

Chapter 2 - The Potential of AI in HRM: Boosting Employee Wellbeing and Engagement in Today's Hybrid Work Environments

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Abstract

The Human Resource Management (HRM) is in need to effectively design workplace dynamics where employees feel they are well equipped to perform their daily tasks, whilst protecting their mental and physical wellbeing. This need is accentuated when employees are full or part-time remote. A sense of being connected with the organization, an organization which provides for useful resources to succeed at work may incentivize a desire to reciprocate the employer through higher engagement and better performance. The deployment of AI-powered HRM solutions has the potential to provide for a personalized employee experience that each remote worker can tailor to their daily needs. While working from home (WFH) offers benefits like increased autonomy and work-life balance, it also presents challenges such as work-life spillover and social isolation. This article posits that AI-assisted HRM solutions can significantly improve teleworkers' engagement through increased wellbeing at work. Through the exploitation of AI, HRM practitioners can design and create a more supportive and personalized remote work environment. This article reviews AI in HRM, highlighting uses like personalized support, predictive analytics, automated tasks, enhanced learning, and real-time feedback. It suggests that combining AI with human efforts can improve employee satisfaction and organizational performance by creating a more inclusive, supportive, and engaging work environment. AI tools such as chatbots, virtual assistants, and predictive analytics can provide real-time support, personalized wellbeing programs, and data-driven insights. These can be brought to the front of the organization's environment, fostering a more engaged and satisfied workforce.

The article reviews AI in HRM, highlighting uses like personalized support, predictive analytics, automated tasks, enhanced learning, and real-time feedback. It suggests that combining AI with

human efforts can improve employee satisfaction and organizational performance by creating a more inclusive, supportive, and engaging work environment. Key applications of AI in HRM include automated resume screening, performance evaluation, and employee engagement. Research on AI's impact on employee engagement is limited, but existing studies highlight AI's dual role in enhancing efficiency and reducing bias, while also raising concerns about job security, fairness, and privacy. The findings derived from this study suggest AI-assisted HRM solutions may offer significant opportunities to enhance employee engagement and wellbeing, especially for remote or hybrid workers. The overall success of such implementations will depend on surpassing AI's major threats, that is risk of bias, privacy concerns, potential inconsistent feedback, or an over reliance on technology, versus human-to-human interactions. AI-assisted HRM solutions thus must be carefully managed to maximize their benefits.

Keywords: *Key words: Employee engagement; employee wellbeing; AI-based HRM tools; AI-based employee support; HR analytics.*

2.1 Introduction

HRM practice currently demands new ideas to enhance the employee's overall wellbeing while working from home (WFH). WFH is known to bring many benefits to employees, like increased autonomy, schedule flexibility, increased work-life balance, or giving time back from reduced commuting, to name a few (Gajendran & Harrison, 2007). These benefits often lead to increased job satisfaction as well as increased willingness to continue WFH (Labrado Antolín et al., 2024). But the benefits of WFH do not come without drawbacks, like work-life spillover, perceived job insecurity, social and professional isolation or increased working hours (Gajendran et al., 2022). In the advent of hybrid forms of work, where spatiotemporal boundaries vary across the workweek (Bloom, 2023), it seems appropriate to explore if and in which ways can AI tools can help unleash the potential benefits of WFH while reducing the setbacks.

The present study is based on the assumption that AI-assisted HRM solutions can significantly improve remote workers engagement through increased well-being, exploiting the potential of technology to serve a human purpose and to create a more supportive and personalized work environment. The main thesis is that AI tools, such as chatbots, virtual assistants, and predictive analytics, can be foundational to provide employees with real-time support, personalized well-being programs, and data-driven insights, thereby fostering a less strained and more engaged and satisfied workforce. Additionally, the speed of implementation and the agility to enhance and improve the solutions once tested can be a good incentive for HRM practitioners to step into the AI-assisted HRM solutions.

Research on AI's impact on employee engagement remains limited (Ayu Gusti et al., 2024). Existing studies highlight AI's dual role in enhancing efficiency and reducing bias, while also raising concerns about job security, fairness, and privacy (Sadeghi, 2024). Former studies have relied on self-regulation or Resource-Based view (RBV) theories to research the topic. Self-regulation refers to the way individuals control their emotions and behaviors to achieve their goals (Bandura & Cervone, 1983). The adoption of self-regulation lens has resulted in new insights about how the employees interact with the tools. For example, for some the use of AI can enhance employee's productivity and getting things done; on the other hand, some

employees can experience job insecurity or fear of being replaced by technology. The use of RBV in HRM studies borrows from the strategy management literature. RBV stresses the importance of internal resources in the company to develop and sustain a competitive advantage (Barney et al., 2011). In the context of HRM, RBV provides a lens through which analyze the opportunities to effectively leverage the internal resources of the organization (e.g., AI technology) to enhance HR functions. Employee engagement or organizational commitment, among others, represent valuable sources of competitive advantage for enterprises. Under the RBV framework, organizations need to not only identify the valuable assets but also ensure they are not easily copied or lost to the competition. By placing a focus on employee wellbeing, as an antecedent of employee engagement, AI-assisted HRM solutions can represent a source of competitive advantage for nowadays firms.

Malik (2024) found that AI tools can boost perceived job security, enhancing job performance. AI, as a unique resource, can increase productivity, mediated by employee engagement. This article explores new theoretical perspectives on AI-based HRM solutions, aiming to deepen understanding of their potential in firms.

2.2 Literature review

The key themes of this study are employee wellbeing, the final aim; employee engagement, which it is hoped to have a mediating effect on wellbeing; and AI-based HRM solutions, potential enablers of such engagement. To build on previous knowledge and research strategies applied by HRM scholars, this study relies on two alternative grounding theories: Cognitive Load Theory (CLT) and Maslow's Hierarchy of Needs. These theories provide for an innovative theoretical approach to the study of challenges and opportunities in the field. The remainder of this section will synthesize the extant body of knowledge about (2.1) employee engagement, wellbeing and AI-powered HRM solutions, as well as (2.2) present the proposed grounding theories.

2.2.1 About Employee Engagement, Wellbeing and AI-Based HRM Solutions

Employee engagement raised interest in the scientific community before the turn of the century. The concept has been evolving without reaching a universal definition. Kahn (1990) identified a physical, cognitive and affective nature of employee engagement. Davis & Van Der Heijden (2023) propose a dynamic framework to manage employee engagement. The pair of researchers suggest the adoption of a holistic approach to employee engagement management. Their dynamic framework comprises five dimensions of analysis: (1) external context, including all macro and micro external factors like the loss of jobs during coronavirus, geopolitical tensions,...; (2) internal context factors affecting engagement, such as organizational, HR or operational strategies; (3) individual traits that influence how each employee interprets the environment, thus influencing engagement; (4) individual contexts that influence how valuable is work for each employee, affecting the status, self-esteem, career,...; (5) psychological state of mind that occurs before and during work engagement. Overall, literature on employee engagement recommends the promotion of an authentic corporate culture, setting clear expectations for employees, as well as interesting learning opportunities to attract and retain engaged employees (Bailey et al., 2017).

Employee engagement is a relatively stable state of positive energy towards work. HRM practitioners need to take seriously the impact of flexible forms of work (e.g., location,

time, schedule...) in job engagement. The level of engagement of an employee is correlated with the behavioral attitudes towards work. When facing the risk of employees not performing to the best self, employee engagement has the ability to reduce the appearance of withdrawal behaviors such as day dreaming, absenteeism, or turnover intent, among others (Liao et al., 2022). An engaged workforce is marked by vigor, dedication, and absorption. Driven by intrinsic motivation, engaged employees are known for enjoying increased energy levels, at physical, cognitive and emotional levels (Fachrunnisa & Palupi, 2024). Additionally, HRM scholars agree on the correlation between employee engagement and organizational commitment (Lan et al., 2020). Thus, employee engagement becomes crucial for organizational success. This is becoming of vital importance in a VUCA world (volatile, uncertain, complex and ambiguous).

Although recipes to create an engagement workplace seem available, most employees do not feel engaged with their jobs. According to Gallup's 2024 State of the Global Workplace report organizations today face critical challenges to foster employee engagement. Overall, global engagement remains low at 23%, with 62% of employees not engaged and 15% actively disengaged (Gallup, 2024). Thus, it can be said that most employees are disengaged; this disengagement is costly for firms, leading to an estimated \$8.8 trillion in lost productivity worldwide. The report also notes the adverse effect of negative emotions at work. Stress, anxiety, and other negative emotions have reached their highest levels since Gallup began tracking them. This mental health crisis is exacerbated by poor management practices and lack of support for employee wellbeing. Although numerous studies in the literature explore the relationship between employee engagement, wellbeing and performance, they have not clearly defined or operationalized compelling strategies within this context (Fan et al., 2020). This gap has prompted calls for further research on the topic.

According to International Labour Organization (2024), employee wellbeing can be defined as every aspect of working life, including the quality and safety of the physical environment, workers' feelings about their jobs, their working conditions, the workplace atmosphere, and the organization of work. More and more, organizations are aware of the strategic importance of employee wellbeing for their success. Fostering the wellbeing of a firm's workforce benefits both the individuals and the firm. On one side, employees can benefit from reduced stress, illness, improved mental health, increased levels of energy or increased motivation, to name a few. But employee wellbeing impacts not only individuals but also the firm's productivity, creativity, community relations, and organizational reputation, among others. Thus, employee wellbeing is a strategic priority that should be on the corporate agenda, aligning with concepts like corporate social responsibility and legitimate obligations.

Traditionally, workplace health and safety practices have focused on avoiding and managing risk of injuries and illness. However, the strategic value of employee wellbeing relies on the armed lever to achieve organizational objectives. Despite the obvious connections, this strategic view of employee wellbeing remains yet underexplored in the literature (Halliday et al., 2024). There is limited evidence in the literature connecting employee wellbeing to strategic goals. Despite its importance, employee wellbeing often remains separate from organizational strategy, which tends to focus more on operational performance and productivity. The fact that the strategic value of employee wellbeing remains yet untapped in the literature reinforces the importance of the present study. There is a need to explore, from an HRM practice perspective, how organizational tools and wellbeing dynamics can be strategically integrated to optimize organizational outcomes, beyond the traditional risk management approach. To close this subsection, the following paragraphs delve into the current knowledge of AI-based

HRM solutions applied to workplace environment design. The adoption of AI-assisted

HRM solutions varies by industry. Traditionally, technology, finance, or e-commerce sectors are natural early adopters of new technologies. These sectors have identified key areas where AI could be put to serve the management of their workforce. This is the case for talent acquisition, employee engagement, or predictive analytics. Other sectors, such as healthcare, manufacturing, and education are seen as laggards in the adoption of AI, often due to regulatory or data privacy concerns. Overall, there is an increasing interest in the benefits AI could bring to the way a company supports its workforce. More and more the practitioners acknowledge the benefits and are exploring its integration into HR practices (Ganatra & Pandya, 2023). Thus, automated resume screening, applicant tracking, or candidate ranking in recruitment are recurrent use cases for AI-assisted HRM solutions. Additionally, exploiting the ability to analyze large datasets to identify performance, engagement, or turnover trends is an area of interest. The potential lies in the efficiency gains. Additionally, AI-assisted HRM tools can offer hyper-personalization of the employee experience. Features such as providing real-time feedback or facilitating support during employee self-service tasks through chatbots and virtual assistants are examples of how it could be made real.

Transparency in AI systems is crucial for building trust and positive employee attitudes. The implementation of enterprise-wide AI-powered solutions poses risks to job security, fairness, and privacy (Sadeghi, 2024). Results from Malik (2024) highlight the importance of the acceptance of AI solutions. In his study with over 300 employees of a multinational corporation Malik found a statistically significant correlation between perceived AI performance and job engagement. The study also found that higher perceived AI performance increases job security, which in turn increases job engagement and performance. The findings from this study demonstrate the interrelationships between effective AI adoption, employee engagement and performance.

Practitioners should note AI-based wellbeing solutions affect employee perceptions, behaviors, and outcomes of work. When considering their adoption, practitioners need to account for effective organizational strategies to motivate and upskill the employees for successful implementations. As it occurs with any change management program in the organization, clear communication plans, AI upskilling programs, and employee involvement need to be taken into consideration. The buying in and involvement of the whole workforce in the implementation of enterprise-wide AI-assisted HRM solutions is essential to mitigate negative impacts, hence benefiting from the expected outcomes. In sum, successful AI integration in HR requires a balanced approach where employee wellbeing is prioritized, human-AI collaboration is sensitively promoted, all within a robust ethical framework.

2.2.2 Foundational Theories: Cognitive Load and Maslow's Hierarchy of Needs

The research question of this article aims to explore how do AI tools like chatbots, virtual assistants, and predictive analytics impact real-time support, personalized well-being programs, and data-driven insights to foster a more engaged and satisfied workforce. To answer this question two foundational theories are employed: Cognitive Load Theory (CLT) and Maslow's Hierarchy of Needs. Cognitive Load Theory suggests that reducing unnecessary cognitive load can enhance learning and performance (Setiyani et al., 2019). In the context of HRM, AI can automate routine tasks, provide instant access to information, and streamline processes, thereby reducing cognitive load and allowing employees to focus on more meaningful and engaging work. According to CLT, these functionalities can boost focus and productivity, leading to better workplace results, like increased job satisfaction and engagement (Bilderback, 2024).

Maslow's Hierarchy of Needs, on the other hand, provides a framework for understanding human motivation and well-being. (Maslow, 1943) posited that needs, whether psychological or physiological, can influence attitudes and behaviours, such as job satisfaction, stability, recognition, and compensation. By addressing employees' basic needs (such as safety and physiological needs) and higher-level needs (such as belonging, esteem, and self-actualization), AI can create a more holistic approach to employee well-being. For instance, AI-driven wellness programs can offer personalized health recommendations, mental health support, and career development opportunities, ensuring that employees feel valued and supported at all levels of the hierarchy.

2.3 Designing AI-Powered HRM Solutions for Increased Wellbeing and Engagement

Following CLT and Maslow's hierarchy of needs lenses, the next paragraphs suggest a range of different AI-based HRM solutions designed to foster employee wellbeing and driving engagement, in the context of today's hybrid work environment.

2.3.1 Personalized Employee Support

AI-based HRM solutions can be leveraged to enhance the experience of employees at work, especially those working remotely. By offering personalized support tailored to individual needs, AI chatbots or virtual assistants can play a crucial role in enhancing the daily experience of those working from home, the coworking space or simply on the move. Some of the demanded features are the provision of instant assistance during the onboarding of a new hire, support troubleshooting technical issues, or offering mental health resources, among others.

CLT suggests that reducing unnecessary mental effort allows employees to focus on essential tasks, enhancing productivity and job satisfaction. AI tools streamline routine processes, such as troubleshooting technical issues or managing schedules, thereby minimizing extraneous cognitive load. This reduction in mental effort frees up cognitive resources, enabling employees to concentrate on more meaningful and complex work, ultimately boosting engagement and performance. These AI-driven tools not only improve employee well-being but also streamline HR processes, as demonstrated by IBM's successful implementation of Watson, which has significantly reduced costs and saved valuable time for managers (IBM, 2023).

AI chatbots and virtual assistants can significantly enhance the remote work experience by providing personalized employee support across various scenarios. For instance, during the onboarding process, new remote employees can receive instant answers to common questions, guidance through necessary paperwork, and tips for integrating into the team. When technical issues arise, such as connectivity problems or software malfunctions, AI virtual assistants can troubleshoot common problems, provide step-by-step solutions, and escalate more complex issues to IT support. For employees experiencing stress or anxiety due to isolation or workload, AI chatbots can offer mental health resources, suggest relaxation techniques, and provide access to virtual counseling services. Additionally, AI virtual assistants can recommend personalized wellness activities, such as exercise routines, healthy eating tips, and mindfulness practices, based on individual preferences and goals.

In terms of scheduling and time management, AI chatbots can assist employees by managing their calendars, suggesting optimal meeting times, and reminding them of upcoming deadlines and appointments. When employees have questions about company policies, benefits, or leave entitlements, AI virtual assistants can provide detailed information, answer specific queries, and guide them through the process of applying for benefits or leave. The multinational company IBM has successfully implemented AI-agents in their own organization, using proprietary technology (Watson). IBM Watson's AI agents have significantly improved HR processes by handling 94% of employee queries, saving over USD 5 million annually and 50,000 hours per year for managers (IBM, 2023). These AI-driven solutions enhance employee satisfaction and streamline talent acquisition and onboarding.

AI chatbots can additionally deliver real-time feedback based on performance metrics, suggest development resources, and schedule follow-up meetings with managers. Employees seeking professional development opportunities can benefit from AI virtual assistants recommending relevant training programs, courses, and certifications, and tracking their progress. AI chatbots can also facilitate team collaboration by enhancing communication, sharing project updates, and organizing virtual meetings. To help employees maintain a healthy work-life balance, AI virtual assistants can suggest strategies such as setting boundaries, taking regular breaks, and engaging in leisure activities.

From the perspective of Maslow's hierarchy of needs, personalized employee support solutions cater to various levels of employee needs. At the physiological and safety levels, AI ensures a stable and efficient work environment by providing timely assistance and reducing stress related to technical problems. For social needs, AI facilitates better communication and integration, especially for remote workers, fostering a sense of belonging. At the esteem level, personalized support and recognition from AI tools enhance employees' confidence and self-worth. Finally, by addressing these foundational needs, AI enables employees to reach self-actualization, where they can achieve their full potential and find greater fulfillment in their work. This holistic approach significantly enhances overall well-being and engagement.

By addressing these diverse scenarios, AI chatbots and virtual assistants ensure that remote employees feel supported, engaged, and well-equipped to handle their responsibilities, ultimately enhancing their overall work experience.

2.3.2 Predictive Analytics for Engagement

Predictive analytics for engagement can significantly enhance HRM by analyzing employee data to predict engagement levels, identify at-risk employees, and suggest proactive interventions. AI can analyze employee data to predict engagement levels, identify at-risk employees, and suggest proactive interventions. For instance, predictive analytics can monitor data points such as attendance, meeting participation, and email response times to identify early signs of disengagement. If an employee shows a sudden drop in these activities, the system can flag them for personalized support or engagement activities. Additionally, predictive models can analyze historical turnover data to identify patterns and factors contributing to employee departures, such as frequent job changes or low engagement scores. This allows HR to implement retention strategies like career development programs or recognition initiatives. From the Cognitive Load perspective, predictive analytics can anticipate potential issues, such as workload imbalances or burnout risks, enabling proactive interventions that reduce cognitive strain. By identifying patterns and trends, these tools help streamline workflows and optimize task allocation, minimizing extraneous cognitive load and allowing employees to concentrate on more meaningful work.

From the perspective of Maslow's hierarchy of needs, predictive analytics address various levels of employee needs. At the physiological and safety levels, these tools ensure a stable and supportive work environment by predicting and mitigating stressors, thus enhancing job security and reducing anxiety. For social needs, predictive analytics can identify opportunities for team collaboration and support, fostering a sense of belonging and community. At the esteem level, the insights provided by predictive analytics can help recognize and reward employee achievements, boosting confidence and self-worth. Ultimately, by addressing these foundational needs, predictive analytics enable employees to reach self-actualization, where they can achieve their full potential and find greater fulfillment in their work.

If high stress levels or burnout risks are detected, the system can recommend wellness programs, flexible work arrangements, or mental health resources. Furthermore, by analyzing team performance data, predictive analytics can identify teams struggling with collaboration or communication issues and suggest team-building activities, training sessions, or changes in team composition.

Several vendors offer robust predictive HR analytics solutions that help organizations enhance decision-making, improve employee retention, and optimize HR strategies through data-driven insights. Microsoft Workplace Analytics, Tableau, Qlik, SAP SuccessFactors or Workday are industry leading software solutions allowing users to explore and analyze workforce data to uncover patterns and trends. These vendors, among others, are at the forefront of leveraging predictive analytics to transform HR practices and enhance organizational performance (AllHRSoftware, 2024).

Lumen Technologies, formerly known as CenturyLink, implemented Microsoft Workplace Analytics to enhance their sales operations. By providing real-time insights to sales leadership, they were able to uncover and replicate best practices, improve manager coaching, and drive productivity and well-being among their sales teams (Microsoft, 2020).

2.3.3 Automation: Employee Self-Service Portals

Employee self-service (ESS) portals are digital platforms that empower employees to manage various HR-related tasks independently. These portals streamline administrative processes, reduce the workload on HR departments, and significantly enhance employee engagement and wellbeing (Zhai et al., 2024). Examples of administrative tasks automated by ESS portals include personal information management, where employees can update their personal details, such as contact information, emergency contacts, and bank details, without needing to go through HR. This ensures that records are always up-to-date and reduces administrative delays. Leave and attendance management is another task, as ESS portals allow employees to apply for leave, check leave balances, and track attendance. Automated approval workflows ensure that leave requests are processed quickly, providing employees with timely responses and reducing uncertainty.

Payroll and benefits administration is also streamlined, with employees able to access their pay slips, tax documents, and benefits information through the portal. They can make changes to their benefits selections during open enrollment periods, ensuring they have the coverage that best suits their needs. Training and development are facilitated by ESS portals, which often include access to training modules and development resources. Employees can enroll in courses, track their progress, and receive certifications, fostering continuous learning and career growth. Performance management is another area where ESS portals excel, allowing employees to set goals, receive feedback, and track their performance reviews. This

transparency in performance management helps employees understand their progress and areas for improvement.

By automating these administrative tasks, ESS portals free up employees' time, allowing them to focus on more meaningful and productive work. This autonomy in managing their own HR-related tasks fosters a sense of control and empowerment, which is crucial for employee engagement. Moreover, the transparency and accessibility provided by ESS portals reduce stress and uncertainty. Employees have immediate access to important information and can resolve issues quickly, contributing to a more positive work environment. ESS portals may be specifically convenient for remote and mobile workers who have limited opportunities for human interaction at the office. The ease of accessing training and development resources also supports career growth, enhancing job satisfaction and overall wellbeing. In summary, ESS portals not only streamline administrative processes but also play a vital role in enhancing employee engagement and wellbeing by promoting autonomy, reducing stress, and supporting continuous development.

Under Cognitive Load Theory, reducing unnecessary cognitive load allows employees to focus on more meaningful tasks. Employee self-service (ESS) portals automate routine administrative tasks, minimizing extraneous cognitive load and freeing mental resources for complex, value-added activities. This reduction in cognitive burden enhances productivity and job satisfaction.

Maslow's Hierarchy of Needs emphasizes fulfilling basic needs to achieve higher levels of motivation and self-actualization. ESS portals address several of these needs: they provide a sense of security by ensuring accurate and timely access to payroll and benefits information (safety needs), foster a sense of belonging through transparent communication and feedback mechanisms (social needs), and support personal growth by offering access to training and development resources (esteem and self-actualization needs). By meeting these needs, ESS portals enhance overall wellbeing and drive higher engagement, as employees feel more supported and empowered in their roles.

The adoption of ESS portals does not come without words of caution. Employee self-service portals can reduce face-to-face interactions, even for employees who work permanently from the office, potentially leading to feelings of isolation and decreased personal support. They may also increase the cognitive load on employees who struggle with technology, causing frustration and stress. Additionally, the lack of immediate assistance for complex issues, such as understanding benefits, can lead to confusion and dissatisfaction (Rohuelo, 2024). These factors can negatively impact overall employee wellbeing and engagement.

2.3.4 Real-Time Feedback and Recognition

The new ways of working place a challenge on professional development and career progression. The lack of visibility of one's work, professional isolation or unclear information about how to navigate the company's decision ladder are part of today's threats for remote workers. AI tools can facilitate real-time feedback and recognition, helping to build a culture of appreciation and continuous improvement. AI tools can significantly enhance the visibility of employees' contributions by providing platforms for real-time feedback. For instance, AI-driven performance management systems can analyze work patterns, project contributions, and peer reviews to offer timely and objective feedback. This continuous feedback loop not only helps employees understand their strengths and areas for improvement but also ensures that their efforts are recognized promptly. Such systems can also identify high performers and potential leaders, aiding in career progression and professional development.

One practical application of AI in HRM is the use of AI to facilitate regular check-ins and pulse surveys, gathering real-time data on employee sentiment and engagement. For example, Workleap's Office Vibe uses natural language processing (NLP) to analyze employee feedback and workplace trends, providing actionable insights to managers (McFarland, 2024). This helps in addressing issues promptly and recognizing employees' efforts, thereby enhancing their engagement and satisfaction.

Another example is the AI-driven recognition platforms that automate the process of acknowledging employees' achievements. These platforms can track milestones, project completions, and other significant contributions, sending automated recognition messages or rewards. This not only saves time for managers but also ensures that no effort goes unnoticed. Companies like Workhuman have successfully implemented such AI-based recognition systems, leading to improved employee morale and retention (Engagedly, 2024).

To complement real-time feedback and recognition functions, AI tools can proactively suggest employees' learning and development initiatives, aligning them with actual needs and interests, individual career goals and organizational needs. By analyzing employees' skills, performance data, and career aspirations, AI can recommend tailored training programs and development opportunities. This personalized approach ensures that employees receive relevant and timely support for their professional growth. For instance, IBM's Watson Talent uses AI to match employees with suitable career paths and development programs, enhancing their career progression and engagement (Engagedly, 2024).

From the perspective of Cognitive Load Theory, these AI tools reduce the mental strain associated with traditional feedback processes. By automating feedback and recognition, AI minimizes extraneous cognitive load, allowing employees to focus on their primary tasks and creative problem-solving. For example, AI-driven performance management systems offer immediate feedback, eliminating the need for employees to wait for periodic reviews. This continuous feedback loop helps employees adjust their efforts promptly, reducing uncertainty and cognitive overload.

Moreover, AI tools align with Maslow's Hierarchy of Needs by fulfilling various levels of employee needs. At the basic level, AI ensures job security and stability through predictive analytics that aid in workforce planning and risk management. Moving up the hierarchy, AI enhances the need for belonging and esteem by facilitating continuous recognition and appreciation. AI-powered platforms like Workhuman automate the recognition process, ensuring that employees' contributions are consistently acknowledged. This fosters a sense of belonging and boosts self-esteem, as employees feel valued and respected.

At the higher levels of Maslow's hierarchy, AI supports self-actualization by personalizing learning and development opportunities. AI tools like IBM's Watson Talent analyze individual skills and career aspirations, recommending tailored development programs. This personalized approach empowers employees to achieve their full potential, aligning their personal growth with organizational goals. By addressing these higher-order needs, AI not only enhances engagement but also promotes a culture of continuous improvement and innovation.

While AI-based personal feedback and recognition systems offer numerous benefits, they also come with potential risks that can negatively impact employee wellbeing and engagement. One major concern is bias and fairness (European Parliament, 2020). AI systems can inadvertently perpetuate existing biases present in the data they are trained on, potentially favoring certain groups of employees over others and leading to feelings of injustice and demotivation. Additionally, many AI models operate as "black boxes," making it difficult to understand how decisions are made. This lack of transparency can lead to mistrust among employees, who may feel that the feedback and recognition they receive is arbitrary or

unjustified.

Privacy concerns are another significant issue (Rohuelo, 2024). AI systems often require extensive data collection to function effectively, which can make employees uncomfortable with the level of surveillance and data monitoring involved. Such concerns can lead to stress and a decrease in overall wellbeing. Furthermore, over-reliance on automation can reduce the human element in workplace interactions. Employees may feel undervalued if they perceive that their achievements are only recognized by machines rather than their managers or peers.

Inconsistent feedback is also a risk. AI systems may not always provide consistent or contextually appropriate feedback, leading to confusion and frustration among employees who may struggle to understand or act on the feedback they receive. Additionally, the implementation of AI in HR processes can create anxiety about job security. Employees may fear that increased automation could lead to job displacement or reduced opportunities for career advancement. To mitigate these risks, organizations should ensure that AI systems are designed and implemented with fairness, transparency, and privacy in mind. Maintaining a balance between automated and human-driven feedback and recognition can help preserve the human touch that is crucial for employee engagement and wellbeing.

In conclusion, applying AI to provide real-time feedback and support in HRM offers significant benefits but also comes with notable risks. On the positive side, AI tools can enhance employee wellbeing and engagement by reducing cognitive load, ensuring timely recognition, and personalizing development opportunities. These tools help create a culture of continuous improvement and appreciation, aligning with both Cognitive Load Theory and Maslow's Hierarchy of Needs. However, there are risks considering. Bias and fairness issues, lack of transparency, privacy concerns, over-reliance on automation, inconsistent feedback, and job security anxieties can negatively impact employee wellbeing and engagement. To mitigate these risks, organizations must design AI systems with fairness, transparency, and privacy in mind, and maintain a balance between automated and human-driven feedback.

2.4 Challenges and Opportunities for Workers

The shift to a hybrid work model, where employees divide their time between the office and remote work, presents both opportunities and challenges for successful employee experiences. Companies play a vital role in addressing these challenges and promoting their employees' well-being (Ravinder, 2024). It is becoming clear that the integration of AI-based solutions in HRM has the potential to significantly enhance employee engagement and wellbeing, particularly for remote or hybrid workers. However, these technologies also present several challenges that need to be addressed to maximize their benefits.

2.4.1 Key Opportunities

The following represent a set of potential areas of application of AI-powered tools to better serve remote workers:

1. AI-powered chatbots and virtual assistants can provide immediate support and information to employees, reducing the time spent on administrative tasks and allowing HR professionals to focus on more strategic activities. These tools can answer common queries, assist with onboarding, and provide guidance on company policies. For remote

workers, this instant access to information can reduce feelings of isolation and increase their sense of connection to the organization (Parasa, 2023).

2. AI-driven performance management systems can offer real-time feedback and recognition, which is crucial for maintaining engagement and motivation among remote employees. These systems can analyze work patterns and contributions to provide timely and objective feedback, helping employees understand their strengths and areas for improvement. This continuous feedback loop fosters a remote culture of appreciation and continuous improvement, which is essential for the wellbeing of remote workers (Manfrino, 2024).

3. AI-enhanced self-service portals empower employees to manage their own HR-related tasks, such as updating personal information, accessing pay slips, and enrolling in benefits programs. This autonomy can lead to increased job satisfaction and engagement, as employees feel more in control of their work environment. For remote workers, these portals provide a convenient way to handle HR tasks without needing to visit the office (Bhargava, 2024).

2.4.2 Challenges

One of the significant challenges of AI-based HRM solutions is the potential for bias in algorithms. If the data used to train these systems is biased, the AI can perpetuate and even amplify these biases, leading to unfair treatment of certain employee groups. This can negatively impact employee morale and trust in the system (European Parliament, 2020)

AI systems often require extensive data collection to function effectively, raising concerns about employee privacy. Employees may feel uncomfortable with the level of surveillance and data monitoring involved, which can lead to stress and decreased wellbeing. Ensuring data privacy and transparency in how data is used is crucial to mitigate these concerns (Parasa, 2023)

While AI can streamline many HR processes, over-reliance on technology can reduce the human element in workplace interactions. Employees may feel undervalued if their achievements are recognized solely by machines rather than by their managers or peers. This lack of personal touch can diminish the sense of belonging and engagement (Engagedly, 2024).

AI systems may not always provide consistent or contextually appropriate feedback. This can lead to confusion and frustration among employees, who may struggle to understand or act on the feedback they receive. Ensuring that AI systems are regularly updated and monitored for accuracy is essential to provide reliable feedback (Setiyani et al., 2019).

2.5 Conclusions and Recommendations

As presented in this article, AI-based solutions may offer significant opportunities to enhance employee engagement and wellbeing, especially for remote or hybrid workers. HRM practitioners need to carefully design and implement the use of these tools within the remote or hybrid workforce. For example, chatbots and virtual assistants, real-time feedback and recognition systems, and employee self-service portals can be designed to improve efficiency,

autonomy, and connection to the organization. However, challenges such as bias, privacy concerns, over-reliance on technology, and inconsistent feedback must be carefully managed. By addressing these challenges, organizations can exploit AI functionalities to create a more supportive and engaging remote work environment for all employees. The inspiring idea behind this article relies on the expectation that remote workers, when offered AI-powered HRM solutions as described in this article, will perceive those as a valuable resource their employer is providing as a sign of commitment to the employee wellbeing. Remote workers may, in return, feel more engaged with their job, committed to the organizational goals and, overall, perform better.

To effectively design AI-based HRM solutions that support employee wellbeing and engagement, organizations should consider the following strategies:

- a) Clear communication: Ensure that employees understand how AI tools are used and how they can benefit from them. Transparency in AI systems fosters trust and positive attitudes towards technology.
- b) Personalization: Tailor AI-driven programs to meet individual employee needs. Personalized well-being programs and career development plans can enhance employee satisfaction and engagement.
- c) Employee involvement: Involve employees in the implementation and continuous improvement of AI tools. This participatory approach ensures that AI solutions are aligned with employees' needs and preferences.
- d) Ethical concerns: Address ethical concerns related to AI, such as data privacy and fairness. Implementing ethical AI practices ensures that employees' rights are protected and fosters a positive organizational culture.
- e) Continuous Monitoring and Feedback: Regularly assess the effectiveness of AI tools and make necessary adjustments based on employee feedback and performance data. This iterative process ensures that AI solutions remain relevant and effective.

In conclusion, the integration of AI in HRM presents a transformative opportunity to enhance employee engagement through increased well-being, particularly in remote and hybrid work environments. By leveraging AI tools for personalized support, predictive analytics, and real-time feedback, organizations can create a more inclusive and supportive workplace. However, it is crucial to address challenges such as bias, privacy concerns, and over-reliance on technology to fully realize the benefits of AI. As we move forward, a balanced approach that combines AI's capabilities with human empathy and oversight will be essential in fostering a positive and productive work culture.

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