

# DIGITALIZATION IMPACT: EVALUATING HRM AND WORK ATTITUDES IN BANGALORE

**Dr. SHILPA AJAY**

Professor and Head, Department of Management Studies, NITTE Meenakshi Institute of Technology, Bangalore. Email: shilpa.ajay@nmit.ac.in

## Abstract

In the present-day workplaces, the role of Human Resource Management (HRM) practices is increasingly recognized as a crucial factor in shaping employee attitudes. Organizational commitment, job satisfaction, and employee engagement are essential elements to the overall well-being of the workforce, directly influencing productivity and organizational success. This set up for an exploration into understanding relationship between HRM practices and employee attitudes. As organizations strive to attract and retain top talent, understanding how strategic HRM initiatives impact the way employees perceive their roles and the organization becomes imperative. This study aims to contribute practical understanding of how technology and HRM practices intersect in Industry 4.0, shaping the attitudes of IT professionals and guiding organizations towards effective strategies in this transformative era.

**Keywords:** Industry 4.0, HRM Practices, Technological Advancements, IT Professionals, Organizational Transformation.

## INTRODUCTION

The convergence of technology and human resource management (HRM) practices in the dynamic Industry 4.0 has resulted in a paradigm shift in organization set up. The research study investigate the complex relationship between technological advancements, HRM strategies, and the evolving work attitudes among IT professionals in Bangalore.

The advent of Industry 4.0 has redefined the fundamental aspects of HRM in India. The integration of automation, artificial intelligence, and data analytics has not merely altered operational methodologies but has also revolutionized the very essence of how human resources are managed (Accenture, 2021). Organizations across India, particularly in Bangalore, have adapted new avenues as they adapt to this digital revolution. This research analyse the nuanced impact of Industry 4.0 on HRM practices, examining the innovative adaptations, challenges, and opportunities it presents within the organizational framework.

Industry 4.0 comprises of three crucial components: data, technology, and human capital. Together, these elements have presented numerous opportunities and challenges for businesses, particularly in their Human Resource (HR) functions (Acharya A,et.al, 2018). The evolution of HR from traditional models is notable. Today's HR professionals are at the forefront of pivotal trends shaping the workplace landscape. One significant trend involves the emphasis on reskilling and upskilling the workforce. With automation and digitization altering job roles, HR is actively facilitating continuous learning programs, equipping employees with skills relevant to the evolving demands of Industry 4.0

(Angrave D, 2016). Another emerging trend in HR involves adapting to the shift from hierarchical structures to networked organizations. In response to increased collaboration necessitated by Industry 4.0, HR is fostering flexible and agile cultures that promote trust, autonomy, and teamwork. This shift entails redesigning performance management and reward systems to incentivize collaboration.

The integration of human and machine intelligence represents a third significant trend. With technology enhancing human capabilities, HR is redefining roles within organizations, enabling humans to focus on tasks requiring creativity and judgment while leveraging machines for tasks needing speed and consistency (Beisen.2021). Gartner's 2023 report outlines the future of HR operating models, highlighting increased agility, automation, and a heightened focus on employee experience. This future will be characterized by digitized and automated HR processes, agile methodologies, personalized employee support, and data-driven decision-making. Industry 4.0 is transforming the world of work. However, HR teams worldwide have risen to the challenge, adapting strategies and practices to aid organizations in achieving a competitive edge and sustainable growth in this era. HR remains a crucial backbone of the industry, pivotal in navigating and thriving within Industry 4.0's landscape.

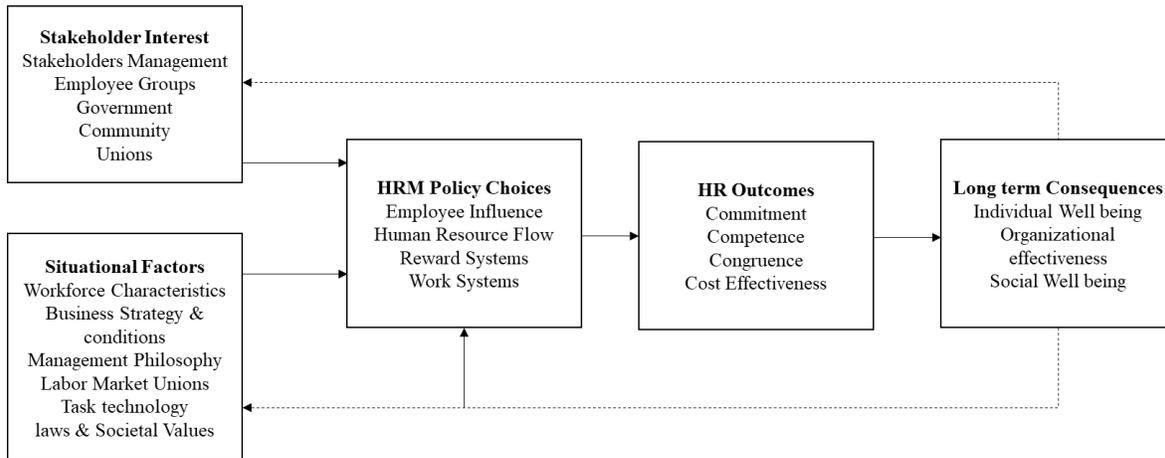
## LITERATURE REVIEW

Human Resource Management practices form the backbone of any successful organization. They encompass a range of strategies and policies designed to attract, develop, and retain top talent while aligning workforce capabilities with the company's goals. From recruitment and onboarding to training, performance management, and beyond, these practices are essential in nurturing a positive workplace culture and fostering employee engagement (Trullen, J et.al, 2020). Effective HRM practices not only focus on administrative tasks but also prioritize the well-being and growth of employees, recognizing them as the driving force behind an organization's success.

Harvard's HRM model, developed by Beer et al. in the 1980s, is a comprehensive framework that views employees as strategic assets essential to achieving organizational success. This model emphasizes the integration of HR practices with an organization's overall strategic objectives. The Harvard model considers four key policy areas: human resource flow, reward systems, employee influence, and work systems. Human resource flow involves aspects like recruitment, selection, and retention, focusing on acquiring and managing talent effectively (Bondarouk T et.al, 2016). The reward system encompasses compensation, recognition, and benefits, aiming to motivate and incentivize employees.

The model recognizes the significance of employee influence and involvement in decision-making processes, promoting a sense of ownership and commitment. Work systems, including job design and organizational structure, align tasks and roles with the company's strategic goals, enhancing efficiency and effectiveness. An essential aspect of this model is its emphasis on a 'soft' approach to HR management, valuing human factors such as skills, motivation, and attitudes (Chae B, 2019). It underscores the importance of aligning HR policies with organizational values, culture, and long-term

strategies. Harvard's HRM model highlights the strategic role of HR in driving organizational performance through the effective management of human resources. It emphasizes a holistic approach that considers employees' needs, aspirations, and contributions as integral components of an organization's success.



Source: The 'Harvard' Model (Beer et al., 1984). Source: Beer et al. (1984)

## Digital Tools and HRM Practices

Technology has become integral to modern HRM practices, revolutionizing how organizations manage their workforce. It facilitates streamlined recruitment processes through applicant tracking systems, enhances employee engagement with collaboration tools and intranet platforms, and automates administrative tasks like payroll and benefits management. (Gal, U et al, 2020).

Moreover, technology enables personalized learning and development initiatives, offering employees access to online courses and resources tailored to their needs, contributing significantly to skill enhancement and career growth within the organization (Kehoe, et.al, 2020).

## Online Networking and HRM Strategies

Social media has emerged as a powerful tool shaping HRM practices, offering innovative ways to connect, engage, and recruit talent. HR professionals leverage social media platforms for employer branding, showcasing company culture, and attracting potential candidates.

These platforms facilitate communication and networking, enabling HR to reach a wider audience, build relationships, and source candidates efficiently (Kellogg et.al, 2020). Additionally, social media serves as a platform for employee advocacy, encouraging staff to share their experiences, contributing positively to the organization's reputation and attracting like-minded talent.

H1: Higher engagement through Online networking in HRM activities positively influences the employer brand perception among potential job seekers.

## Digital HRM Strategies

E-HRM (Electronic Human Resource Management) has transformed traditional HRM practices by digitizing and automating HR processes. It involves the use of HRIS (Human Resource Information Systems) and software solutions for tasks like employee self-service portals, performance management systems, and remote work facilitation tools (Garcia-Arroyo J, 2019). E-HRM streamlines administrative tasks, increases accessibility to HR services, and improves data accuracy and security. It empowers HR professionals to focus on strategic initiatives and employee-centric activities by reducing manual work and enhancing operational efficiency (Hamilton, R.H et.al, 2020).

H2: Implementation of Digital HRM systems is positively associated with increased employee satisfaction and improved accessibility to HR services.

## People Analytics in HRM Strategies

Data analytics has become an essential component of HRM practices, revolutionizing decision-making processes. HR professionals harness data analytics to gain insights into employee performance, engagement levels, and talent trends. By analyzing metrics like turnover rates, productivity, and skill gaps, HR can make informed decisions regarding recruitment strategies, training programs, and workforce planning. Predictive analytics assists in forecasting future HR needs and designing proactive strategies to address potential challenges, ultimately optimizing the organization's talent management strategies (Garcia-Arroyo J et.al, 2019).

H3: Utilization of people analytics in HRM practices positively links to informed decision-making and improved talent management strategies.

## HRM Strategies and Employee Attitudes

In any professional environment, Human Resource Management (HRM) practices significantly intertwine with the organizational commitment, job satisfaction, and employee engagement. When HRM strategies prioritize employee development, recognition, and empowerment, they often foster a sense of dedication and loyalty within the workforce, leading to heightened organizational commitment (Khan Z et.al, 2017). These practices, when well crafted, tend to strengthen job satisfaction by aligning individual goals with organizational objectives, nurturing a sense of fulfilment and contentment among employees. Simultaneously, HR initiatives that emphasize involvement, communication, and opportunities for growth tend to cultivate higher levels of employee engagement, where individuals are not only committed to their roles but also emotionally invested in the company's success, driving productivity and innovation (Krystynski, D et.al, 2018). So the following hypotheses are proposed:

H4: HRM initiatives emphasizing involvement, communication, and growth opportunities positively correlate with increased levels of employee engagement.

H5: Well-designed HRM strategies that align individual goals with organizational objectives positively impact job satisfaction among employees.

H6: HRM practices focused on employee development and recognition positively correlate with increased organizational commitment among employees.

Based on these hypotheses a conceptual model is developed as shown in Fig.1.

## RESEARCH METHODOLOGY, MODEL, DISCUSSION, CONCLUSION PENDING

Structured questionnaire survey was conducted among 250 employees of various companies in IT sector throughout Bangalore. Survey was done using google form, phone and email and 10 IT companies participated in this study. The demographic profile of the respondents is shown in Table 1.

### Reliability and Validity Tests

Based on the pilot test conducted on 20 respondents to ensure comprehension of the questionnaires, the Exploratory Factor Analysis (EFA) shown factor loading  $< 0.3$  for all the items with KMO score of 0.874, above the benchmark value  $e$  of 0.6 (Pallant, 2007).

Bartlett's Test of Sphericity value shown significant  $p=0.000$  ( $p<0.05$ ). For the total measurement items of 25 items, the factor loading values achieved above 0.3 indicated the questionnaires have construct validity.

The Cronbach's Alpha (CA) values achieved between 0.800 and 0.894, above the minimum level of 0.7 (Pallant, 2007). Thus, the CA values shown that convergent validity was achieved. The average variance explained (AVE) findings were between 0.503 and 0.683, achieved exceed the minimum limit of 0.5 (Fornell and Larcker, 1981).

The composite reliability (CR) values were between 0.801 and 0.896, exceeded the benchmark value of 0.6 (Bagozzi and Yi, 1988). The results are reported in Table 2.

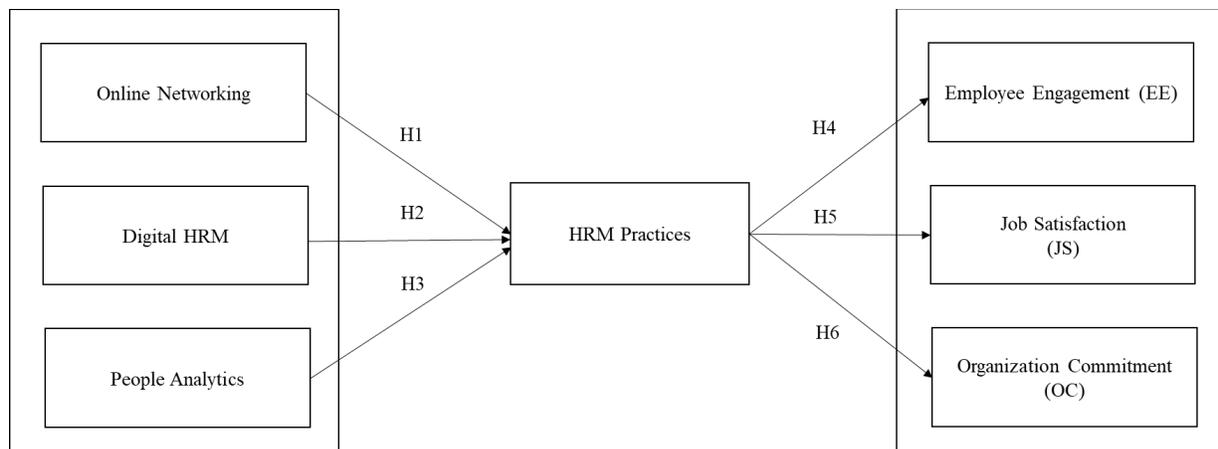


Fig.1 Conceptual Model

Sample Characteristics (n=250)	Percentage
<b>Departments</b>	
Marketing	22
Accounting & Finance	15
Human Resources	25
Operations	20
Auditing	18
<b>Levels</b>	
Entry	26
Junior Executive	34
Senior Executive	23
Manager	17

Table 1: Demographics profile of respondents

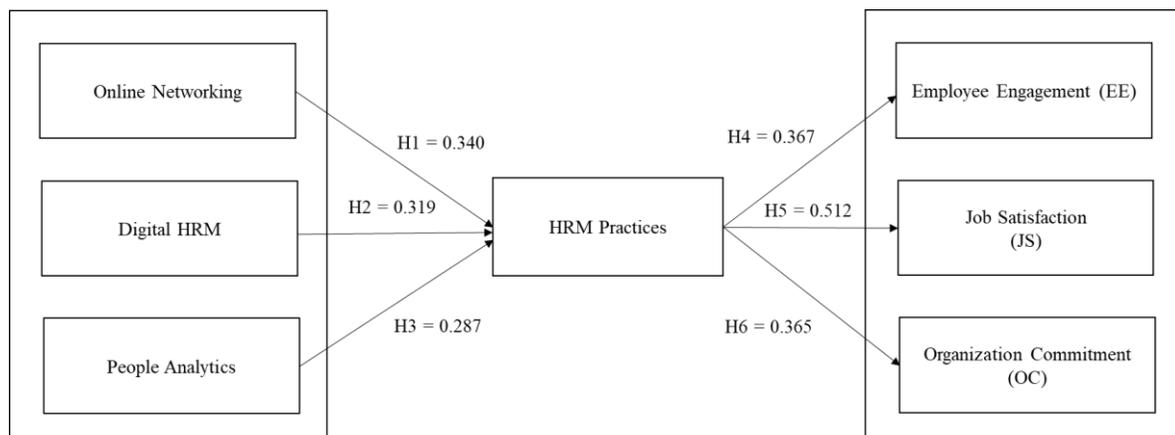
Table 2: Measurement Items

Construct (Source)	Item	Factor Loading	Cronbach's Alpha	AVE	CR
Online Networking	NW1	0.691	0.856	0.55	0.859
	NW2	0.771			
	NW3	0.775			
Digital HRM Strategies	DHS1	0.783	0.894	0.683	0.896
	DHS 2	0.842			
	DHS 3	0.868			
People Analytics	PA1	0.671	0.8	0.503	0.801
	PA2	0.724			
	PA3	0.752			
	PT4	0.686			
Employee Engagement	EE1	0.722	0.889	0.67	0.89
	EE2	0.827			
	EE3	0.877			
	EE4	0.84			
Job Satisfaction	JS1	0.673	0.896	0.673	0.884
	JS2	0.726			
	JS4	0.685			
	JS5	0.774			
Organizational Commitment	OC1	0.735	0.823	0.539	0.824
	OC2	0.729			
	OC3	0.736			
	OC4	0.722			
	OC5	0.736			

**Table 3: Hypothesis Testing Results**

H	Hypothesised relationships	Estimate	p Values	Results
H1	Online Networking → HRM Strategies	0.340	***	Supported
H2	Digital HRM Strategies → HR Services	0.319	***	Supported
H3	People Analytics → HRM Strategies	0.287	***	Supported
H4	HRM Initiatives → Employee Engagement	0.367	***	Supported
H5	HRM Initiatives → Job Satisfaction	0.512	***	Supported
H6	HRM Initiatives → Organizational Commitment	0.365	***	Supported

Note: \*\*\*p < 0.001



**Fig.2 Path Model**

### Discussion & Implications

Overall, the findings have confirmed the organizations can leverage the positive outcomes to strategically align technology, such as online networking and digital HRM strategies, with HRM initiatives. This alignment can enhance organizational responsiveness and agility in the ever-evolving Industry 4.0 landscape (Rodgers W, et.al, 2023). The positive correlation between people analytics and HRM strategies emphasizes the importance of data-driven decision-making. Organizations can invest in robust analytics tools to inform talent management strategies, fostering a culture of adaptability and innovation.

The positive relationships between HRM initiatives and employee outcomes highlight the need for employee-centric practices. Organizations should invest in initiatives that enhance engagement, job satisfaction, and organizational commitment, ultimately contributing to a motivated and dedicated workforce. Online networking's positive correlation with HRM strategies suggests the need for strategic communication and collaboration platforms. Organizations can implement tools that facilitate effective communication, knowledge sharing, and collaborative decision-making. Positive association of digital HRM strategies correlating with HR services emphasize the importance of enhancing employee experiences through digital platforms (Shamim S et.al, 2020). Organizations can invest in user-friendly digital tools for HR services to improve accessibility and responsiveness.

## Conclusion

This study investigates on the dynamic interconnections between various HRM initiatives and key organizational outcomes. The positive correlations observed between online networking, digital HRM strategies, people analytics, and HRM initiatives with employee engagement, job satisfaction, and organizational commitment underscore the critical role of strategic HR practices in shaping a positive work environment. The findings highlight the complex relationship between technology-driven approaches and workforce attitudes, offering insights into the ways organizations in Bangalore navigate the challenges and opportunities of Industry 4.0. The positive outcomes affirm the importance of developing a holistic HR strategy that integrates technology, analytics, and initiatives personalized to employee needs for optimal organizational performance.

## LIMITATIONS OF THE STUDY

While this study provides valuable insights into the intricate relationships between HRM initiatives and employee attitudes within the context of Industry 4.0, the following gaps are identified which can be considered for future research study:

The study primarily focuses on IT professionals in Bangalore, India. Generalizing findings to other industries or geographical locations may require caution, as the unique context of the IT sector and the cultural impact of Bangalore could impact the transferability of results. This study can also be applied to other Service sectors namely hospitals, hotel industry, ITes etc. The study's cross-sectional design captures a snapshot of the relationships at a specific point in time. Longitudinal research could offer a more comprehensive understanding of the dynamic nature of these associations over time. External factors, such as economic shifts, global events, or technological advancements beyond the study's scope, may impact HRM practices and employee attitudes. The study does not account for these dynamic external influences. The predominantly quantitative nature of the study limits the depth of qualitative insights. Incorporating qualitative methodologies, such as interviews or focus groups, could offer a richer understanding of the nuances surrounding HRM initiatives and employee attitudes.

## References

- 1) Accenture. Available online: [https://www.accenture.com/\\_acnmedia/PDF-120/Accenture-TechVision-2020-Exec-Summary-Report-2.pdf](https://www.accenture.com/_acnmedia/PDF-120/Accenture-TechVision-2020-Exec-Summary-Report-2.pdf) (accessed on 14 December 2021).
- 2) Acharya A, Singh SK, Pereira V, Singh P (2018) big data, knowledge co-creation and decision making in fashion industry. *Int J Inf Manag* 42:90–101
- 3) Alam, M.G.R.; Masum, A.K.M.; Beh, L.-S.; Hong, C.S. Critical factors influencing decision to adopt human resource information system (HRIS) in hospitals. *PLoS ONE* 2016, 11, 1–22.
- 4) Angrave D, Charlwood A, Kirkpatrick I, Lawrence M, Stuart M (2016) HR and analytics: why HR is set to fail the big data challenge. *Hum Resour Manag J* 26(1):1–11
- 5) Angrave, D.; Charlwood, A.; Kirkpatrick, I.; Lawrence, M.; Stuart, M. HR and analytics: Why HR is set to fail the big data challenge. *Hum. Resour. Manag. J.* 2016, 26, 1–11. [Google Scholar] [CrossRef] [Green Version]

- 6) Aral, S.; Brynjolfsson, E.; Wu, L. Three-Way Complementarities: Performance Pay, Human Resource Analytics, and Information Technology. *Manag. Sci.* 2012, 58, 913–931. [Google Scholar] [CrossRef]
- 7) Beer, M., Boselie, P., & Brewster, C. (2015). Back to the future: Implications for the field of HRM of the multi-stakeholder perspective proposed 30 years ago. *Human Resource Management*, 54, 427–438.
- 8) Beer, M., Spector, B., Lawrence, P., Mills, D. Q., & Walton, R. (1984). *Human resource management: A general manager's perspective*. New York, NY: Free Press
- 9) Beisen. Available online: <https://news.alphalio.cn/PDF/2021%E4%B8%AD%E5%9B%BD%E4%BA%BA%E5%8A%9B%E8%B5%84%E6%BA%90%E7%AE%A1%E7%90%86%E5%B9%B4%E5%BA%A6%E8%A7%82%E5%AF%9F-%E5%8C%97%E6%A3%AE-2021.1-49%E9%A1%B5.pdf> (accessed on 14 December 2021).
- 10) Bondarouk T, Brewster C (2016) Conceptualising the future of HRM and technology research. *The Int J Human Resour Manag* 27(21):2652–2671
- 11) Bondarouk, T.; Harms, R.; Lepak, D. Does e-HRM lead to better HRM service? *Int. J. Hum. Resour. Manag.* 2017, 28, 1332–1362. [Google Scholar] [CrossRef]
- 12) Bondarouk, T.; Parry, E.; Furtmueller, E. Electronic HRM: Four decades of research on adoption and consequences. *Int. J. Hum. Resour. Manag.* 2017, 2, 98–131. [Google Scholar] [CrossRef] [Green Version]
- 13) Chae B (2019) A General framework for studying the evolution of the digital innovation ecosystem: the case of big data. *Int J Inf Manag* 45:83–94
- 14) Cronin, B.; Morath, R.; Curtin, P.; Heil, M. Public sector use of technology in managing human resources. *Hum. Resour. Dev. Rev.* 2006, 16, 416–430. [Google Scholar] [CrossRef]
- 15) Curtis, B.; Hefley, B.; Miller, S. *People Capability Maturity Model (P-CMM), version 2.0*; Software Engineering Institute, Carnegie-Mellon University: Pittsburgh, PA, USA, 2009.
- 16) Gal, U.; Jensen, T.B.; Stein, M.-K. Breaking the vicious cycle of algorithmic management: A virtue ethics approach to people analytics. *Inf. Organ.* 2020, 30, 100301. [Google Scholar] [CrossRef]
- 17) Garcia-Arroyo J, Osca A (2019) big data contributions to human resource management: a systematic review. *Int J Human Resour Manag* 32:1–26
- 18) Gartner, 2023 <https://www.gartner.com/en/human-resources/topics/hr-technology-strategy>
- 19) Haines, V.Y.; Lafleur, G. Information technology usage and human resource roles and effectiveness. *Hum. Resour. Manag.* 2008, 47, 525–540. [Google Scholar] [CrossRef]
- 20) Hamilton, R.H.; Sodeman, W.A. The questions we ask: Opportunities and challenges for using big data analytics to strategically manage human capital resources. *Bus. Horiz.* 2020, 63, 85–95. [Google Scholar] [CrossRef]
- 21) Kehoe, R.R.; Han, J.H. An expanded conceptualization of line managers' involvement in human resource management. *J. Appl. Psychol.* 2020, 105, 111–129. [Google Scholar] [CrossRef]
- 22) Kellogg, K.C.; Valentine, M.A.; Christin, A. Algorithms at work: The new contested terrain of control. *Acad. Manag. Ann.* 2020, 14, 366–410. [Google Scholar] [CrossRef]
- 23) Khan Z, Vorley T (2017) big data text analytics: an enabler of knowledge management. *J Knowl Manag* 21(1):18–34
- 24) Kryscynski, D.; Reeves, C.; Stice-Lusvardi, R.; Ulrich, M.; Russell, G. Analytical abilities and the performance of HR professionals. *Hum. Resour. Manag.* 2018, 57, 715–738. [Google Scholar] [CrossRef]
- 25) Levenson, A. Using workforce analytics to improve strategy execution. *Hum. Resour. Manag.* 2018, 57, 685–700. [Google Scholar] [CrossRef]

- 26) Malik, A.; Budhwar, P.; Patel, C.; Srikanth, N.R. May the bots be with you! Delivering HR cost-effectiveness and individualized employee experiences in an MNE. *Int. J. Hum. Resour. Manag.* 2021. [Google Scholar] [CrossRef]
- 27) Marler, J.H.; Boudreau, J.W. An evidence-based review of HR Analytics. *Int. J. Hum. Resour. Manag.* 2017, 28, 3–26. [Google Scholar] [CrossRef] [Green Version]
- 28) Minbaeva, D. Human capital analytics: Why aren't we there? Introduction to the special issue. *J. Organ. Eff.* 2017, 4, 110–118. [Google Scholar] [CrossRef]
- 29) Minbaeva, D.B. Building credible human capital analytics for organizational competitive advantage. *Hum. Resour. Manag.* 2018, 57, 701–713.
- 30) Pak, J.; Kim, S. Team manager's implementation, high performance work systems intensity, and performance: A multilevel investigation. *J. Manag.* 2018, 44, 2690–2715.
- 31) Pallant, J.F., H. M. Haines, P. Green, J. Toohill, J. Gamble, D. K. Creedy & J. Fenwick Assessment of the dimensionality of the Wijma delivery expectancy/experience questionnaire using factor analysis and Rasch analysis, 2016
- 32) Panos, S.; Bellou, V. maximizing e-HRM outcomes: A moderated mediation path. *Manag. Decis.* 2016, 54, 1088–1109.
- 33) Pauleen DJ, Wang WY (2017) does big data mean big knowledge. *KM perspectives on big data and analytics. J Knowl Manag* 21(1):1–6
- 34) Quaosar, G.A.A.; Hoque, M.R.; Bao, Y. Investigation on the precursors to and effects of human resource information system use: The case of a developing country. *Cogent Bus. Manag.* 2018, 5, 1485131.
- 35) Rodgers W, Murray J, Stefanidis A, Degbey W, Tarba S (2023) An artificial intelligence algorithmic approach to ethical decision-making in human resource management progress. *Hum Resour Manag Rev* 33:100925
- 36) Shah N, Irani Z, Sharif AM (2017) big data in an HR context: Exploring organizational change readiness, employee attitudes and behaviors. *J Bus Res* 70:366–378
- 37) Shamim S, Yang Y, Zia UN, Shah HM (2021) big data management capabilities and their role in knowledge creation through big data, service innovation and online quality rating. *Comput Human Behavior.* <https://doi.org/10.1016/j.chb.2021.106777>
- 38) Shamim S, Zeng J, Khan Z, Zia NU (2020) Big data analytics capability and decision making performance in emerging market firms: the role of contractual and relational governance mechanisms. *Technol Forecast Soc Chang* 161:120315
- 39) Trullen, J.; Bos-Nehles, A.; Valverde, M. From intended to actual and beyond: A cross-disciplinary view of (human resource management) implementation. *Int. J. Manag. Rev.* 2020, 22, 150–176.
- 40) Van Esch, P.; Black, J.S.; Ferolie, J. Marketing AI recruitment: The next phase in job application and selection. *Comput. Hum. Behav.* 2019, 90, 215–222.
- 41) Voermans, M.; van Veldhoven, M. Attitude towards E-HRM: An empirical study at Philips. *Pers. Rev.* 2007, 36, 887–902.
- 42) Wahyudi, E.; Park, S.M. Unveiling the value creation process of electronic human resource management: An Indonesian case. *Public Pers. Manag.* 2014, 43, 83–117. Zeng J, Glaister KW (2018) Value creation from big data: looking inside the black box. *Strateg Organ* 16(2):105–140.
- 43) Zhou, Y.; Liu, G.; Chang, X.; Wang, L. The impact of HRM digitalization on firm performance: Investigating three-way interactions. *Asia Pac. J. Hum. Resour.* 2021, 59, 20–43.