Artificial Intelligence for Hiring and Induction: The Unilever Experience

Author: Arpita Agnihotri, Saurabh Bhattacharya

Pub. Date: 2024

Product: Sage Business Cases

DOI: https://doi.org/10.4135/9781071921470

Keywords: artificial intelligence, recruitment

Disciplines: Human Resource Management (general), Human Resource Management, Business & Management, Strategic Human Resource Management

Access Date: March 7, 2024

Publishing Company: SAGE Publications: SAGE Business Cases Originals

City: London

Online ISBN: 9781071921470

Abstract

This case describes how Unilever Plc, based in London, the United Kingdom, has used artificial intelligence and video-based recruitment to assess job candidates' suitability using AI machine learning algorithms. By 2022, half of job candidates hired at Unilever came through the AI-based recruitment system. Unilever also introduced chatbots to smooth the induction process and answer employees' basic HR queries. The company remains interested in ways to refine the AI-based recruitment process, which has brought significant cost savings to Unilever. Some experts criticize AI-based recruitment, especially for its potential biases. This case encourages students to critically evaluate both the effectiveness of AI-based recruitment and its possible pitfalls.

Case

Learning Outcomes

By the end of the case study discussion, students should be able to:

- understand advantages and challenges of AI-based recruitment systems;

- examine the effectiveness of games-based recruitment;
- critically evaluate video interviews using algorithm-based analysis; and
- consider ways to improve chatbot-based induction programs;

Introduction

Unilever is a British multinational consumer goods company headquartered in London. It operates in several product categories, including food, condiments, ice cream, cleaning agents, and beauty and personal care products. Established more than 100 years ago, Unilever earns more than 50% of its revenues in emerging markets (Unilever, 2022b). In December 2021, the company reported gross profits of USD 62 billion, approximately a 7% increase over the previous year. The company's net income increased by 12.25% in 2021 compared to 2020 (Macro Trends, 2022a). In 2021, Unilever employed more than 148,000 people (Macro Trend, 2022b).

As a multinational brand operating in 190 countries (Unilever, 2022a), Unilever attracts job applicants from around the world. The company recruits more than 30,000 people annually and processes around 1.8 million job applications (Marr, 2018). These tasks once required a tremendous amount of time and resources. Finding the right people became a problem: it was difficult for human beings to adequately screen large numbers of resumes (Marr, 2018).

Unilever's solution was to partner with a firm specializing in artificial intelligence-based (AI) recruitment featuring an online career assessment and recruiting platform (Marr, 2018). Unilever first used the AI-based recruitment process for intern applications as proof of concept, then expanded it to all entry-level positions in 2017 (Feloni, 2017). By 2022, Unilever was hiring 50% of job candidates through that system (Joshi, 2022).

Unilever also introduced a chatbot, Una, to help employees with induction and answers to their basic HR queries. Keith Williams, the Unilever HR services technology director, has called chatbots "the future of everything that's happening in HR" (Smail, 2018). In 2018, Williams helped Unilever develop Una as "a digital colleague" employees could connect to through Skype for Business (Smail, 2018).

Mike Clementi, chief HR officer of Unilever, said "Like most big companies, we're trying to reinvent ourselves," adding, "And we are really trying to digitize everything" (Feloni, 2017). Unilever is not alone. Companies in-

cluding Goldman Sachs, Walmart, and Jet.com have used similar options. Hiring based on AI and algorithms seems likely to become the norm for companies that intend to stay competitive (Thibodeaux, 2017).

But there could be trouble in paradise: Some experts criticize AI-based recruitment processes, particularly on the matter of bias (Joshi, 2022).

Unilever's AI-Based Recruitment Process

Unilever recruiting leverages the solid online presence of young workers who use smartphones regularly (Thibodeaux, 2017). The company makes few campus visits at present. Its process has three key elements.

Screening Applicants

Since 2017, Unilever has relied heavily on artificial intelligence to screen job applicants through the following process (Thibodeaux, 2017):

- Unilever places targeted ads on career advice sites and Facebook.
- Individuals who click on an ad are redirected to a company job web page, where they can apply for entry-level positions.
- Unilever's algorithm pulls applicants' LinkedIn profile data and automatically fills in most of the application forms.
- An algorithm scans applications and rejects applicants not suitable for a first round of AI-based interviews.

Playing Games

Shortlisted candidates play a series of 12 short online games. Unilever's partner, Pymetrics, which specializes in games and algorithm-based candidate assessment and matching, develops the games based on neuroscience and behavioral science principles. The algorithms evaluate test-takers on 90 key cognitive, social, and personality traits (Wang, 2018), including soft skills such as a person's communication and decision-making ability as well as empathy, generosity, risk-taking, and altruism (Marr, 2022). AI-based recruitment companies like Pymetrics develop gaming-based algorithms for job-specific roles for each client company. Pymetrics

founder Frida Polli noted “There is no right or wrong in the spectrum.” She added “Traits at either end of the spectrum could be well-suited to different careers” (Feloni, 2017). At the end of each game, applicants learn about their performance against the target performance (Feloni, 2017).

Like performance on the Scholastic Aptitude Test (SAT), a candidate’s performance on each Unilever game may be context-sensitive, reflecting, for instance, when one is tired or rested and alert. On the other hand, unlike SAT exams, practice may not significantly alter one’s performance in the Pymetrics games, as there are no right or wrong answers, just attitudes that a company tries to gauge and explore according to their fit with company culture (Feloni, 2017). Unilever encourages aspirants who do not make it to the next round to submit their results to other companies that partner with the AI firm.

Video Interviewing and Assessment

Unilever asks the top third of candidates who play the games to attend a 30-minute video interview on HireVue (Thibodeaux, 2017), “a talent experience platform designed to automate workflows and make scaling hiring easy” (https://www.hirevue.com/). The interviews are not live and in person (Feloni, 2017); candidates complete them using their computer camera or smartphone. Interview questions relate to such things as analytical skills, for example how they would respond to a specific business challenge (Thibodeaux, 2017). Candidates spend a few minutes on each question required for their role.

Interview assessment uses a mix of natural language processing and body language analysis. HireVue’s AI-driven analysis is so widely used across hospitality and finance industries that some universities have made special efforts to train students on how to appear and speak (Harwell, 2019). The platform uses proprietary technology to analyze candidates’ facial movements, word choice, and speaking voice, ranking each candidate against other applicants based on an automatically generated “employability” score (Harwell, 2019). The standard, six-question assessment can yield up to 500,000 data points, all of which are said to be used in calculating candidate scores (Harwell, 2019). AI facial movement analysis determines such things as the excitement one shows toward specific work tasks or how one would respond to angry customers (Harwell, 2019). “Facial Action Units” can make up 29% of a person’s score. Word and vocal “audio features” of their voice, such as tone, also influence scores (Harwell, 2019). The system generates a report card on the candidate’s “competencies and behaviors,” including their “willingness to learn,” “conscientiousness & responsibility,” and

"personal stability," i.e., ability to cope with "irritable customers or coworkers" (Harwell, 2019). Nathan Mondragon, HireVue's chief industrial-organizational psychologist, asserts that people "inject their subjectivity into the evaluations" but "AI can database what the human processes in an interview, without bias."

The HireVue system is trained on what to look for by using the results of assessments of a range of current workers in that job. Candidate responses are matched with a "benchmark of success" from workers' job performance, for instance, how they did meeting sales quotas or how quickly they resolved customer calls. The best job candidates are expected to resemble employees who have done well in that job (Harwell, 2019).

Unilever values measures for specific interview elements, such as vocabulary, facial expression, and question response speed (Thibodeaux, 2017). According to human resource theory, performance in these aspects signals applicants' intelligence, personality, and emotional stability (Thibodeaux, 2017), which are considered important indicators of whether an applicant may fit in with Unilever's work culture and environment (Thibodeaux, 2017). Leena Nair, chief of HR at Unilever, said:

> We look for people with a sense of purpose – systemic thinking, resilience, business acumen. Based on that profile, the games and the video interview are all programmed to look for cues in their behavior that will help us understand who will fit in at Unilever…. Every screenshot gives us many data points about the person, so we work with a number of partners and use a lot of proprietary technology with those partners, and then we select 3,500 or so people to go through to our discovery center (Marr, 2018).

Once the assessments are done, Unilever invites the final candidates for in-person interviews with its human resources executives and department managers (Thibodeaux, 2017).

Unilever's AI-Driven Recruiting Results

By 2018, what had been around 70,000 person-hours of interviewing and assessing candidates was significantly reduced by the automated screening system (Marr, 2018). Within the first 90 days of adoption, Unilever's job placement success rate moved from 15,000 to 30,000 (Barber, 2022). The process also helped Unilever to halve their human-based hiring process costs (Thibodeaux, 2017). In addition, the company (Bar-

ber, 2022):

- hired its most diverse candidate pool by focusing on non-white applicants;
- enhanced socioeconomic representation by 20%;
- achieved gender parity in its hiring for the first time in its recruitment history;
- reduced average hiring time from four months to four weeks, saving a cumulative 50,000 hours;
- increased candidate offer-acceptance rate from 64% to 82%; and
- increased its on-campus representation to 2,600 universities compared to 840 in prior years.

The new system also enables feedback to unsuccessful candidates, who once received nothing more than an acknowledgment email including a promise to respond (Marr, 2018). Using AI now enables Unilever to provide feedback to successful and unsuccessful candidates. Nair said “All of our applicants get a couple of pages of feedback, how they did in the game, how they did in the video interviews, what characteristics they have that fit, and if they don’t fit, the reason why they didn’t, and what we think they should do to be successful in a future application” (Marr, 2018).

Clementi’s team also began to look at ways to refine the AI-based recruitment processes (Feloni, 2017) and started to explore ways of using them for midcareer hires or for internal, lateral moves (Feloni, 2017). Unilever has reported being in the process of a review of whether their AI methods correlate with more capable employees. Some employees have judged that the caliber of applicants was just as good, if not better, than candidates managers hand-selected (Thibodeaux, 2017). Finally, AI-based recruitment showed its potential to appeal to applicants who otherwise might become frustrated at having to complete multiple rounds of interviews (Thibodeaux, 2017).

Unilever’s AI-based Employee Induction

Another Unilever machine learning-driven initiative was to help new employees acclimate to the company and their work (Marr, 2018). Unabot (Una) is a natural language processing (NLP) bot (i.e., a bot that can meaningfully interpret and act on human language inputs). Knowing that one reason employees do not like chatbots for HR systems is that they perceive them as unnatural and impersonal (Maurer, 2019), Unilever designed a conversational, question-and-answer style to understand what new employees need to know and to fetch information for them when asked (Marr, 2018). These include a range of questions about topics from IT systems, annual reviews, and employee allowances to parking availability and shuttle bus timing (Marr,

2018). Machine learning—particularly NLP—can detect often-asked questions, even if they are asked differently, and present the correct information (Marr, 2018).

Una can distinguish users by geographical location and level of seniority (Marr, 2018). The HR technology director Keith Williams said “Una is an all-knowing colleague, and you can ask her to do anything for you” (Smail, 2018). Nair called it “the employee’s personalized assistant” (Khetarpal, 2020). According to Williams, since Unilever launched Una across all countries where it has employees a key challenge was ensuring that the chatbot understood different ways of speaking, the nuances of language (Smail, 2018). Williams noted that a useful chatbot must have “the language understanding of an adult, and understand people 95% of the time” (Smail, 2018). To quickly implement the new system, Williams said, in every place Una went live, “we switched off the HR telephone numbers and email addresses” (Smail, 2018).

Una was launched for employees in the Philippines in 2018 and operated in 36 countries by the end of that year, with the aim of taking it to all of its 190 global markets (Marr, 2018). As Nair said, “We never go in and say, ‘It’s perfect so let’s roll it out in all countries,’ we learn what we can in one country and roll it out in the next one” (Marr, 2018).

The Una Effect

According to Nair, Una meant HR teams no longer had the task of answering the transactional queries of thousands of employees globally, which enhanced their ability to do more strategic work “that drive[s] business performance, which is doing interventions for teams, getting people focused on the big things to do” (Khetarpal, 2020). Unilever staff reportedly liked the chatbot initiative, with 36% of employees using it at least once and about 80% planning to use it again (Marr, 2018). Nair also learned that to make the chatbot acceptable for new employees, it needed to provide a frictionless experience (Marr, 2018).

However, a number of surveys have shown that individuals prefer speaking to a real person rather than engaging with a chatbot or any other digital tool. In a 2018 survey by the Sitel Group, 70% of consumers preferred interacting with a live person (Feffer, 2018). A vice president at Learning Tribes said a similar scenario could be extrapolated for employees, who may not prefer self-service tools for resolving their core HR queries (Feffer, 2018).

Considerations in Using AI for Recruitment

Research studies indicate gender differences in socio-cognitive traits. In a study where researchers explored gender differences among men and women, they found that women's performance in math tests declined when they informed women participants that gender differences existed in math test performance (APA, 2014). When the researchers told women participants that no gender disparity existed, women performed equally with men (APA, 2014). Another study reported that girls had more anxiety than boys, which deteriorated girls' math test performance (APA, 2014). Among social cognition traits, researchers have found women to be more empathetic than men (Di Tella et al., 2020).

At least one other worldwide company had a different, perhaps instructive, outcome from its AI-based recruiting. Between 2014 and 2018, to enhance recruitment using AI, Amazon's engineering team taught computer models to recognize 50,000 terms from past candidates' resumes. The algorithms learned to assign significance to common skills listed on resumes, such as ability to write various computer codes (Dastin, 2018).

First, Amazon learned that its AI technology favored candidates who described themselves in ways more common on male engineers' resumes. For example, men were more likely to delineate their concrete achievements as unrelated facts while women tried to create a more cohesive narrative, lighter on detail (Snyder, 2015). Experts observed that hiring managers need to understand actual skill sets possessed by job applicants rather than being swayed by communication style (Snyder, 2015).

Second, Amazon's machine learning predictions used the previous ten years of data. Amazon's business was male-dominated; the algorithm learned that women were unsuitable for many IT roles. In other words, AI penalized women's resumes. Amazon edited the programs to make them neutral to gender-identified terms but knew there was no guarantee that machine learning would not yield other ways of screening candidates in discriminatory ways (Dastin, 2018). In 2018, Amazon.com disbanded the team and the project. Some recruiters considered but did not solely rely on recommendations generated by the AI algorithm (Dastin, 2018).

Problems with AI-based Hiring

Some AI researchers have criticized the HireVue assessment process as "digital snake oil" based on superficial measurements and not rooted in scientific fact (Harwell, 2019). Analyzing a human being based on

speech and appearance could end up penalizing non-native speakers, visibly nervous interviewees or anyone else not fitting the model for expected look and speech (Harwell, 2019). Calling it “pseudoscience… a license to discriminate,” Meredith Whittaker, a co-founder of the New York research center AI Now Institute, said:

> It’s a profoundly disturbing development that we have proprietary technology that claims to differentiate between a productive worker and a worker who isn’t fit, based on their facial movements, their tone of voice, their mannerisms (Harwell, 2019).

She added that “people whose lives and opportunities are literally being shaped by these systems don’t have any chance to weigh in” (Harwell, 2019).

Defending the platform, Loren Larsen, HireVue’s chief technology officer called such criticisms uninformed, noting that “most AI researchers had a limited understanding” of the psychology behind how employees think and behave (Harwell, 2019). According to Larsen, even if HireVue is inaccurate, it is still more objective than the flawed metrics used by human recruiters, whose thinking he referred to as the “ultimate black box” (Harwell, 2019). Larsen said “People are rejected all the time based on how they look, their shoes, how they tucked in their shirts and how ‘hot’ they are.” He added “Algorithms eliminate most of that in a way that hasn’t been possible before” (Harwell, 2019).

The Road Ahead

In a survey conducted in 2017 by the employment website CareerBuilder, approximately 55% of U.S. human resources managers said artificial intelligence was to become a regular part of their hiring process by 2022 (Dastin, 2018). However, critical commentary on the challenges of AI-based recruitment systems for screening resumes, testing socio-cognitive skills through games, and using machine learning algorithms to analyze video interviews have raised questions that remain open. What are the implications of these challenges for Unilever and other companies? How can businesses meet them in a highly competitive environment where AI cannot simply be ignored?

Discussion Questions

1. What are the positive and potentially negative aspects of Unilever's AI-based applicant screening process?
2. What advantages and challenges do you identify in a games-based candidate assessment process?
3. How do you evaluate the benefits and the limitations of Unilever's screening and AI video interviewing/analysis processes?
4. How can Unilever improve its employee induction program?

Further Reading

Colombo, M. G., Fisch, C., Momtaz, P. P., & Vismara, S. (2022). The CEO beauty premium: Founder CEO attractiveness and firm valuation in initial coin offerings. Strategic Entrepreneurship Journal, 16(3), 491–521. https://doi.org/10.1002/sej.1417

Gkinko, L., & Elbanna, A. (2022). Hope, tolerance and empathy: employees' emotions when using an AI-enabled chatbot in a digitalized workplace. Information Technology & People. Ahead of print. https://doi.org/10.1108/ITP-04-2021

Liebrecht, C., & van Hooijdonk, C. (2020). Creating humanlike chatbots: What chatbot developers could learn from webcare employees in adopting a conversational human voice. In Følstad, A., Araujo, T., Papadopoulos, S., Law, E. L. C., Granmo, O. C., Luger, E., & Brandtzaeg, P. B. (Eds), Chatbot Research and Design. Conversations 2019. Lecture Notes in Computer Science, vol. 11970. Springer, Cham. https://doi.org/10.1007/978-3-030-39540-7_4

Quittner, J. (2014, February24). Stop chasing star employees. Cultivate your own. *Inc.*https://www.inc.com/jeremy-quittner/neuroscience-brain-personality-tests-recruiting.html

Taule, T., Følstad, A., & Fostervold, K. I. (2021, November). How can a chatbot support human resource management? Exploring the operational interplay. In Følstad, A., Araujo, T., Papadopoulos, S., Law, E. L. C., Luger, E., Goodwin, M., & Brandtzaeg, P. B. (Eds), Chatbot Research and Design. Conversations 2021, Lecture Notes in Computer Science, vol. 13171. Springer, Cham. https://doi.org/10.1007/978-3-030-94890-0_5

Tilson. (2021, July). Pros and cons of personality tests in hiring process. https://www.tilsonhr.com/pros-and-

cons-of-personality-tests-in-hiring-process/

References

American Psychological Association. (2014). Think again: Men and women share cognitive skills. https://www.apa.org/topics/neuropsychology/men-women-cognitive-skills

Barber, S. (2022, April18). Unilever: Using AI to freeze out competition & discover “breakfast for dessert.” Digital.hbs.edu. https://digital.hbs.edu/platform-digit/submission/unilever-sugary-sweet-moves-to-freeze-out-competitors-game-their-way-to-success/

Dastin, J. (2018, October11). Amazon scraps secret AI recruiting tool that showed bias against women. Reuters. https://www.reuters.com/article/us-amazon-com-jobs-automation-insight/amazon-scraps-secret-ai-recruiting-tool-that-showed-bias-against-women-idUSKCN1MK08G

Di Tella, M., Miti, F., Ardito, R. B., & Adenzato, M. (2020). Social cognition and sex: Are men and women really different?Personality and Individual Differences, 162, 110045.

Feffer, M. (2018, November26). If consumers don’t like chatbots, why would your employees? HCM Technology Report. https://www.hcmtechnologyreport.com/consumers-dislike-chatbots-why-wouldnt-employees/

Feloni, R. (2017, June28). Consumer-goods giant Unilever has been hiring employees using brain games and artificial intelligence—and it’s a huge success. Business Insider. https://www.businessinsider.com/unilever-artificial-intelligence-hiring-process-2017-6?r=US&IR=T

Harwell, D. (2019, November6). A face-scanning algorithm increasingly decides whether you deserve the job. The Washington Post. https://www.washingtonpost.com/technology/2019/10/22/ai-hiring-face-scanning-algorithm-increasingly-decides-whether-you-deserve-job/

Joshi, N. (2022, May18). Ways in which big data and AI automate recruitment bias audits. Forbes. https://www.forbes.com/sites/naveenjoshi/2022/05/18/ways-in-which-big-data-and-ai-automate-recruitment-bias-audits/?sh=6449b8f96536

Khetarpal, S. (2020, December14). How Unilever keeps human at the heart of organisation. Business Today. https://www.businesstoday.in/latest/corporate/story/how-unilever-keeps-human-at-the-heart-of-organ-

isation-281415-2020-12-14

Macro Trends. (2022a). Unilever financial statements 2009-2022. Macrotrends.com. https://www.macrotrends.net/stocks/charts/UL/unilever/financial-statements

Macro Trends. (2022b). Unilever: Number of employees 2010-2022. Macrotrends.com. https://www.macrotrends.net/stocks/charts/UL/unilever/number-of-employees

Marr, B. (2018, December14). The amazing ways how Unilever uses artificial intelligence to recruit & train thousands of employees. Forbes. https://www.forbes.com/sites/bernardmarr/2018/12/14/the-amazing-ways-how-unilever-uses-artificial-intelligence-to-recruit-train-thousands-of-employees/?sh=344b48966274

Marr, B. (2022, May6). The benefits and dangers of using AI in recruitment. Forbes.https://www.forbes.com/sites/bernardmarr/2022/05/06/the-benefits-and-dangers-of-using-ai-in-recruitment/?sh=4ef30750292f

Maurer, R. (2019, April30). HR and chatbots are learning together. SHRM. https://www.shrm.org/resourcesandtools/hr-topics/technology/pages/hr-chatbots-are-learning-together.aspx

Smail, J. (2018, October4). Unilever chatbot to transform HR services in 106 countries. Employee Benefits. https://employeebenefits.co.uk/exclusive-unilever-chatbot/

Snyder, K. (2015, March26). The resume gap: Are different gender styles contributing to tech's dismal diversity?Fortune. https://fortune.com/2015/03/26/the-resume-gap-women-tell-stories-men-stick-to-facts-and-get-the-advantage/

Thibodeaux, W. (2017, June28). Unilever is ditching resumes in favor of algorithm-based sorting: Artificial intelligence and algorithms soon could take control of much of the initial hiring process.*Inc.*https://www.inc.com/wanda-thibodeaux/unilever-is-ditching-resumes-in-favor-of-algorithm-based-sortingunilever-is-di.html

Unilever. (2022a). Unilever: Planet & society. https://www.unilever.com/planet-and-society/

Unilever. (2022b). Unilever at a glance. https://www.unilever.com/our-company/at-a-glance/

Wang, L. (2018, August5). Introducing neuroscience games for fair and bias-free recruiting. Medium. https://medium.com/startupreview/introducing-neuroscience-games-for-fair-and-bias-free-recruiting-ff01d1dc9104

https://doi.org/10.4135/9781071921470