



Digitalization in the Recruitment Process

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Abstract: In today's digital era, many companies are aggressively adopting digital technologies into various business units to get an edge over their competitors. Recruitment, a part of the human resources department that is time and cost-intensive from a company point of view, is adopting digital practices to attract top talent and reduce the time and the cost required for the recruitment process. This term paper discusses the approaches various companies are aggressively using in the recruitment process and the advantages and disadvantages of these techniques. The paper further discusses 2 case studies of Belgium government officials using digital channels for their recruitment and Google using code jam to recruit developers.

Keywords - Digital Recruitment, Artificial intelligence, Selection, Gamification

I. INTRODUCTION

To accomplish the vision of the company, the right set of workforce is required. The process of identifying, attracting, and selecting the right candidate is known as recruitment. Selection of the right candidate for the given job is important since recruitment is time-consuming and costly. It is desired for the selected candidates to stay with the company for a long time.

The process of recruitment has seven stages:

- Identification of need
- Prepare job description
- Talent search
- Screening and shortlisting
- Interview
- Evaluation
- Selection

In the current age, the traditional process of conducting surveys to identify needs, posting ads in newspapers, and screening all applicants manually before shortlisting them is very tiring and time-consuming. The need for the above-mentioned methods will require more employees to devote their time to the recruitment process. Hence it is necessary to restructure the recruitment process according to the company's desire.

The methods of recruitment are broadly classified into two types:

- Internal Recruitment: Transfers, referrals, and old applicants
- External Recruitment: Advertisements, Campus recruitment, Job fairs, and recruitment agencies [1]

It is essential to digitize this process of recruitment since it is very cost-effective and time-saving. The Digitalization of the recruitment process will also help the employer reach a larger pool of applicants from various parts of the world. Digital recruitment varies from using social media, mobile recruiting, career websites, and AI and chatbots to reaching the right candidate. Providing a digital platform for recruitment without proper vision won't lead to the selection of the right candidate. The platform must be designed according to the size and requirements of the firm. The company must use customized digital strategies that work for their company and not adapt to the strategies of their rival companies. They must be interactive on social media platforms to ensure the applicants are aware of the opportunities and understand the company. Keeping the digital process employee and employer-friendly will help in making the process easy and fast. [2]

II. LITERATURE REVIEW

B.J Impa, in the paper entitled "Recruitment through digital platforms", discusses recruitment through social media platforms, popularly known as social recruiting. The paper discusses social media as a tool for recruiting potential candidates as well the recruiters who can benefit from the same. The paper focuses on the most popular social media sites like LinkedIn, Facebook, and Twitter. The paper also examines the advantages and limitations of recruitment through social media for employers as well as job seekers. [3]

Ms. Poornima and Ms. Bornali, in the paper "Impact of technology on recruitment and selection process: a review", discuss how the involvement of different types of technology in the recruitment and selection process has made it more easy, efficient and saves a lot of money. The research shows the effectiveness of conducting recruitment in a smart and faster way and talks regarding

the various factors affecting recruitment. It tries to show the future aspects of the recruitment and selection process because technology is evolving quickly. [4]

Renata Martins Correa and Flávia Frate, in the paper "Digital transformation at the recruitment and selection process: a study of semantic analysis", discuss how companies can use digital recruitment methods in the recruiting process with the help of semantic data analysis. The paper showed how the usage of artificial intelligence could be used to analyze the candidate's responses and thereby help in the selection. The further scope of this paper is based on the advancement of technology. [5]

Kartik Singh, Rahul Sindhvani, and Punj L Singh, in their paper "Decision making in the recruitment process with AHP and ANP", talk about solving the hardships faced in making decisions based on various criteria during recruitment. They did surveys with HR recruiters and their inputs were used in AHP and ANP formulation process. The paper prioritizes the use of AHP and ANP in the IT sector during the selection process based on various traits. This paper also tries to show there is scope in using this method in other industries. [6]

Dr. Aishwarya N, in the article "Potential impact of Blockchain on HR and People Management", discuss the broader perspective of blockchain technology and its potential applications in the HR domain. Also, the Advantages of using blockchain which ensures transparency, ease of usage, and fraud prevention. The article also discusses the concept of blockchain integration into different departments of the business with a prime focus on recruitment. It looks into the integration of blockchain into various functions of HR, like recruitment, performance evaluation, talent management, and compensation. [7]

Shree and Singh, in the article "Exploring Gamification for Recruitment through Actor-Network Theory", discuss the process of implementing gamification in an organization's recruitment. In this article, they discuss the implementation of the Actor-Network Theory, where there are two players, namely the humans and the non-humans. The non-humans will mostly consist of quizzes and bots for the candidates. The article also discusses gamification's advantages and limitations in an organization's recruitment process. [8]

Stephan, Brown, and Erickson, in the article on talent acquisition in the "Deloitte Global Human Capital Trends report 2017", surveyed the upcoming new technologies in the talent sourcing and recruitment field. They have discussed the potential of upcoming technologies for employee development and sourcing, like cognitive, artificial intelligence, social collaboration, crowds, and sharing economy. [9]

Dr. Aruna Deshpande, in the article "Talent Acquisition through Technology", discusses the talent acquisition process with the help of digital technology as candidates expect convenience and contact through mobile phones. She also points out how some large companies use HR systems like Oracle and Workday. The article shows how AI will save time, energy, and cost-effectively by replacing many processes with smart assistants. Digital technologies that can be used in talent acquisition have been mentioned. It is believed that in the coming years, candidates will have the flexibility to engage with their mobile devices and receive appropriate messages from chatbots. Companies will develop new models to make these changes smoothly and make the process efficient. [10]

III. RESEARCH METHODOLOGY

In the current era, where everything is becoming digital, it is essential to understand the existing HR practices in the digital sector. With the young generation being the future workforce and focusing on the digital world, presenting in this field was the suitable topic for our research.

The literature review is prepared with the help of online journals, articles, blog sites and case studies which were highly focused on the means through which digital recruitment can be carried out. The keywords used for the search are recruitment, digital recruitment, technology in HR, methods of recruitment, and social recruiting. This research is made to help us understand the methods of digital recruitment and how the future of the recruitment process might be.

IV. METHODS OF DIGITAL RECRUITMENT

A. Social Recruitment

The presence of internet is there in almost every element of human life. Social media being easy to access for all allows free participation to interact and build connections with other individuals and communities. The recruitment process facilitated with the help of social networking sites is known as social recruitment. The prominent sites that can be used to recruit are LinkedIn, Facebook, and Twitter. LinkedIn is a more professional platform focusing on the job posting or resume-related information. Facebook is mainly used for personal posting and other job-related activities, but employers can use it to promote their brand and get the interest of the users.

The significant advantages observed from social recruitment are:

- It will increase the speed of employment and reduce the cost of recruitment.
- With younger generations being the prominent players in the coming days, using social media to engage in recruitment will help companies attract many applicants.
- It helps build a better network among possible candidates and easy one-on-one communication with them.
- There is a shift of workload from employers to applicants since they have to make their social media profiles look presentable.

Limitations of using social recruitment are:

- Accurate data might not be easily available
- Job information would not have reached a larger pool of applicants until all of them were on a social media site. [3]

B. Gamification

Gamification is a strategy used by today's Human resources for recruitment and selection as it helps get the right pool of candidates and gamification makes it more competitive among the candidates and creates curiosity among the potential candidates about the company. Here the games have two parties of players, humans and non-humans. Here, the non-humans are mostly in the form of Bots, Questionnaires, and quizzes, including multiple-choice questions and methodologies to solve case studies. It can also

be a combination of this as per companies requirement. Gamification has been applied by recent companies like McDonald's, L'Oreal, PWC, and Hays.

The Gamification is applied in the following manner

- There is an internal discussion between the HR managers and the IT team about the possible points or stages we need to include in the game to attract the right pool of candidates.
- The initial beta version of the game is provided to the existing employees to get feedback and suggestions for further changes in the game.
- Then there is an appointment of vendors for them to reach the potential candidates. And they are clearly communicating the expectations of the game for recruitment.
- Testing the beta version of the game within the company with employees with similar skills and demographics as potential new hires.
- Deploying the game through a platform of the vendor for the potential candidates.
- Evaluation and feedback from the candidates in the game for any major improvisation and for future game implementation.

The gamification process of recruitment is gaining more ground because of the growth of the gaming industry in the gen Y and Z, who fall in the target pool of candidates.

There are various advantages to gamification are:

- Mutual interaction between candidates: Due to gamification, the potential candidates can interact about the game and form networks among themselves. As the candidates approach further stages, the interaction can help the candidates to understand the rules of the game better.
- Judgement of candidates- As the recruitment officials can monitor the progress of the candidates, they can check the candidate skills, personalities, willingness, and potential of prospective candidates.

And Also, there are some limitations to gamification such as:

- Removal of the process: It is very difficult to remove the process of gamification from the company recruitment system as it may affect the potential future candidates.
- Not everyone is a player: It is very much possible for all the candidates to have the same attitude and passion toward the game. The pool of candidates may consist of some of which might be super-competitive, and others may not have that passion for the game.
- Every stage is impossible: Gamification may not be possible for every industry and every stage of recruitment and selection. Some industries and stages may require traditional practices for the recruitment process. [8]

C. Blockchain

Blockchain is recently the talk of the town along with Data Science, Artificial Intelligence, and Machine Learning. Blockchain technology is mainly used for cryptocurrency, and bitcoins use many networks to store information. Blockchain uses digitized tokens to access the information; a user needs a token to access that information.

Blockchain is used by leading multinationals for the recruitment process, which gives them an edge over their competitors by attracting top talent. The technology is mostly employed in the process of information storage of the candidates, like the degrees, grades, achievements, and certifications. The company can create its own blockchain, which can help them store information related to candidates. The same information can be retrieved or accessed if the candidate applies in the future, reducing the efforts for the verification of the same. According to a survey by CareerBuilder, around 58 percent of candidates give falsified information on their resumes.

Here are some advantages of using blockchain are:

- Instead of verifying the contents of the resume manually, blockchain can act as a digital resume of the candidates, like verifying their grades, Degrees, and Job experience.
- The blockchains help the other side, i.e., the candidates, by giving them a tool to share their credentials in the most trusted and secure way.
- It also helps eliminate frauds such as forgery and change of information in documents such as previous employment records, college documents, and personal documents.

Disadvantages of using blockchain are:

- As blockchain will be used to store critical documents, people's fear of storing their critical information in the new technology will be a challenge.
- The security of this data will also be a bigger challenge as the leak of such crucial data can disrupt the trust of people in blockchain technology.
- Lower literacy about computers and the internet leads to difficulty in using blockchain due to issues like missing and theft of tokens can happen. [7]

D. Analytical Hierarchy Process (AHP)

The Analytic Hierarchy Process (AHP) is a theory of relative measurement based on paired comparisons used to derive normalized absolute scales of numbers whose elements are then used as priorities that help decision-making. The person who proposed the AHP process uses many criteria for decision-making in various traits. AHP consists of a hierarchy network. A hierarchy consists of a Goal and various stages of elements. These elements are our deciding factors in the process and are interdependent on each other and Alternatives (the final results on which our whole process is based).

The AHP process consists of

- Forming the network: The network consists of a goal, elements, and alternatives
- Pairwise comparison matrix: The factors are compared on a scale ranging from 1 to 9, with nine being the most important factor.

- Obtaining results in the form of a Super matrix: After putting inputs for various factors, we synthesize the super matrix, which will help us evaluate the factors
- Selecting the best alternative: Based on the evaluation, the best alternative is selected

Currently, HR analytics is excessively using Analytic Hierarchy Process to identify the critical factors that help make decisions. The selection criteria will help the recruiters to develop the competencies that are required for the different job profiles.

The advantages of using AHP in recruitment are:

- Helps in selecting the best candidates from the pool of applicants
- Creates a dataset of all the applicants and their level of skill set [6].

E. Artificial Intelligence (AI) And Semantic Process

AI can be used to perform tasks by virtual assistants backed by machine learning algorithms that otherwise would require a person to do it manually. Semantic analysis is a technological process in which the words are interpreted by similarity, making a semantic analysis of the responses. With the help of AI, semantic analysis can be done to understand a candidate's nature based on whether the person uses long or short sentences, types and quantity of pronouns, and negative or positive words. It can be used to preselect the number of resumes received and hence improve efficiency in an intelligent manner

The advantages of using this process are:

- Time-saving and efficient
- Reduces the screening workload on the HR team
- Complements the existing traditional recruitment process

The limitations in using this process are:

- Needs supervision
- Analysis of the nature of the candidate based on writing style might not be accurate [5]

F. Interactive Voice Response (IVR)

IVR is an automated phone system that helps access information without an agent talking to the caller with the help of pre-recorded messages. It can be primarily used in between screening and selection done with the help of telephonic interviews. The interview can be self-administered by the candidate with the support of selecting "1" and "0" to answer "Yes" and "No".

The advantages of this method are:

- Easily accessible since the software already exists
- The applicant has the freedom to take interviews during his free time
- Personal interview biases can be removed
- It is very cost-effective for a large applicant pool. [4]

V. CASE STUDIES

A. E-Recruitment By Belgium Government

The Belgium government launched the E-recruitment project to promote the federal public service of finance [FPSF] in 2019. But the project accelerated in 2020 due to the covid-19 pandemic. The E-recruitment was conducted in stages Stage 1: As the spread of Covid-19 increased, the federal public service of finance began a pilot exercise for recruitment. They started using Skype and Microsoft to conduct interviews. The code of ethics was provided electronically, and candidates were asked to sign the code digitally. Stage 2: In stage 2, a candidate needed to access a test to showcase his technical skills. The test was sent to the candidate via email, and was allotted a specific time to assess the test. Also, a handbook was provided with FAQ's and technical solutions to commonly occurring problems in the process which gave the candidates clarity and resulted in high satisfaction in the user-friendliness of the system. Stage 3: In these stages, the assessment of the motivation of the potential candidate's CV screening was conducted along with digital assessment like the introduction to various games and exercises, which include presentations and roleplay exercises that gave the candidates the actual work for which they have applied.

1. Success Factors Of E-recruitment

- Providing clear information upfront about the recruitment process to candidates facilitates the recruitment process and ensures a higher quality of candidates
- Developing a phased approach in line with capacities helps adapt the process to the challenges and opportunities encountered
- Ensuring buy-in from recruiters and managers helps involve them throughout the recruitment process and can result in better candidate matches.
- Supporting managers who are not used to doing online recruitment is important to ensure that they adapt their questions and techniques to the online tool being used
- Building awareness throughout the organization that introducing e-recruitment will initially have to be accompanied by additional investment such as training, data protection software and proctoring software (to verify the test-taker's identity) in case of technical tests.
- Considering the development of new roles within HR to drive forward the introduction of e-recruitment, such as data protection officer, and new HR roles, such as proactive candidate sourcing.

2. Conclusion

The case of the Belgium governments department of Federal Public Service of Finance shows that even though prior to the e-recruitment program, most of the posts and processes required to be offline or in person but the covid pandemic just

accelerated and showed the way to actually make a complete shift in the process by making most of them online, which resulted in bringing in more quality and quantity in the recruitment pool. [11]

B. Google Using Code Jam To Recruit Developers

Code Jam is a global coding competition conducted by Google to recruit top talent from the computer science and coding field. It's Google's longest-running global coding competition, where programmers all around the world gather to solve challenging, maths and algorithmic intensive puzzles around the clock. Every year the finals of these grilling rounds will be conducted at one of Google's international offices. The competition is conducted in four rounds, where each round is an elimination round. After round 3 only top 25 contestants will contest in the final round to win a prize of 15,000 dollars with a potential offer from google. Round 1 consists of a problem statement with a time of 27 hours allotted for the round completion. It consists of 3 sub rounds which all the potential candidates will go through. After round 1 top 1500 contestants will be participating in the next round. These 1500 candidates move to the next round, i.e., round 2, and again compete to gain a spot in the top 1000 to advance into round 3 and which allows these candidates to win a limited-edition code jam t-shirt. In the pre-final round of the competition, i.e., round 3, the 1000 contestants will now compete to get a spot in the top 25 to enter the finals. This round will be one the hardest rounds of the competition, with only 2.5% going to the finals. Final round 4 will be conducted at one of the international offices of Google. But in recent years, because of the covid pandemic, the finals have been conducted virtually. This round gives the selected 25 contestants a chance to win \$15000 dollars.

Here are some of the advantages of gamification experiences by Google.

- A wider pool of candidates- with online assessment, candidates from all over the world can assess the test because Google has an advantage in hiring candidates from diverse cultural and educational backgrounds.
- Judgement of candidates- During the entire competition, along with problem-solving skills, Google can assess the attitude, personality, and potential of the candidates throughout.

Disadvantage of this gamification is:

- Removal of the Competition - It is very difficult for google as a company to stop the competition as future potential candidates are preparing for the format of the game [12]

VI. CONCLUSION AND FUTURE PROSPECTS

Recruitment process has evolved over the years with the use of technology. In the past few years, technology has been used a lot in the recruitment process, and this change was mainly fueled by the change in human mindset and the presence of Covid-19, which shifted many of the operations to a digital mode. Most of the employers have always searched for a cost-effective and time-saving recruitment process, and going digital has resulted in this. Even though there are certain limitations, the digital recruitment process has given employers the desired results. The adoption of digital recruitment from the applicant's perspective must also be considered. Digital recruitment has helped the applicants in the recruitment process, but it should not become a burden for the applicants. Some of the technological techniques mentioned are social recruiting, gamification, blockchain, artificial intelligence and semantic analysis, and interactive voice response.

The trend may not shift fully digital, but it will be more of an integration between traditional and digital methods. If the current trend of technology development continues, firms will start developing better models to make an even more efficient recruitment process in the future.

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