

Introduction: Human Resource Management Innovation and Practice in a Digital Age

Alan Nankervis ¹, John Burgess ²  and Subas Dhakal ^{3,*} 

¹ Faculty of Business and Law, Curtin University, Perth 6054, Australia

² COCA—Centre for Organisational Change and Agility, Torrens University, Adelaide 5000, Australia

³ UNE Business School, University of New England, Armidale 2351, Australia

* Correspondence: subas.dhakal@une.edu.au

1. Introduction

The Fourth Industrial Revolution (4IR) and Fifth Industrial Revolution (5IR) are transforming work, workplaces, skills, and careers globally (Kolade & Owoseni, 2022). For instance, Dhakal (2025) contends that the 4IR has fundamentally changed the nature of work and workplaces and posits that the “5IR builds on 4IR, driven by opportunities for collaborative and cooperative synergies between humans and technologies, where work, workers, and workplaces contribute to improving the economy, environment, and society” (p. 2). Although emerging technologies either displace or augment jobs, generating new skills and creating additional employment opportunities, the speed of technological innovations and their rapid spread have been felt globally, across all sectors and industries. Consequently, it has generated discussion around the future of work and the distribution of benefits and costs associated with the transformation process. What is clear is that these emerging technologies are disruptive and require proactive human resource management (HRM) intervention programs to manage change and the impact on the workforce (Nankervis et al., 2021). Technological disruptions have already had an impact on professions and training, with Artificial Intelligence (AI) applications performing tasks associated with a multitude of professions (Cascio & Montealegre, 2016; Murire, 2024). For example, this disruption has spread to HRM processes, with AI and other advanced decision-making tools increasingly replacing HRM practices and protocols (Vrontis et al., 2023).

A range of emerging digital technologies and their applications to the nature of work and workplace operations were crucial in supporting jobs and industry throughout the global COVID-19 crisis (Vargo et al., 2021). Distance working, especially working from home, accommodated the social isolation restrictions imposed as a response to the pandemic. This experience was instructive in demonstrating that while technology can disrupt traditional jobs and working patterns, it can also support jobs and organisations. At the same time, the experience raised issues related to privacy, algorithmic controls, loneliness, surveillance, and conflicts between work and family. Since the pandemic, there has been an ongoing debate, and in many cases, directives have been issued to return workers to a central workplace (Gibson et al., 2023). Claims have been made that remote working reduces teamworking, dilutes organisational identification, and undermines managerial control (Whillans et al., 2021). It is in this context that HRM-related innovations and practices in a digital age were the focus of this Special Issue (SI).

2. The Purpose of the SI

The purpose of this SI is to provide a forum that allows scholars to examine how new and emerging technologies are impacting jobs, skills, careers, and HRM processes as well



Received: 14 October 2025

Accepted: 20 October 2025

Published: 23 October 2025

Citation: Nankervis, A., Burgess, J., & Dhakal, S. (2025). Introduction: Human Resource Management Innovation and Practice in a Digital Age. *Administrative Sciences*, 15(11), 411. <https://doi.org/10.3390/admsci15110411>

Copyright: © 2025 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

as practices. The call for papers specified a range of potential topics to be examined. These included the following:

- Critical strategies for managing human resources in the context of digitalisation at the national, organisational, and individual levels.
- Emerging digital challenges associated with staffing, job design, learning and development, performance management, remuneration management, and career development.
- Ethical issues surrounding the use of digital technologies, such as biases, disruption, and the technological divide in terms of access and skills.
- Impacts on HRM professional practice, including examples or case studies of successful and unsuccessful interventions.
- Perceived benefits of increased HRM efficiency and effectiveness in developed, developing, or emerging economies.
- Graduate employability challenges, such as planning for the future workforce with new jobs and new skills.
- Possible replacement or redundancy of HRM professionals through digital displacement.

3. The Content of the Special Issue

From the five papers included in this SI, a broad range of issues is examined, including teleworking, AI applications in HR recruitment, HR responses to disruptive technological change, and employee responses to technological change. These five papers employed a variety of methods, including systematic literature reviews, surveys, documentary analysis, and semi-structured in-depth interviews. These papers report research findings from various countries across multiple industries: Australia (local government and SMEs), Indonesia (SMEs), and Austria (large companies).

[Aluko and Burgess \(2025\)](#) investigate how regional local governments in Australia are addressing the impact of 4IR and 5IR technologies on the workforce. The research employed a qualitative approach, involving interviews with 24 senior managers, including HR managers, from local government in four Australian states. The interviews were supplemented by the analysis of documents from local governments outlining their workforce management programs. Given financial constraints and a collective agreement that supports workforce retention, Australian local governments are developing internal and organisational solutions to manage the impact of emerging technologies on their workforces and service delivery. The study demonstrates that institutional and contextual constraints primarily drive strategic HRM programs ([Cooke, 2018](#)) and that service organisations with limited resources, operating in tight labour markets, can, through innovative HR programs, accommodate the disruption of ongoing technological applications to processes and work. It also highlights the need for a longitudinal analysis that tracks specific digital disruptions and their ongoing impact on the workforce.

[Cahyadi et al. \(2024\)](#) investigate employee resistance and acceptance of technological change in South Sumatra, Indonesia. A quantitative study involving a survey of 322 employees from small and medium enterprises (SMEs) was conducted. Within Indonesia, SMEs are significant drivers of growth and employment. The study's context was the disruption of businesses and jobs caused by the COVID-19 pandemic, and the subsequent introduction of new technologies within the SMEs sector. Structural equation modelling was employed to investigate the mediating role of employee technology adaptation in the relationship between high-involvement HRM practices and employee resilience. Despite resource constraints within the SMEs sector, the article suggests that high-involvement employee processes support employee engagement and resilience, both of which are crucial for organisational success and navigating the effects of technological disruption effectively. Employee resilience is crucial for organisations to effectively address the pressures, anx-

ieties, and stress associated with technological disruption and crises, such as COVID-19 (Arokiasamy & Krishnaswamy, 2021), reinforcing the importance of organisations assisting employees in engaging with ongoing technological change (Kee & Rubel, 2021). The article also suggests that future studies could expand on the current findings and investigate industry-specific variations and the longitudinal impacts of digital disruptions across diverse geographical settings.

Almeida et al. (2024) undertake a systematic literature review of 136 articles on teleworking published between 2016 and 2023. This period encompasses both the pre- and post-COVID-19 experiences of teleworking. Through the advances associated with the 4IR and 5IR, the application of technologies supported by the internet and mobile phones enables mobile working and remote working from a central office. For the analysis of the literature, the study applied the antecedents, decisions, and outcomes (ADO) framework to develop an understanding of the factors influencing decisions and their subsequent outcomes, fostering deeper insights into the underlying mechanisms at play (Paul & Benito, 2018). The evidence suggests that over the past decade, a growing number of workers have been working in remote locations. The study mapped the existing literature on teleworking and examined the associated issues, identifying gaps in the research. The key findings of the literature analysis were that the impact of teleworking is conditional on the context and circumstances, demonstrating that it could address public policy and crisis during and after the COVID-19 pandemic. The article argues that future studies should explore organisational strategies to support teleworkers with dependents, as well as resourcing employees to contribute to a calmer and remote work environment.

Malin et al. (2023) examine the application of AI to recruitment by HR professionals. Through semi-structured interviews with 24 HR professionals across 21 companies of different sizes in Austria, they examine the barriers to AI adoption for recruitment, the experiences in using AI for recruitment, and the reasons for non-adoption of AI. Potential reasons for non-adoption include the likely substitution of HR professionals by AI, ethical and privacy concerns, and the costs associated with implementation. The findings suggest that in many cases, HR professionals have a limited understanding of and experience with AI, and this uncertainty contributes to the non-adoption of AI. Based on the findings, the authors suggest that the limited application of AI in recruiting can be addressed through awareness campaigns within the HR profession and accredited training programs that focus on the practical application of AI. In addition, the paper encourages researchers to observe the ongoing development of AI and investigate whether and how the beliefs of HR professionals change over time, concluding with an examination of the perceived use cases and barriers.

Shahiduzzaman (2025) presents a systematic analysis of 190 journal articles published between 2017 and 2024. The purpose is to examine the conditions that support digital maturity in HRM, where digital maturity refers to the long-term process of transitioning from one digital stage to the next. It is the process of adaptability and learning within the organisation to accommodate digital technologies and, in turn, prepare for potential crises (Rader, 2019). The findings highlight the multiple dimensions of HR digital maturity and the challenges associated with realising its benefits. The findings suggest that organisations should develop active HR strategies, improved governance systems, and crisis management processes. The analysis highlights the need for future research to focus on talent management, stakeholder engagement, HR practitioner competencies, and workplace safety in conjunction with an inclusive technology execution framework in HRM.

4. Further Research

This diverse collection offers potential for further research. As technology evolves and is further integrated into organisations and work, there is scope for case studies of processes of accommodation and implementation, as well as their impact across all HR functions, from recruitment to retention. National, sectoral, and organisational case studies can inform theory, practice, and policy (Trocin et al., 2021). Several of the identified topics were not addressed in the SI. These include the impact of new technology on graduate employability and comparative analysis across countries, industries, and occupations, as well as the ethical challenges for HRM that arise from the application of AI to traditional HR functions. Research will continue to evolve, generating an extensive database of published information (refereed and grey literature) that will require systematic organisation and analysis to inform future research. Further studies on how technology, especially AI, is impacting workers, work, and workplaces are warranted in the context of the future of work, and the broader research questions could include, but are not limited to, the following:

- How is the training and accreditation of HRM professionals evolving to keep pace with technological advancements?
- How will multigenerational workplaces and workforces evolve during the transition from the 4IR to the 5IR?
- Is AI augmenting and supporting HRM, or is it replacing HRM professionals?
- To what extent can the green or sustainable HRM in the 5IR era advance the 2030 agenda and beyond?
- What is the impact of technology-driven processes on work, skills, credentials, pay, benefits, and careers?

Conflicts of Interest: The authors declare no conflict of interest.

References

- Almeida, F., Rodrigues, H., & Freitas, P. (2024). “No need to dress to impress” evidence on teleworking during and after the pandemic: A systematic review. *Administrative Sciences*, 14(4), 76. [\[CrossRef\]](#)
- Aluko, K. M., & Burgess, J. (2025). Navigating workforce transformation: HRM strategies of rural and regional Australian councils in the 4IR era. *Administrative Sciences*, 15(2), 52. [\[CrossRef\]](#)
- Arokiasamy, A. A., & Krishnaswamy, J. (2021). Does perceived organizational support enhances employee resilience by lowering turnover intentions among academic expatriates in Vietnam: A mediator-moderator approach. *Turkish Journal of Computer and Mathematics Education*, 12, 2153–2167. [\[CrossRef\]](#)
- Cahyadi, A., Marwa, T., Poór, J., Maulana, A., & Szabó, K. (2024). High-involvement human resource management practices and employee resilience: The mediating role of employee technology adaptation—A case study of South Sumatra. *Administrative Sciences*, 14(11), 292. [\[CrossRef\]](#)
- Cascio, W. F., & Montealegre, R. (2016). How technology is changing work and organizations. *Annual Review of Organizational Psychology and Organizational Behavior*, 3(1), 349–375. [\[CrossRef\]](#)
- Cooke, F. (2018). Concepts, contexts, and mindsets: Putting human resource management research in perspectives. *Human Resource Management Journal*, 28(1), 1–13. [\[CrossRef\]](#)
- Dhakal, S. P. (2025). Fifth industrial revolution and the future of education and employment. *Quality & Quantity*, 1–19. [\[CrossRef\]](#)
- Gibson, C. B., Gilson, L. L., Griffith, T. L., & O'Neill, T. A. (2023). Should employees be required to return to the office? *Organizational Dynamics*, 52(2), 100981. [\[CrossRef\]](#) [\[PubMed\]](#)
- Kee, D. M. H., & Rubel, M. R. B. (2021). Technology adaptation is on its way: The role of high involvement work practice. *International Journal of Business Innovation and Research*, 25(1), 35–50. [\[CrossRef\]](#)
- Kolade, O., & Owoseni, A. (2022). Employment 5.0: The work of the future and the future of work. *Technology in Society*, 71, 102086. [\[CrossRef\]](#)
- Malin, C., Kupfer, C., Fleiß, J., Kubicek, B., & Thalmann, S. (2023). In the AI of the beholder—A qualitative study of HR professionals' beliefs about AI-based Chatbots and decision support in candidate pre-selection. *Administrative Sciences*, 13(11), 231. [\[CrossRef\]](#)
- Murire, O. T. (2024). Artificial intelligence and its role in shaping organizational work practices and culture. *Administrative Sciences*, 14(12), 316. [\[CrossRef\]](#)

- Nankervis, A., Connell, J., Cameron, R., Montague, A., & Prikshat, V. (2021). 'Are we there yet?' Australian HR professionals and the Fourth Industrial Revolution. *Asia Pacific Journal of Human Resources*, 59(1), 3–19. [\[CrossRef\]](#)
- Paul, J., & Benito, G. R. (2018). A review of research on outward foreign direct investment from emerging countries, including China: What do we know, how do we know and where should we be heading? *Asia Pacific Business Review*, 24(1), 90–115. [\[CrossRef\]](#)
- Rader, D. (2019). Digital maturity—the new competitive goal. *Strategy & Leadership*, 47(5), 28–35. [\[CrossRef\]](#)
- Shahiduzzaman, M. (2025). Digital maturity in transforming human resource management in the post-COVID era: A thematic analysis. *Administrative Sciences*, 15(2), 51. [\[CrossRef\]](#)
- Trocin, C., Hovland, I. V., Mikalef, P., & Dremel, C. (2021). How Artificial Intelligence affords digital innovation: A cross-case analysis of Scandinavian companies. *Technological Forecasting and Social Change*, 173, 121081. [\[CrossRef\]](#)
- Vargo, D., Zhu, L., Benwell, B., & Yan, Z. (2021). Digital technology use during COVID-19 pandemic: A rapid review. *Human Behavior and Emerging Technologies*, 3(1), 13–24. [\[CrossRef\]](#)
- Vrontis, D., Christofi, M., Pereira, V., Tarba, S., Makrides, A., & Trichina, E. (2023). Artificial intelligence, robotics, advanced technologies and human resource management: A systematic review. In *Artificial intelligence and international HRM* (pp. 172–201). Routledge.
- Whillans, A., Perlow, L., & Turek, A. (2021). Experimenting during the shift to virtual team work: Learnings from how teams adapted their activities during the COVID-19 pandemic. *Information and Organization*, 31(1), 100343. [\[CrossRef\]](#)

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.