Reimagining Gender-Inclusive Leadership: A Conceptual Analysis of Digital HRM Practices and Structural Barriers

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ABSTRACT

Persistent gender disparities in leadership remain a critical global and national concern despite decades of policy interventions and organisational reform. Structural barriers embedded within recruitment, promotion, performance evaluation, and work-life systems continue to impede women's upward mobility, particularly in regions such as Southeast Asia, where socio-cultural norms intensify workplace inequalities. In Malaysia, women remain underrepresented in senior and strategic leadership roles, signalling the need for transformative mechanisms that address organisational bias at a systemic level. This conceptual article examines how Digital Human Resource Management (Digital HRM) can serve as a strategic enabler to reduce gendered structural barriers and promote gender-inclusive leadership pathways. Adopting a conceptual methodology, the study synthesises international and Malaysian literature, integrates relevant theoretical perspectives, including structural barriers theory, gendered organisational theory, and digital transformation frameworks, and proposes a comprehensive conceptual model explaining the mechanisms through which Digital HRM can enhance women's leadership outcomes. The analysis shows that digital recruitment systems, algorithmic decision-making, HR analytics, and digital performance management hold potential to mitigate bias by increasing transparency, standardising evaluation processes, and improving access to leadership development opportunities for women. Furthermore, digital work arrangements and virtual learning ecosystems can enhance leadership readiness and work-life integration. However, the article also underscores that digitalisation alone does not guarantee equity; without strong governance, algorithmic systems may replicate existing biases. The implications of this study extend to organisational policy, national HR governance, and gender-inclusive digital transformation strategies. This conceptual work offers theoretical contributions to the intersection of gender studies and digital HRM and provides a foundation for future empirical research examining digital enablers of women's leadership advancement.

Keywords: Digital Human Resource Management (Digital HRM), Gender-Inclusive Leadership, Structural Barriers, Algorithmic Decision Making, Women's Leadership Advancement

INTRODUCTION

Digital technologies are reshaping how organisations design, deliver and evaluate human resource management (HRM) practices. The emergence of digital HRM, including e-HRM systems, HR analytics, and platformised talent tools, is widely argued to transform traditional HR routines, from recruitment and selection to performance appraisal and leadership development (Strohmeier, 2020). This digitisation creates both opportunities and risks; which digital tools can reduce process friction and create more transparent, data-driven decision pathways; conversely, they can encode existing biases and introduce new digital divides if not designed and governed inclusively.

Concurrently, women remain underrepresented in senior leadership positions everywhere despite steady gains in education and labour-market participation (Garcia, 2023). Structural barriers such as organisational practices,

biased evaluation systems, glass-ceiling mechanisms, and culturally embedded gender norms that continue to constrain women's leadership pipelines (Garcia, 2023). Contemporary scholarship suggests that digital HRM has the potential to alter those structural levers; as when deployed with equity-focused design and analytics, digital HRM can increase transparency in promotion and pay decisions, standardise selection criteria, and broaden access to leadership development resources, thereby lessening some organisational barriers to women's progression. However, the potential remains uneven across contexts and is contingent on strategic alignment, governance and the digital maturity of HR functions.

Despite these promising linkages, the literature reveals important gaps. Much of the scholarship on digital HRM remains conceptual or focused on organisational performance more generally, with limited theoretical work that integrates gendered organisational structures and the mechanisms through which digital HRM mitigates (or reproduces) gendered disadvantage. Several recent syntheses highlight the co-evolutionary dynamics between digitalisation and inclusive HRM practices, but stop short of offering a testable, gender-sensitive conceptual framework that explicates pathways from specific digital HRM practices to measurable reductions in structural barriers for women leaders. This conceptual gap constrains both theory building and empirically actionable guidance for HR practitioners seeking to leverage digitalisation for gender equity (Walkowiak, 2024).

The Malaysian context exemplifies the mixed reality of digital HRM's promise. Malaysian organisations have accelerated digital HR adoption in recruitment, learning management systems and performance platforms; yet cultural norms, organisational role expectations and sectoral segregation continue to limit women's leadership representation, particularly in male-dominant sectors such as engineering and finance. Empirical and review studies focused on Malaysia highlight persistent leadership obstacles (for example, stereotyping, work-family tensions, and weak access to leadership networks), even as digital HR tools are introduced (Mazlan, 2023; Rasdi, 2020). This juxtaposition suggests that digital HRM could be an enabling mechanism in Malaysia, but only if digital practices are deliberately configured to dismantle structural barriers (for example, by anonymising selection, auditing algorithmic decisions for adverse impact, and ensuring equitable access to development platforms).

Accordingly, this conceptual article develops an integrative model that links specific digital HRM practices (e-recruitment with bias-mitigation features, HR analytics for promotion equity, digital learning and mentoring platforms, and algorithm-governance mechanisms) to the principal categories of structural barriers that impede women's leadership advancement (selection bias, opaque promotion processes, limited access to developmental capital, and inflexible work designs). The model also identifies boundary conditions such as organisational digital maturity, HR strategic intent, and governance safeguards that moderate whether digital HRM functions as a corrective or a reproducer of gendered inequalities. By synthesising existing streams on digital HRM, HR analytics, and gendered organisational structures, the article aims to (a) offer a clear conceptualisation of causal pathways, (b) propose measurable propositions for future quantitative testing, and (c) provide actionable implications for HR strategy and policy in Malaysia and comparable emerging economies (Strohmeier, 2020; Walkowiak, 2024).

In sum, while digital HRM affords significant theoretical and practical promise to reduce structural barriers to women leaders, realising that promise requires conceptual clarity about mechanisms, moderators and measurement (Garcia,2023). The following sections review relevant literature, present the conceptual model and propositions, and conclude with research and practice implications aimed at both global and Malaysian audiences.

LITERATURE REVIEW

Theoretical foundations: Digital HRM, Sociotechnical Change and Gendered-Organisations

Digital HRM scholarship has matured from early e-HRM debates into a more nuanced body of work that conceptualises HR digitisation as an organisational transformation involving technology, processes and people (i.e., a sociotechnical reconfiguration). Strohmeier's (2020) conceptual clarification remains a foundational reference: it locates digital HRM as an evolutionary advance that subsumes e-HRM, digitisation and digital transformation, and argues for analytic precision when studying mechanisms, outcomes and boundary

conditions. This sociotechnical lens emphasises that technology alone does not determine outcomes such as organisational structures, practices and power relations mediate effects, which makes it essential to combine digital HRM theory with organisation and gender theories when investigating leadership outcomes.

The gender and leadership literatures supply complementary theoretical frames. Role congruity theory and the glass-ceiling metaphor explain how normative expectations about gender and leadership produce systematic disadvantage for women in selection and promotion processes; institutional and network theories explain how access to social capital, mentoring and sponsorship (Strohmeier, 2020) is unevenly distributed along gender lines. Integrating these theories with digital HRM enables scholars to ask whether digital tools dismantle, reproduce or reconfigure the organisational mechanisms that sustain gender inequalities in leadership. This multi-theoretical integration is necessary to move beyond technological determinism and to theorise conditional pathways from specific digital HRM practices to gendered leadership outcomes.

Digital HRM Practices

Contemporary digital HRM encompasses multiple practices with distinct mechanisms such as algorithm-assisted screening (AI in recruitment), HR analytics (for promotion and talent decisions), digital learning and mentoring platforms, and digital performance management (Stachová, 2024; Bandara, 2025). Each practice offers a plausible pathway to reduce structural frictions. For example, anonymised e-recruitment can reduce name-based bias; HR analytics can surface promotion disparities; online learning platforms can broaden access to development resources. Yet, scholarly and practitioner reviews caution that these technologies are ambivalent without equity-oriented design and governance; they can encode historical bias in training data or increase surveillance and control that disproportionately penalise women. Thus, empirical and conceptual work must identify specific mechanisms (e.g., anonymisation, adverse-impact auditing, explainable algorithms, transparency) that make digital HRM practices gender-corrective rather than gender-replicative.

Recent empirical studies have begun to test these mechanisms. Research on e-HRM adoption shows positive associations with process efficiency and engagement, but effect sizes for equity outcomes are weak and moderated by organisational size and digital maturity (Stachová, 2024). Studies of AI in recruitment and selection reveal repeated instances where models reproduce historical hiring patterns unless actively de-biased reveals a finding that highlights the need for human oversight, fairness metrics and governance frameworks within HR functions. These findings underscore that digital HRM's potential for gender inclusion is contingent, not automatic.

Structural Barriers to Women's Leadership: Global Patterns and Malaysian Particularities

Extensive cross-national research documents the persistent underrepresentation of women in senior leadership despite educational parity in many countries; organisational barriers such as opaque promotion processes, biased performance appraisal systems, minimal access to sponsorship and sectoral segregation are consistently implicated (Strohmeier, 2020). Globally, scholars argue that patchworks of Diversity, Equity and Inclusion (DEI) programs improve visibility but seldom change structural promotion mechanisms. This global evidence suggests that tools that only increase representation at entry or mid-levels will not necessarily translate into substantial gains at the leadership apex without structural reform.

Malaysia exhibits both convergence with global patterns and distinct local dynamics. Empirical studies and policy reviews in Malaysia report persistent stereotyping, career interruptions due to caregiving, and limited access to leadership networks as chief obstacles for women seeking senior roles across public and private sectors (Othman, 2023). Sectoral concentration of women in lower-status occupations, cultural expectations, and inconsistent implementation of family-friendly policies further constrain leadership pipelines. At the same time, Malaysian organisations have been adopting e-HR and HR analytics tools, often motivated by efficiency rather than equity goals; thus, Malaysia provides a critical empirical context in which to theorise whether, and under what governance arrangements, digital HRM can reduce structural barriers to women's leadership.

Moderators and Boundary Conditions: Digital maturity, HR strategic intent and governance

Scholars emphasised boundary conditions that moderate whether digital HRM functions as a corrective to gendered inequality. Organisational digital maturity is the depth of digital integration across HR and line management, which conditions whether analytics and AI are deployed with methodological rigour and fairness checks. HR strategic intent and leadership commitment to gender equity shape the goals that guide system configuration, data governance and evaluation metrics. Finally, governance mechanisms (algorithmic auditing, transparency, human-in-the-loop decision protocols) determine whether digital systems are monitored for adverse impact and corrected. Research indicates that high digital maturity combined with explicit equity goals and governance is necessary for digital HRM to reduce structural barriers; absent these conditions, technology often reproduces existing patterns (Strohmeier, 2020). This moderation emphasises points to testable propositions for empirical research.

Measurement and Methodological Gaps in the Literature

Existing empirical studies on digital HRM frequently prioritise organisational outcomes (efficiency, engagement, turnover) or technical performance (classification accuracy) over equity-focused metrics (promotion parity ratios, adverse-impact statistics, differential access to developmental capital) (Stachová, 2024; Mujtaba, 2025). There is a shortage of validated measurement instruments that operationalise "structural barriers" in ways which are compatible with HR analytics (for instance, standardised indices of promotion transparency, network centrality measures for sponsorship access, and longitudinal indicators of career mobility). Additionally, most studies are single-country or single-sector, limiting generalisability. These methodological gaps constrain rigorous quantitative testing of causal pathways linking digital HRM practices to reductions in structural barriers.

The Policy and Ethical Gap: Algorithmic governance and DEI accountability

While technical scholarship on algorithmic fairness grows rapidly, integration with HR policy and DEI practice lags. Important contributions in 2024–2025 propose governance frameworks and dynamic capabilities to detect and remediate algorithmic bias in people management, but few studies evaluate how governance frameworks are operationalised within HR functions or measure their downstream effects on women's leadership outcomes. This is an actionable gap: without comparative evidence about which governance mechanisms (for example, adversarial testing, regular adverse-impact audits, inclusive training datasets) produce measurable equity gains, HR practitioners lack evidence-based pathways to design digital systems that materially reduce structural barriers (Bandara, 2025; Soleimani, 2025).

Addressing Research Gaps and Novelty

Building on the literature above, three gaps motivate this article and define its novel contribution. First, the literature lacks an integrated, gender-sensitive conceptual model that maps specific digital HRM practices to the principal categories of structural barriers affecting women's leadership, and that also specifies moderators (digital maturity, HR strategic intent) and governance mechanisms (Islam, 2025). Second, there is limited translation of technical fairness methods into HR-centric propositions and measurable constructs suitable for quantitative testing (for instance, operational definitions of anonymisation, adverse-impact audit frequency, mentorship-platform uptake) (Bandara, 2025). Third, the Malaysia case illustrates a middle-income, culturally plural context where digital HRM adoption is accelerating but equity outcomes are uncertain, as comparative theory that accounts for institutional and cultural boundary conditions is sparse. This conceptual article addresses these gaps by proposing (a) a mechanism-based conceptual model linking discrete digital HRM practices to structural barriers, (b) operational propositions for quantitative testing (including suggested indicators and metrics), and (c) contextualised policy implications for Malaysia and comparable emerging economies. The proposed model offers novelty both in theoretical integration and practical prescriptiveness for research and HR practices.

Conceptual Framework

Figure 2.0 Conceptual Framework of Reimagining Gender-Inclusive Leadership

METHODOLOGY

Research Design, Population, Sample Size, and Sampling Technique

This study adopts a conceptual–quantitative hybrid design, where a theoretically driven conceptual model is proposed and accompanied by a quantitative methodological plan to allow future empirical validation. A cross-sectional, explanatory research design is adopted, suitable for testing directional relationships between digital HRM practices, structural barriers, and women's leadership outcomes (Creswell & Creswell, 2023). This design aligns with prior HRM and gender studies that examine organisational phenomena at a single point in time and allow for hypothesis testing through multivariate analyses.

The population for the future empirical phase comprises professional women employees and mid-level managers in Malaysian private and public organisations experiencing digital HRM adoption. This population is relevant because structural barriers and digital HRM systems manifest most visibly within leadership pipelines. The target sample size is determined based on structural equation modelling (SEM) requirements, which recommend a minimum of 10 to 20 respondents per estimated parameter or a threshold of 300 or more for complex models (Hair et al., 2022). Therefore, an estimated sample of 350 to 400 respondents is considered adequate to ensure statistical power, account for missing data, and support robust CFA and SEM analyses.

A stratified random sampling technique is recommended for future empirical implementation, ensuring representation across key organisational strata: sector (public vs. private), industry type (services, finance, manufacturing, digital industry), and hierarchical level. Stratification increases generalisability and reduces sampling bias in HRM and gender-focused research (Clark, 2021).

Data Collection

For future quantitative validation, data will be collected using a structured, self-administered questionnaire distributed through secure online platforms (e.g., Qualtrics or Google Forms). Online administration is suitable for HRM research in digitally enabled organisations, increases reach, and facilitates real-time monitoring of response rates (Saunders et al., 2019). Before data collection, approval from an Institutional Review Board (IRB) or ethics committee will be obtained to ensure compliance with ethical standards related to confidentiality, anonymity, voluntary participation, and informed consent.

A pilot test involving at least 40 respondents (preferably female leaders, HR managers and organisational scholars) will be conducted to refine items, confirm measurement reliability, and assess initial factor structure in the questionnaire. The test is significant to evaluate clarity, readability and content relevance. Participation will

be voluntary, and no personally identifiable information will be collected to reduce social desirability bias, which is common in gender-related organisational research (Podsakoff et al., 2012).

Data Analysis

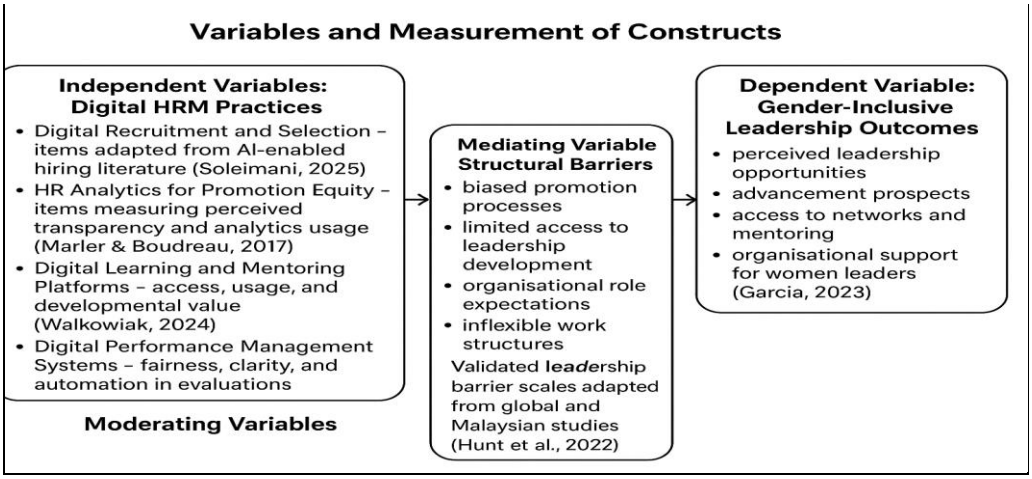
Data analysis will follow a multi-stage approach. First, descriptive statistics (frequency, mean, and standard deviation) will be computed to profile respondents and examine the distribution of constructs. Second, Confirmatory Factor Analysis (CFA) will be employed to evaluate the measurement model, ensuring construct reliability, convergent validity, and discriminant validity (Hair et al., 2022). Third, Structural Equation Modelling (SEM) using software such as AMOS or SmartPLS will test the hypothesised relationships between digital HRM practices, structural barriers, and gender-inclusive leadership outcomes.

SEM is appropriate because it accounts for measurement errors, supports simultaneous analysis of complex interrelationships, and aligns with theory-driven HRM studies (Kline, 2023). Mediation and moderation effects, such as the moderating roles of digital maturity and HR strategic intent, will also be assessed using bootstrapping techniques to ensure robust inference. Goodness-of-fit indices (CFI, TLI, RMSEA, SRMR) will guide model evaluation based on established thresholds.

Variables and Measurement

Measurement items will be adapted from validated scales in digital HRM, gender and leadership, and organisational behaviour literature. All items will be measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), consistent with previous HRM research (Strohmeier, 2020).

Figure 3.0 Variables and Measurement



Reliability and Validity of Construct Measurement

Reliability and validity are central to ensuring robustness of the proposed empirical evaluation. Internal consistency reliability will be assessed using Cronbach's alpha and Composite Reliability (CR), with thresholds ≥0.70 considered acceptable (Hair et al., 2022). Convergent validity will be evaluated via Average Variance Extracted (AVE), where values ≥0.50 indicate adequate construct convergence.

Discriminant validity will be assessed using the Fornell-Larcker criterion and Heterotrait-Monotrait Ratio (HTMT). HTMT values below 0.85 indicate satisfactory discriminant validity (Henseler et al., 2015). Content validity will be established through expert review by HR professionals and gender scholars during instrument development, while face validity will be assessed during pilot testing. Finally, common method bias will be addressed through procedural remedies-such as ensuring anonymity and separating constructs in the questionnaire and through statistical tests such as Harman's single-factor test and marker variable technique (Podsakoff et al., 2012).

DISCUSSION

This conceptual analysis highlights how the strategic deployment of Digital Human Resource Management (Digital HRM) can reshape organisational structures that traditionally impede women's leadership advancement. Consistent with global scholarship, our analysis reaffirms that systemic biases embedded in recruitment, performance evaluation, and career development processes remain key contributors to gendered leadership disparities (Eagly & Carli, 2007; Ridgeway, 2011). In Malaysia, these challenges continue to be exacerbated by sociocultural norms, organisational hierarchies, and limited institutional mechanisms that support women's career progression (Ismail & Ibrahim, 2020). As organisations increasingly transition toward digitalised HR ecosystems, Digital HRM presents an opportunity to redesign these mechanisms through greater transparency, reduced subjectivity, and evidence-based decision-making (Bondarouk & Brewster, 2016; Strohmeier, 2020).

Findings from the literature indicate that algorithmic hiring, digital talent analytics, and automated performance monitoring help minimise human-driven biases by standardising evaluation criteria (Meijerink et al., 2021). For women leaders, such systems hold the potential to reduce structural disadvantages that often arise from discretionary judgments, gatekeeping behaviours, and visibility gaps within male-dominated organisational cultures (Ladge et al., 2019). Moreover, flexible work technologies and digital performance tracking have been shown to enhance work-life balance for women, a factor that remains critical in gendered labour markets in Asia, including Malaysia (Hashim et al., 2022). However, the literature also warns that digitalisation does not automatically produce equitable outcomes unless algorithmic systems are designed with gender-sensitive parameters (Ajunwa, 2020). Thus, Digital HRM can either function as a tool for dismantling inequality or unintentionally reproduce existing biases depending on governance quality, data integrity, and ethical oversight.

The conceptual model proposed in this article positions Digital HRM as a strategic enabler of inclusive leadership ecosystems. By rethinking how organisational structures shape leadership experiences, this analysis contributes to emerging scholarship on gender-responsive digitalisation in Southeast Asia (ILO, 2022). The novelty of this study lies in its integration of structural barrier theory with digital transformation literature, offering a multi-level perspective on how digital systems can recalibrate leadership pipelines for women. Overall, the synthesis demonstrates that Digital HRM is not merely a technological upgrade but a transformative organisational capability capable of fostering gender-inclusive leadership cultures when supported by strong policy and governance frameworks.

Policy Implications

The findings have several policy implications for organisations, government agencies, and regional bodies advocating gender-inclusive leadership. First, organisations should institutionalise gender-sensitive digital HRM guidelines to ensure that algorithms used in recruitment, promotion, and performance evaluation do not reinforce gender biases. This aligns with international recommendations emphasising the importance of algorithmic transparency and ethical HR technology governance (OECD, 2021). HR analytics policies should mandate regular audits of AI-driven decision-making processes to identify disparate impacts on women.

Second, public-sector reform agencies and ministries of human resources should promote national HR digitalisation standards that incorporate gender equity indicators. For Malaysia, this aligns with the country's Shared Prosperity Vision 2030 and its commitment to enhancing female labour-force participation (Ministry of Women, Family and Community Development, 2021). Integrating digital gender-equality metrics into organisational HRIS systems would allow both public and private institutions to monitor progress in real time.

Third, organisations should allocate funding and resources to develop inclusive digital leadership pipelines, including digital competency training, mentorship platforms, and virtual learning ecosystems tailored to women leaders. Empirical evidence shows that digital upskilling significantly boosts women's leadership participation in technologically transforming economies (UN Women, 2022).

Fourth, policymakers and organisations should promote flexible, digitally enabled work policies, which have been shown to mitigate structural constraints related to caregiving responsibilities as it is one of the most persistent barriers for women in Malaysia and globally (Chung & van der Horst, 2020). However, these policies

must be supported by performance metrics aligned with outcomes rather than physical presence to avoid penalising women who utilise flexible arrangements.

Finally, regional bodies such as ASEAN should advance multi-country knowledge-sharing platforms to exchange best practices on Digital HRM governance and gender-inclusive leadership frameworks. Cross-national collaboration would help harmonise standards and facilitate capacity-building for organisations at different stages of digital transformation.

Precisely, these policy implications emphasise that digitalisation alone is insufficient; rather, Digital HRM must be embedded within a deliberate gender-responsive governance framework. Through strategic implementation, Digital HRM can serve as a powerful mechanism for dismantling structural barriers, enabling women to thrive in leadership roles across Malaysia and the broader global landscape.

CONCLUSION

This article examined how Digital Human Resource Management (Digital HRM) can help dismantle structural barriers that impede women's leadership advancement in contemporary organisations. Drawing on global and Malaysian literature, the analysis demonstrates that gendered barriers such as biased recruitment systems, opaque promotion structures, rigid work arrangements, and entrenched organisational norms continue to restrict women's upward mobility despite rising digitalisation (Eagly & Carli, 2007; Ismail & Ibrahim, 2020). The article argues that Digital HRM has the potential to transform these structural impediments by enabling greater transparency, data-driven decision-making, and inclusive talent development systems (Bondarouk & Brewster, 2016; Meijerink et al., 2021). Through its conceptual integration of structural barrier theory and digital transformation scholarship, this study provides a foundation for understanding how digital tools and HR analytics can reconfigure organisational systems to support gender-inclusive leadership pathways.

Theoretically, this article contributes to emerging HRM literature by presenting a multi-level conceptualisation that positions Digital HRM as an institutional mechanism capable of reshaping gendered organisational structures. It advances gender leadership theory by demonstrating how algorithmic systems, digital performance evaluation, and HR analytics can mitigate cognitive and structural biases that disadvantage women (Ajunwa, 2020; Ridgeway, 2011). This integration strengthens scholarly discussions on how digital transformation intersects with gender equality in leadership pipelines, particularly within Southeast Asian and Malaysian contexts, where socio-cultural norms continue to shape workplace hierarchies.

From a practical standpoint, the findings highlight the need for organisations to adopt gender-responsive digital HR policies, conduct regular audits of algorithmic systems, and embed equity indicators within HR analytics dashboards. Organisations should also expand digital leadership development programmes, flexible work systems, and digital mentoring platforms to support women's advancement (Hashim et al., 2022). National HR governance frameworks, especially in Malaysia, should integrate digital gender-equality metrics to monitor women's progression into leadership roles in alignment with national development agendas.

Despite its contributions, this article has limitations in scope. As a conceptual study, it does not empirically test the relationships proposed in the model. Additionally, the rapid evolution of digital technologies may affect the stability of Digital HRM constructs over time, requiring continual updating. The article also focuses primarily on formal organisational settings, leaving out informal sectors and micro-enterprises where many women in Malaysia and Asia remain concentrated.

Future research should empirically validate the conceptual model using quantitative, mixed-method, or multi-level approaches. Cross-country comparative studies are also needed to examine how different institutional and cultural contexts shape Digital HRM adoption and gender outcomes. Further, scholars should investigate algorithmic bias in HR technologies using real organisational datasets to explore how intersectional identities such as ethnicity, age, and socio-economic background interact with digital systems to influence women's leadership trajectories. Longitudinal studies will also be essential to understanding how digitalisation impacts gender-inclusive leadership over time. By addressing these gaps, future research can deepen insights into how

Digital HRM can become a transformative tool for advancing gender equality in leadership across Malaysia and globally.

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