

AI-Driven Predictive People Analytics and Organizational Performance: The Mediating Role of Digital Employee Experience in Hybrid Work Environments

Sujatha S¹, Sunil Kumar Vohra²

¹Sujatha S, Post Doctoral Researcher, Lincoln Global Postdoctoral Researcher Programme, Lincoln University College, 47301, Petaling Jaya, Selangor Darul Ehsan, Malaysia.

²Sunil Kumar Vohra, Adjunct Research Faculty, Lincoln Global Postdoctoral Researcher Programme, Lincoln University College, 47301, Petaling Jaya, Selangor Darul Ehsan, Malaysia.

Email ID: pdf.ssujatha@lincoln.edu.my, sujagopi1981@gmail.com, sunilvohra2002@yahoo.co.in

Abstract: Organizational functions have evolved to accommodate hybrid workplaces, and organizations have come to rely on data more and more when it comes to human resource practices. Artificial Intelligence (AI) - powered Predictive People Analytics are increasingly being utilized to make the optimal workforce decision, improve employee engagement and increase organization performance. However, the empirical evidence of the effects of AI-powered HR policies is lacking. The study aims to examine how AI-powered Predictive People Analytics, Digital Infrastructure, Organizational Support for Hybrid Work, and Hybrid Work Flexibility Impact Digital Employee Experience and Organizational Performance. The method used in this study was a quantitative research design and the data analysis tool used was the model of partial least squares structural equation modelling (PLS-SEM). The findings show that AI-powered Predictive People Analytics, Organizational Support for Hybrid Work and Hybrid Work Flexibility are all important drivers of Digital Employee Experience which then yields a higher Organizational Performance. Organizational Support for Hybrid Work has an indirect impact via Digital Employee Experience as well. The study demonstrates the enabling potential of AI in HR practices supporting sustainable organizational development, which are aligned with SDGs 3 (Good Health and Well-being), SDG 8 (Decent Work and Economic Growth) and SDG 9 (Industry, Innovation and Infrastructure).

Keywords: Artificial Intelligence, Predictive People Analytics, Digital Employee Experience, Hybrid Work, Organizational Performance.

1.Introduction

Human Resource Management (HRM) is undergoing a dramatic transformation thanks to the emergence of Artificial Intelligence (AI). The human resource management field is being transformed by Artificial Intelligence (AI), equipping businesses with the instruments they need to make informed choices regarding their employees. Utilizing AI, Predictive People Analytics can forecast employee attrition, skill shortages, employee engagement, workforce planning and employee well-being [1].

With more companies now taking a hybrid stance to working during the pandemic, they are discovering the need to prepare their working environment to be digitally ready so their workers can stay productive and effective. Digital Employee Experience (DEX) is therefore a crucial construct that captures the perception of digital tools, communication systems, workplace technologies and organizational support perceived by employees. While the previous studies found positive connections with organizational performance as a result of AI adoption, limited research has explored the connection of AI-based Predictive People Analytics with Organizational Performance via Digital Employee Experience. In addition,

the triple interaction of three factors of the DWH (Digital Infrastructure, Hybrid Work Flexibility and Organizational Support for Hybrid Work) has been under-researched [2].

The study is also aligned with the U.N. Sustainable Development Goals (SDGs). By improving productivity, innovation, employee well-being, and sustainable workplace practices, AI workforce management helps achieve SDG 8 (Decent Work and Economic Growth), SDG 9 (Industry, Innovation and Infrastructure), and SDG 3 (Good Health and Well-being) [3].

2. Literature Review

AI and digital transformation have been a subject of several scholars' explorations in the field of HRM. Marler and Boudreau (2017) talked about using HR analytics to make decisions on the basis of evidence [4]. Davenport and Harris (2017) illustrated that data-driven management practices can make organizations more competitive. Davenport and Harris (2017) demonstrated how organizations can be more competitive with the use of data-driven management practices. Malik et al. (2023) [5] underscored the importance of employees' experiences in AI-powered HR systems, and Lee and Lee (2024) highlighted the increasing significance of predictive people analytics in human resource development [6]. In the research conducted around hybrid working, it is identified that policies, flexibility, and technology are vital enablers to employee engagement and performance. In reality, the combination of AI-based Predictive People Analytics, Digital Employee Experience and Organizational Performance in one platform is rare, though [7].

Table 1. Comparison with Existing Studies

Study	Ai Analytics	Hybrid Work	Digital Employee Experience
Marler & Boudreau (2017)	Yes	No	No
Malik et al. (2023)	Yes	Partial	Yes
Lee & Lee (2024)	Yes	No	No
Bansal et al. (2023)	Partial	Yes	Partial
Present Study	Yes	Yes	Yes

3. Key Contribution

- This research has four major contributions to the body of literature:
- 1.Combines AI-driven Predictive People Analytics, Digital Infrastructure, Hybrid Work Flexibility, Organization's Support of Hybrid Work, Digital Employee Experience, and Organization's Performance.
 - 2.Understands the importance of Digital Employee Experience as a critical link between an organization's outcomes and AI-based HR practices.
 - 3.Describes the approach of Organizational Support on Hybrid Work and its value to Employee Experience.

4.Extends literature of HRM from the perspective of AI by adding the Sustainable Development Goals (SDGs), especially SDG 3, SDG 8 and SDG 9.4. Method, Experiments and Results

4. Method, Experiments and Results

4.1 Research Method

A quantitative, cross sectional research design was utilized in conducting the research. The data were gathered via a structured questionnaire that was given to the employees of the hybrid working environment

The study examined:

- AI-powered Predictive People Analytics (AIPPA)
- Digital Infrastructure (DI)
- Organizational Support for Hybrid Work (OSHW)
- Hybrid Work Flexibility (HWF)
- Digital Employee Experience (DEX)
- Organizational Performance (OP)

Data analysis was performed by using PLS-SEM (Smart PLS 4).

4.2 The results of reliability and validity were obtained.

- The reliability of internal consistency was good with Cronbach α values between 0.820 and 0.882.
- The reliability of internal consistency was good with Cronbach α values between 0.820 and 0.882.
- The values of the composite reliability were between 0.870 and 0.911.
- The convergent validity was established by the value of AVE ranging from 0.527 to 0.630.

The model explained:

- There was variance in Digital Employee Experience ($R^2 = 0.805$).
- The variance in Organizational Performance was 64.3% ($R^2 = 0.643$)

4.3 Hypothesis Testing Results

Relationship	β	t-value	p-value	Result
AIPPA $\rightarrow$ DEX	0.381	4.666	0.000	Supported
AIPPA $\rightarrow$ OP	0.279	2.564	0.010	Supported
DEX $\rightarrow$ OP	0.270	2.329	0.020	Supported
DI $\rightarrow$ DEX	0.017	0.181	0.857	Not Supported
DI $\rightarrow$ OP	0.139	1.070	0.285	Not Supported
HWF $\rightarrow$ DEX	0.209	4.256	0.000	Supported
HWF $\rightarrow$ OP	0.128	1.529	0.126	Not Supported
OSHW $\rightarrow$ DEX	0.400	8.616	0.000	Supported
OSHW $\rightarrow$ OP	0.066	0.959	0.338	Not Supported

4.4 Mediation Results

That one significantly mediated the relationship between Organizational Support for Hybrid Work and Organizational Performance was the relationship between Digital Employee Experience ($\beta = 0.108$, $p = 0.023$). There was no significant mediation effect for AIPPA, DI or HWF.

5. Discussions

The results illustrate the significance of the Predictive People Analytics capability, which is powered by AI, to improve Organizational Performance and Digital Employee Experience. Organizational Support for Hybrid Work was the top driver of Digital Employee Experience, indicating that managerial support, employee's well-being efforts, and flexible work policies play a major role in shaping employee perceptions of digital workplaces. Having Hybrid Work Flexibility positively affects employees' experience, but it has no direct impact on the results of work. Likewise, Digital Infrastructure alone will not help in enhancing the performance unless the employees are taken up and utilized within the organization and with support. On sustainability, the results suggest that AI Human Resource Management practices contribute to SDG 3, SDG 8 and SDG 9 by ensuring employee health and wellness, innovation and improvement of workforce and organization, and sustainable development of the organization.

6. Conclusions

The following problem was examined: What is the effect of a digital employee experience on an organization's performance in a hybrid working model with the use of AI tools to analyze people data. The use of PLS-SEM quantitative research design was used to investigate the relationship between six organizational constructs. AI based Predictive People Analytics leads to a huge improvement in Digital Employee Experience and Organizational Performance. Organizational Support for Hybrid Work has been identified as the top determinant of Digital Employee Experience. Digital Employee Experience is a huge contributor to Organizational Performance. Organizational Support for Hybrid Work and Digital Employee Experience are found to be statistically significant in predicting Organizational Performance, which in turn is statistically significant in predicting Digital Employee Experience. Digital Infrastructure does not have a strong impact on organizational outcomes.

7. Limitations and Future Work:

The cross-sectional design restricts the ability to make causal inferences. Common method bias is a possibility when self-reported information is used. The following suggestions can be made for future research: Longitudinal studies with the inclusion of several variables (digital leadership, trust in AI, organizational culture, employee engagement, and innovation capability) are recommended.

The research findings indicate that the use of AI in HRM is vital for sustainable organizational development and can help in meeting SDG 3 (Good Health and Wellbeing), SDG 8 (Decent Work and Economic Growth) and SDG 9 (Industry, Innovation and Infrastructure).

References

1. Marler, J. H., & Boudreau, J. W. (2017). An evidence-based review of HR analytics. *International Journal of Human Resource Management*, 28(1), 3–26.
2. Minbaeva, D. (2021). Disrupting the theory, practice, and teaching of HRM with AI. *Human Resource Management Review*, 31(2), 100803. <https://doi.org/10.1016/j.hrmr.2020.100803>

3. Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99–120.
4. Davenport, T. H., & Harris, J. G. (2017). *Competing on Analytics: The New Science of Winning*. Harvard Business Review Press.
5. Eisenberger, R., Huntington, R., Hutchison, S., & Sowa, D. (1986). Perceived organizational support. *Journal of Applied Psychology*, 71(3), 500–507.
6. John, S., et al. (2025). Reconfiguring digital embeddedness in hybrid work: The case of employee experience management platforms. *Information Systems Journal*. (Use the final published bibliographic details for submission.)
7. Kniffin, K. M., et al. (2021). COVID-19 and the workplace: Implications, issues, and insights for future research and action. *American Psychologist*, 76(1), 63–77.
8. Lee, J. Y., & Lee, Y. (2024). Integrative literature review on people analytics and implications from the perspective of human resource development. *Human Resource Development Review*.
9. Malik, A., Budhwar, P., Mohan, H., & Srikanth, N. R. (2023). Employee experience—the missing link for engaging employees: Insights from an AI-based HR ecosystem. *Human Resource Management*.
10. Margherita, A. (2022). Human resources analytics: A systematization of research topics and directions for future research. *Human Resource Management Review*, 32(2).
11. Parry, E., & Battista, V. (2019). The impact of emerging technologies on work: A review of the evidence and implications for HRM. *International Journal of Human Resource Management*.
12. Raisch, S., & Krakowski, S. (2021). Artificial intelligence and management: The automation–augmentation paradox. *Academy of Management Review*, 46(1), 192–210.
13. Vial, G. (2019). Understanding digital transformation: A review and research agenda. *Journal of Strategic Information Systems*, 28(2), 118–144.
14. Wang, B., Liu, Y., Qian, J., & Parker, S. K. (2021). Achieving effective remote working during the COVID-19 pandemic: A work design perspective. *Applied Psychology*, 70(1), 16–59.