Unilever‘s Practice on AI-based Recruitment

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Abstract. Artificial Intelligence (AI) is shaping the reality of human resource management (HRM). It is ideal for HRM to do predictive decision-making tasks like recruitment and selection. Talent acquisition includes identifying qualified candidates, aligning assessment methods with job or performance-related criteria, and managing administrative discretion in the hiring process. Other threats like high volumes of applications, biases in candidate selection, and a shortage of qualified candidates also bother recruiter teams. While AI-based recruitment supported by the natural language process (NLP) addresses such challenges by automating or augmenting various aspects of recruitment, such as sourcing, screening, and interviewing candidates. Unilever started its partnership with HireVue and Pymetrics to design a system of recruitment, selection and onboarding supported by AI in 2016. This article uses the case analysis method to discuss Unilever's application of AI in the recruitment and selection process. The analysis will be conducted in the context of social network site (SNS), gamification, and verbal computer mediated communication (VCMC). Unilever saved bunches of time and cost, while improving its HRM performance. Such decision-making tools associated with AI raise concerns of bias and private crisis. This article is also aimed to discuss such a phenomenon in the context of Unilever. Talent acquisition by AI is an inevitable trend. This article is helpful as a benchmark.

Keywords: Artificial Intelligence, Talent acquisition, Unilever, Natural Language Process, Diversity and Inclusiveness.

1. Introduction

The emergence of AI is heralded as a storm which is directed to challenging the conventional HRM model. In the prior ages, bunches of decisions are made supported by human specialists' judgement and insight with scant empirical research. However, machine learning is making both academics and recruiters able and willing to test their rule of thumb's construct validity. The application of AI or algorithmic tools is becoming increasingly prevalent in governing decisions [1]. Recruiters take the responsibility to match the vacancy characteristics and applicant characteristics to find the right talent. However, qualification is insufficient to support recruiters' decision, especially for business schools [2]. CV and interviews are used to evaluate potential workers, which provide proxies for performance that may be biased [3]. The bias may be stronger amongst neurodiverse workers [4]. Modern enterprises all set a goal of increasing diversity and inclusivity within their workforce, while recruiting a diverse pool of candidates is a challenge, as there may be unconscious biases and other barriers that prevent diverse candidates from applying. HR professionals are facing a problem of realizing diversity and inclusion (D&I). Nkomo et al. noted that the evolution of the socio-political context has resulted in contextual shifts in society, which have made D&I management even more challenging [5]. This is obviously beyond the ability of human brain. SNS like LinkIn has not only improved employer branding but also exposed the inconsistency of employers' value signals to the applicants [6]. Recruiters are striking to find a way to quantify their applicants. The larger volumes of applications rising with online job boards and social media recruitment make recruiters receive hundreds or even thousands of applications for a single job opening. Managing and sifting through these applications can be time-consuming and overwhelming. Maintaining a positive candidate experience is another challenge. Recruiters must ensure that candidates have a positive experience throughout the recruitment process, regardless of whether they are ultimately hired or not. This can include providing clear and timely communication, giving feedback to candidates, and ensuring that the recruitment process is fair and transparent. All in all, both the process of identifying

and attracting labor are getting tougher. This research is aimed to analyze how innovational companies shape the future of staffing by AI, which represents a paradigm shift given that it encodes tacit knowledge and makes it visible [4].

AI-based recruitment tools can analyze large amounts of data, identify patterns and trends in candidate qualifications and experience, and even simulate job-related scenarios to evaluate a candidate's know-how and suitability for a certain position, based on NLP. NLP analyzes and processes various textual and spoken data from applicants or internal labor, to extract meaning, identify patterns, and generate conclusions to support recruiters' decisions. However, concerns have been raised about the potential for AI-based recruitment to perpetuate biases or unfairly disadvantage certain groups of candidates. Also, privacy concerns are raising as well. As such, it is important for organizations to use AI-based recruitment tools responsibly, with clear guidelines and oversight to ensure fairness and transparency in the hiring process.

This article is aimed to indicate AI's impact on the staffing function based on Unilever's case of AI-based recruitment and selection process. Unilever is a huge fast-consumer goods company that sells its product across more than 190 counties with more than 400 brands. Applicants worldwide share different values and normative with each other. The diversity within an organization is leveraged by organizational culture, which is influenced by staffing. Organizational diversity in personnel improves innovation and performance [7], especially for an enterprise running a global business, which inevitably faces problems within a multicultural work environment. The repercussion resulting from the gap between specifying vacancy characteristics and various applicants' characteristics is making this process even tougher.

Unilever is recruiting from every corner of the world. According to its 20FY financial report, Unilever recruited more than 30,000 people and processed around 1,800,000 job applicants across 190 countries. Its urge to excel in its multi-national markets requires it to maintain its staffing effectiveness while keeping a worldwide talent pool. International enterprises like Unilever are at the junction of D&I evolution. Can Unilever take the responsibility of D&I and thrive as usual? Human resource specialists know more than they can split out refers to the complexity and value of tacit knowledge [8]. The crucial problem for them is to encode the tacit knowledge and visualize it. AI is a brave try, which uses an evaluation tool to support recruiters' decisions and automate the process of staffing. As a result, HR specialists can save more time on strategic thinking and developmental thinking.

This article is aimed to indicate how Unilever facilitates AI to recruit potential workforce, how Unilever makes the decision of selecting supported by AI, why it is so important for Unilever HRM to use AI in the staffing process, and an evaluation of these process. Unilever's AI-based recruitment and selection is divided into 4 parts, Impression process, Retention process, Selection Process, and Decision Process. The first two processes will be firstly explained, and the following parts will deepen the analysis. For this function, Unilever found itself two partners, HireVue and Pymetrics. Its recruitment strategy is based on social media (LinkIn) and games, c.f., its selection decision is based on video interviews, tests, group work and determined by recruiters and employer's committees. According to Hire Vue's statistics, till the end of 2021, more than 80% of applicants' feedback is positive. It had help Unilever saved more than 50,000 hours (25%) in the recruitment process and £1 million of costs [9]. It had employed the most diverse ethnic and gender employee class so far. Unilever's success in AI-driven recruitment innovation is supported by sufficient evidence, as demonstrated by the reduction of around 70,000 person-hours spent on interviewing and candidate assessment. For the rest parts, this article is aimed to review related literature to assess Unilever's staffing process.

2. Unilever‘s Recruitment and Selection Process

The recruitment process involves balancing vacancy characteristics and applicant qualifications, taking into account personnel policies, recruiter traits and behaviors, as well as recruitment sources.

This process is set to attract as many qualified applicants as possible. When it comes to selection, recruiters are supposed to screen CV and resumes, evaluate work samples, interview candidates, check references and background, and then make their final selection. For Unilever, its staffing process runs with remarkable innovation. Operating in 190 countries, Unilever attracts applicants based even more than 190 countries. Its staffing effectiveness is a vital ingredient for success. It is unacceptable for Unilever to afford to overlook any talent available. Unilever found Pymetrics and HireVue as partners, which are two companies that provide AI recruitment services, and deeply reshaped Unilever's personnel policies. Unilever initiated its AI-recruitment project in June 2016, and gradually make it developed in 2017, which is working well so far. Its innovation process is as follows.

2.1. SNS, NLP, and Gamification

For the recruitment process, Unilever is aimed to make it attractive and practical by posting job information on social media like Linked In and Facebook, to better expose its vacancy characteristics to the job market. Such platforms match Unilever's posts to applicants interested with a link to games offered by Pymetrics. However, most employers constructed their images and intentionally convey signals through their own websites in the past [10]. The emergence of SNS terminated the employers' monopoly over information provision of themselves [6]. In terms of the recruitment process, Organizations can use AI-based techniques that integrate data from various platforms to effectively identify and target individuals who may be interested in certain vacancy [11]. However, SNS also decentralizes the speech right to employees and other qualified people to comment and suggest, while information consistency is decreasing at the same time [12]. As a result, Unilever adapts to the fact that people are getting impatient and overwhelmed by the flooding information and designs a gamification selection process at the initial process, which is working well in attracting people. Also, its immediate feedback with clear criteria makes people perceive fairness and construct a good image by word of mouth.

Advancements in computing and analytics present opportunities to extract insights from text on an unprecedented scale [13]. An NLP bot is used to help the process of orientation and understand important employee information about what they concern about, which is named Unabot in Unilever. Unilever's schedules, policy documents, guidelines are collected to match a litany of questions new employees pose every day. It requires HR specialists, IT assistant, and general logistical mutually build a system to collect and analyze the answers to questions pertaining to parking, salary, reviews, time-off allowances and etc. The process of orientation indicates key insights about what new employees care mostly. The recruiters then update their external job postings according to the internal feedback, matching their applicants' concerns.

This article also finds that the boundary between recruitment and selection is getting vague, as most game information is available on the internet. Prospective applicants are expected to effectively understand Unilever's criteria through game and their preparation. By using these game elements, recruitment can be transformed from a tedious and stressful process to an interactive, enjoyable experience for applicants. Gamification can help to keep applicants engaged and motivated throughout the recruitment process by providing immediate feedback, challenges, and rewards for their performance. By using game elements, the recruitment process focuses on the critical know-how and competencies, rather than relying solely on qualifications and experience. Traditionally, recruitment involves the initial stage of attracting potential candidates, while selection is about making final decision. However, with gamification, these stages can overlap and become less distinct.

The games and upcoming video interviews provided by HireVue also help applicants better understand Unilever's mission and value. The use of a dictionary-based NLP technique to analyze performance appraisal statement revealed several advantages over traditional human numerical ratings, such as improved year-to-year consistency and indications of the validity of the evaluation criteria [14]. Unilever performance appraisal by NLP also provides sufficient critical characteristics of a successful employees' look, which help Unilever to design its game. Unabot appropriately

identifies desired employee information by using geographical location and various differentiating information in order to get real and authentic support to be provided. Such information will be presented in the selection process in order to realize suitability between employer and employee value, and organizational mission and employee ability. Till now, this article has discussed an overall structure of Unilever's recruitment process about impression and retention. It offers sufficient information to the candidates in order to help them to determine if Unilever's vacancy characteristic fit their expectations based on real data. During the process, candidates get to know what kind of behavior and characteristic is favorable according to the posting and feedback. Also, for the recruitment source, by social media, Unilever makes that information available to the labor market. To realize staffing effectiveness in the context of D&I, Unilever then is required to make their own decision right.

The AI-selection process is divided into two parts, games selection provided by Pymetrics and HireVue and video interview provided by HireVue. In the timeline of applying for jobs in Unilever, after browsing through vacancy information in social media, applicants interested may submit their Linked In profile, without resume required as the conventional process. Applicants are supposed to fill each of the 4 sections of the Unilever application online, matching their application to Unilever's core values, vision statement and goals and using the keywords from the job post in the profile and answers in the application. They then will be requested to take a series of tests.

In the first process, candidates will play series of games testing their aptitude, logic, and reasoning, and risk avoidance. The game process takes about from 20 to 30 minutes and includes 12 neuroscience-based games (9 for Pymetrics and 3 for HireVue) on Pymetrics platform. Unilever has created gamified assessments that use digital behavior-based neuroscience games to assess favorable and unfavorable charateristics of candidates based on the choices they make during gameplay. The game-based assessment makes it more intriguing, relevant, reliable, and mobile enabling the improvement of Unilever's staffing effectiveness. Those games are supplied by Pymetrics as well as HireVue for a limited locale, e.g., Britain and Netherland and roles. Also, applicants will receive immediate feedback after the game.

At the same time, Unilever is utilizing data-driven technology enhance the performance of its existing employees. It is a holistic and granular assessment through advanced analytics and insights. It visualizes critical characteristics for Unilever to control over its performance, and also enriches its criteria in selection. The suitability of candidates who have applied for a certain role is assessed by utilizing machine learning algorithms, which compare their profiles to those of previously successful employees.

For candidates, various qualities, i.e., attention, effort, fairness, decision-making, emotion, focus, generosity, learning, and focus are tested by games. Within 9 of the games provided by Pymetrics: Money Exchange 1 is used to test Fairness, balloon tests risk tolerance, Money Exchange 2 assesses generosity, Digits evaluate focus, Easy or Hard for effort, Stop 1 for attention, Cards for decision making, Arrows for learning, and Faces for emotion.

For applicants applying for certain roles in a certain locale, they may then have game-based assessment provided with 3 games more provided by HireVue. It includes Numerosity Task for numerosity, Emotion Recognition Task for emotion recognition, and Pathfinder for cognitive ability. These 3 are targeted to assess applicants' sociability, cognitive ability, and emotional traits.

Gamification transforms traditional recruitment into an interactive and engaging experience, keeping applicants motivated with feedback, challenges, and rewards. It shifts the focus to job-relevant skills and competencies rather than just qualifications and experience, resulting in a more efficient and effective process and better-quality hires.

2.2. Video Interview

The second process brings Unilever's potential labor force to a video interview. Still, the assessor is a machine learning algorithm other than recruiters or employers. By adopting VCMC technology, the system yields several advantages, e.g., cost and time savings, improved convenience for

candidates, and an enhanced image for the organization [15]. In the pandemic era, the uncertainty and risk of covid policies costed face to face interviews more. While most of enterprises were striving for adapting video interviews online, Unilever has been thinking about its negative repercussion for years. In this chapter, Unilever's video interview selection process and criteria will be analyzed firstly, and then the innovation domains of Unilever in video interviews will be discussed, compared with conventional VCMC technology.

Its video interview takes around 3 minutes asking candidates to answer questions directed by its objective of matching vacancy characteristics and personal traits. The machine learning algorithm determines whether a candidate is likely to be a good fit through a mixture of NLP and body language analysis. Such analysis is supported by Unilever's existing successful employees' behavior as this article has discussed last chapter.

Unilever video interview is not a live interview but a video assessment with pre-recorded questions by an interviewer, unlike conventional VCMC technology. Recruiters save time and process a high volume of applicants through the application of pre-recorded video interviews. [16]. In HireVue application, Interviewees have 3 minutes to prepare and respond with an optional 30 seconds extra preparation time, while 2 or 3 questions are in written form, which then are required to be answered by typing in a given box. They are also required to work through a series of work samples to have a brief understanding of the daily routine of a future leader. Applicants still need to visit Unilever Virtual Discover Center online to meet their future colleagues and employers.

In the following video interview, sociability, cognitive ability, and emotional traits are tested through NLP and body language analysis. HireVue find several behavior models, language characteristic or other information e.g., the background, dress, distance from the screen, smile, etc., from the video applicants submit to determine if one is favorable or unfavorable.

The automation of recruitment process plays a huge difference in reducing the human bias, compared to conventional verbal computer-mediated communication (VCMC) technology. McColl et al [15], indicated that both candidate and recruiter characteristics may lead to signal distortion, while VCMC technology enlarges the gap to selection validity. Their finding also suggests that the memory effect generates a recollection of a prior interview influencing the perception of subsequent interviews for both face to face interviews and VCMC-based. Recruiter is inevitably affected by their own bounded rationality during the evaluating process, while the use of VCMC technology makes both interviewer and interviewee, and result and objective much more distant. Video interview causes a level of detachment between recruiters and applicants [17]. Unilever neutralizes such effect by cutting recruiters out of the process. Candidates now is the only side affected by distance, which excludes more random error and improves consistency. At the same time, Unilever makes sure all feedbacks are sent immediately to maintain humane. Unilever ride on AI chasing to its staffing effectiveness. By eliminating the participation of human and human prejudice, the system draws an authentic figure for each applicant. The internal development project offers clear characteristics of desired employees at the same time, which is useful for the external sourcing of human resources. The cooperation of Unilever's HR functions improves its human resource suitability to organizational culture and future development, supported by AI. For the recruitment and selection process, Unilever led innovation in the digital transformation, in the fourth industrial revolution [18].

Based on that profile, the games and the video interview are all programmed to extract cues in the interviewees' behavior. These two processes are aimed to select according to the interviewees' understanding of the company's development, whether employees' own values are consistent with the company, and the interviewees' own ability and willingness. The result and conclusion provided by games and videos visualize the tacit traits of every candidate for Unilever. The system will also send feedback to all applicants according to the result, even to those who fail. It provides sufficient evidence to the following selection process and allows HR department and Unilever to be more human, emphasizing Unilever's social responsibility.

However, Unilever's innovation still saves a large room for conventional selection process. Unilever is not prepared to fully automate the recruitment process using machines. The AI-based

system only assists with the initial sift and preliminary screening of applicants. Applicants are required to have written exercise, group exercise, group discussion, presentation exercise, and final interview with real recruiters and employer committee. All of those processes still rely badly on human brain, which makes the final decision in the final interview. For, Unilever, its AI-recruitment help it escape from the black hole of sending rejection emails while losing bunches of quality employees as carefully screening all of them is impossible. Human judgement is still needed and is not substitutable, while its proposition is sharply reduced. It is remarkable allowing human resource specialist to spend more time and energy on developmental plan of existing human resources, human resource retention policies and other personnel policies.

2.3. Privacy Concerns

However, the process also evokes privacy concerns. Firstly, the privacy of candidates is violated, their will is twisted as they have no choice but to agree on privacy policies to get the job. Also, Unilever is collecting information from both performance management process and development process. The trainees have to sell their own data to enter the training program. It is interesting to discuss if these people should get compensation for selling their data.

2.4. AI, Neurodiversity, and Inclusiveness

In the last chapters, this article has discussed the whole process of Unilever's staffing, including recruitment and selection. From social media to final interview, except suitability, the system also prioritizes a factor called neurodiversity. The AI-based system is able to provide tools to diversity by categorizing through decoding candidates' characteristics. Unilever did not disclose its criteria of diversity in selection. However, Unilever has hired the largest class of diverse hires considering gender, ethnicity, and personal traits. The system provide different contact channels to attract neurodiverse applicants. Though digital technologies support a more universal contact phase and flexible interaction modes [4], the wage gap is a scar dividing society. Data from US census Bureau reflect that employers pay 83 cents for women for every $1 earned by men. American Psychiatric Association Foundation [19]. suggests that black American is shouldering the heaviest anxiety and depression during the Covid-19 pandemic. Unilever takes the social responsibility of implementing diversity and inclusiveness management, e.g., according to its 21FY financial report, women employees accounted for 31% of the Unilever Leadership Executive and 27% of senior management positions (those reporting to ULE). As of the end of 2021, women represented 36% of the total workforce, which consisted of 148,000 employees. Its AI-based recruitment technologies indirectly support such a success by improving HR practices efficiency that favor wellbeing by setting indicators of diverse policies. Is equal pay for equal jobs realized during AI's government? Unilever's statistics and equity plan seems to be an ironic proof, while some doubt it as an AI tyranny as why AI's bias win over human's bias is another interesting question. Take women in top management for example, if Unilever should adjust its internal selection criteria to promote more female leaders? The core question of HRM about equal work does not gets solved. The neurodiversity determines people's various traits and efforts on work. The equal pay for equal job is undesirable if the procedure is arbitrary.

3. Conclusion

This article has discussed the operation of Unilever's recruitment and selection process, supported by kinds of literature. SNS expose job information to the public while making information fragmented. The gamification of its initial selection makes candidates willing to put effort into it, as it is practical and timesaving. Its low try-cost reduces the mental burden shouldered by applicants of collecting and analyzing information from SNS. It has transformed the process of understanding Unilever's values and mission into an easy and intriguing mode, which leads to high effectiveness in matching desired labor with vacancy. Unilever also uses NLP to collect information from existing labor to provide

employee information. In the recruitment process, the most frequently asked question by new employees can be extracted and concluded into job posting information to the external users, achieving the task of attracting for recruitment. In the process of performance appraisal, supported by NLP, Unilever is able to decode certain tacit traits and behavior modes of successful and competent leaders in the existing workforce through machine learning according to the text data from performance appraisal statement. It then transforms clear criteria into its selection algorithm to determine the name list of wanted people according to candidates' performance in gamification selection and video interviews.

The preceding discussion highlights the process of decoding natural language in the process of recruitment and selection. By analyzing the case of Unilever AI-based, HR specialists are able to benchmark a functioning precedent try. They can install and improve the system in a new business environment to better match the vacancy characteristics and applicant characteristics.

The current digital evolution brought staffing effectiveness to Unilever, with a question about opportunities and risk for D&I management. Even if candidates were screened out for very fair and strict criteria that happened to correlate with a handful of successful employees, with sufficient evidence to prove certain linguistic or bodily behavior, or other characteristic is highly related to high performance, there are still bunches of question to be rethought, e.g., terms of privacy, gender equity, and procedural justice. Those consist of the future development of AI-based recruitment analysis, which is also important for Unilever's further improvement in talent management.

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