analysis in recruitment, the steps of job analysis are as follows: 1. Work breakdown structure (analyze data, organize information on key elements of work), 2. Key work elements are identified based on the findings. This article describes only one position—administrative specialist as an example—and identifies key elements of its job, since the analysis of other jobs is the same.

#### 3.1 Determine the key elements of the job

First, determine the main work elements, such as asset procurement, conference reception, canteen management, vehicle management, etc.

Secondly, the key elements of each job of the post are recorded in a rough form, as shown in Figure 1:



**Figure 1:** Key job elements of an administrative commissioner

#### 3.2 Sorting of key work elements

Rank the key elements of work, depending on the following factors (based on previous experience):

Priority (urgent/normal/not urgent)

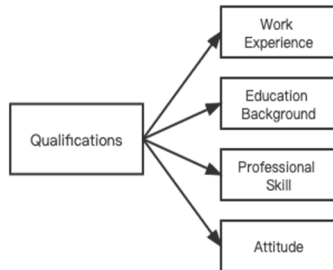
Importance (important/normal/not important). )

Nature (difficult/normal/easy)

#### 3.3 Key elements of qualifications

The first choice, determine the requirements of the position for applicants, such as work experience, academic background, professional skills, and attitudes.

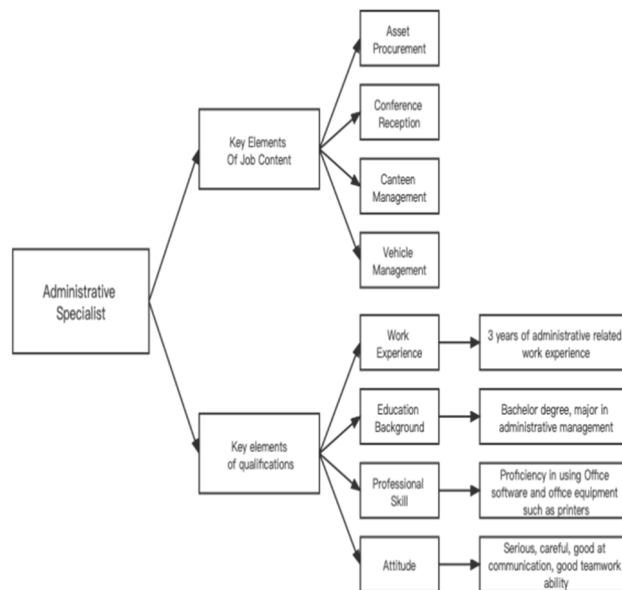
Secondly, each qualification element of the post is recorded in a rough form, as shown in Figure 2



**Figure 2:** Key elements of the qualifications of administrative commissioners.

### 3.4 A collection of key elements for the recruitment of administrative specialists

According to the opinions and answers of the person in charge of the employment demand department and the employees in the same position, the results of job analysis are obtained, as shown in Figure 3:

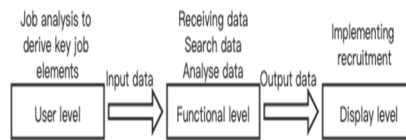


**Figure 3:** A collection of key elements in the recruitment of administrative specialists

### 3.5 Application of job analysis results in big data technology

Through job analysis, it is found that the key work elements of the post are the application layer, which is entered into the recruitment platform; the platform system is the functional layer, and the data management module, logic model module, and data analysis module of the system start to be based on the requirements of the application layer. The search is started in the database, and the processed data is presented to the presentation layer. The display layer is

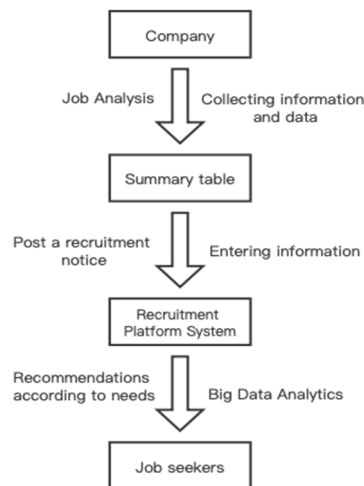
the user interface of the recruitment platform. According to the data model, analyzed and searched by the system, there is a logical and scientific basis to provide professional data support for the company's recruitment work. The application logic diagram is as follows:



**Figure 4:** The use of big data technology in recruitment

### 3.5.1 User level - identification of key job elements

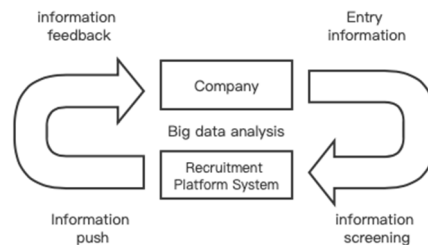
Company F uses job analysis to determine the key job factors for recruitment positions according to the different job settings and job qualifications. company F draws up qualitative semi-structured interviews with the head of the employment needs department and questionnaires with employees in the same position, organises the results of the analysis according to the set forms and publishes the recruitment information with the help of the recruitment website so that the recruitment needs spread quickly and effectively. At the same time the recruitment website will also be based on the analysis of the recruitment intentions of the job seekers and the positions submitted, using the algorithm of big data, the recruitment will be recommended to job seekers who are interested and meet the recruitment requirements, the establishment of a special talent pool, the system automatically communicates with the talent through private messages to reduce human costs, the logic diagram is as follows:



**Figure 5:** Application level logical relationships

### 3.5.2 Functional level - analysis and screening of CVs

After the information is entered into the recruitment platform, according to the screening of key job elements in the database, after big data analysis, the results are derived, partly pointing to the user and partly pointing to the enterprise, the enterprise receives information that meets the conditions of the key job elements provided by the enterprise, while the enterprise takes the initiative to search, big data will recommend the number of resumes with similar key elements to the enterprise, reducing the imprecision of the results of job analysis due to The number of CVs that are missed due to inaccurate job analysis results is reduced. In general, after two or more key job factors are met, the active recommendation of CVs is then analysed and similar CVs are recommended. The functional level logic diagram is as follows:



**Figure 6:** Functional level logical relationships

### 3.5.3 Presentation Layer - Selection of Candidates

For the job seekers recommended and screened by the system, the staff of the human resources department need to further accurately identify and judge their matching degree with the recruiting position. For users actively recommended by the system, the matching degree of their big data analysis can be used as a reference.

## 4 BIG DATA ANALYTICS IN RECRUITMENT

Big data analysis technology not only collects, screens, analyzes and integrates data from the recruitment platform, but also needs to be analyzed according to the degree of informatization, the company's development strategy, recruitment needs, and the professional ability of recruiters. Only by setting plans can the effective combination of big data technology and enterprise recruitment be realized.

### 4.1 Selection of recruitment platform

The effect of big data analysis technology in recruitment is closely combined with the needs of enterprises. The selection of enterprise recruitment platforms should be classified into four aspects according to the industry, region, company nature and job requirements. The effectiveness of recruitment depends on the reliability and accuracy of the data source of the recruitment platform. The database of each recruitment website has its own characteristics and advantages. Some are good at high-end management posts, some are good at professional

technical posts, and some are more suitable for recruiting workshop workers. Choosing a recruitment website with a high degree of fit with the needs of the enterprise can ensure more data and accurate data analysis. A suitable recruitment website cannot guarantee the accuracy of big data analysis, and it can recruit more talents to fill the database, which will make the company's recruitment information spread and disseminate more quickly, and select qualified job seekers to the company, so that the recruitment done more quickly and efficiently (Dong et al., 2020).

#### **4.2 The relationship between big data analysis and job analysis results**

Big data analysis technology requires enterprises to provide information scope and keywords, and the result of job analysis is the main analysis tool for enterprises to provide precise screening conditions. The big data analysis algorithm of the recruitment platform will calculate the results according to the screening requirements, so the professional ability of the company's human resources practitioners also has an important impact on the results of big data analysis.

## **5 THE IMPACT OF BIG DATA ANALYTICS ON RECRUITMENT RESULTS**

Company F's recruitment methods are mainly divided into on-site recruitment and online recruitment. On-site recruitment is mainly for campus recruitment and offline job fairs held by the government, which are staged special recruitment. Considering labor cost and time cost, Company F prefers to use online recruitment.

### **5.1 Advantages and disadvantages of on-site recruitment**

#### **5.1.1 Advantages**

- a) You can directly communicate with the interviewers face to face, as a preliminary test, control the number of job seekers, and have a preliminary impression of the quality.
- b) Campus recruitment is generally free, which can save costs.

#### **5.1.2 Disadvantages**

- a) The labor cost is high, and a large number of employees are usually required to be on site.
- b) The number of people participating in the on-site recruitment is often limited to the propaganda of the sponsor, which has a great influence and restriction on the quantity and quality of job seekers.
- c) It is impossible to analyze resumes with analysis tools, and the accuracy is poor.
- d) are often influenced by first impressions.

## **5.2 Advantages and disadvantages of online recruitment**

### **5.2.1 Advantages**

- a) The coverage is wide, allowing more job seekers to see the recruitment needs of the company.
- b) Strong timeliness, the recruitment method is interactive, not limited by time and region, it can transmit information more quickly and conveniently, and the update speed is also very fast.
- c) More precise, the big data analysis function will integrate and match the needs of the enterprise and job seekers through the data in the database.

### **5.2.2 Disadvantages**

- a) The authenticity of information is low, and the reliability of verification such as academic qualifications is low.
- b) The position limitations need to be expanded. For manual labor positions, such as production workers, drivers, chefs, etc., the recruitment effect is not ideal because they are not skilled in using the Internet.

## **6 DISCUSSION**

In this paper, the work method of job analysis is used to analyze the structure of the key work elements of the recruiting position. The online recruitment channel of Company F is the Zhaopin platform, and the results of the key work elements are entered into the Zhaopin platform as screening conditions. More accurate screening of resumes and resumes searched online. This meets the requirements of the company's general manager and the employment demand department, hoping to determine the key work elements of each position to improve the suitability of newly hired employees with the company.

In the recruitment process, the ZhiLian recruiting platform uses big data technology combined with the key work elements of job analysis and summary, makes full use of its powerful resume search engine and a large amount of resume data, draws the talent portrait of the company's recruitment position, and conducts job analysis for the position. Design a competency model and screen resumes based on big data algorithms to achieve a scientific matching effect.

In the analysis, determining the key work elements cannot cover all the work content of the post, and some temporary work elements are ignored because they do not account for a high proportion of the workload. They found that job analysis to determine the key elements of the job, with the help of big data technology, can help employees to better complete the company's recruitment tasks in a professional, accurate, and fast manner (Shao al., 2020). These are typical recruiting job-related traits that are crucial in any job and contribute to good results for employees in a business. Therefore, these characteristics have been emphasized in the study of this paper.



## 7 CONCLUSION

Job analysis is an important tool in human resource management. With the help of big data technology, it is conducive to improving the accuracy and effectiveness of recruitment work. It can help companies save recruitment costs, improve work efficiency, and enable employees to quickly integrate into the enterprise, to achieve a win-win situation between the enterprise and employees. This article takes a company whose recruitment results are not satisfactory as an example and discusses how a systematic approach can recruit more suitable employees through merit and demerit job analysis in the context of big data technology. The analysis done in this paper can serve as a sample of those organizations that need some investment in this regard.

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