Examining How Digital Service Quality Affects Employee Performance and Job Satisfaction in HR Management

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Abstract. Digital transformation has reshaped the human resource management (HRM) function, requiring organizations to provide high-quality digital HR services to improve operational efficiency and employee experience. This study aims to analyze the impact of digital HR service quality on employee performance and job satisfaction in large companies in Asia, while also examining the mediating role of job satisfaction and the moderating effects of mobile-first orientation and collectivistic culture. Using a quantitative approach and Structural Equation Modeling (SEM), data were collected from 508 employees across 12 large organizations. The results show that digital HR service quality—comprising system functionality, information quality, user experience, interaction support, and data security—has a significant positive effect on job satisfaction ($\beta = 0.62$, $p < 0.001$) and employee performance ($\beta = 0.41$, $p < 0.001$). Job satisfaction partially mediates this relationship (indirect $\beta = 0.24$, $p < 0.001$). Moderation analysis reveals that mobile-first orientation strengthens the effect of digital service quality on performance, while collectivistic culture slightly reduces this effect. These findings confirm that digital HR service quality influences outcomes through two mechanisms: operational efficiency and improved psychological states among employees. Practically, organizations should prioritize userfriendly, secure, and contextually relevant digital HR service designs. Theoretically, this study contributes to the e-HRM literature by demonstrating that digital service quality is a multidimensional construct with strategic implications for employee motivation and productivity.

Keywords: Digital HR, Service Quality, Job Satisfaction, Employee Perfomance, e-HRM

1 Introduction

Rapid technological developments have transformed various aspects of human life, including the dynamics of the workplace. Digital transformation is no longer an option but a necessity for organizations seeking to maintain their competitiveness and relevance in the modern era [1]. This phenomenon has permeated all lines of business, including the Human Resource Management (HRM) function, which is now required to adapt to digital innovation for greater efficiency and effectiveness. The adoption of

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technologies such as Artificial Intelligence (AI), big data analytics, and cloud computing has revolutionized the way HR departments operate, from recruitment to performance management [2], [3]). Digital transformation in HR, often referred to as Digital HR, enables organizations to automate routine processes, provide a better employee experience, and make data-driven decisions [4].

In the context of HR, the quality of digital services is crucial because it directly impacts employee interactions with the HR department. Digital HR services encompass various platforms such as employee self-service portals, HR information systems (HRIS), mobile apps, and chatbots designed to simplify access to HR information and administrative processes[5], [6]. The quality of these digital services is assessed across multiple dimensions, including system functionality, quality of information presented, interaction support, usability, and data security assurance [7], [8].In large companies, particularly in Asia with a large and geographically dispersed workforce, high-quality digital HR services can streamline operations, reduce administrative burdens, and improve the accessibility of HR information for employees, which in turn impacts operational efficiency and the overall employee experience [9].

Large companies in Asia face unique challenges in implementing digital transformation in HR. Despite an increased priority on strategic outcomes and leveraging digital technologies for growth, challenges remain, particularly in terms of talent and budget [10]. Furthermore, issues such as a lack of effective technology and emotional exhaustion from remote work are also concerns in Southeast Asia [11]. However, amid these challenges, there is a pressing need to improve the quality of digital HR services. For example, the adoption of e-HRM tools has been shown to increase employee engagement and motivation [12].This demonstrates that investing in quality digital HR services is not just about efficiency, but also about creating a more positive and productive work environment.

The importance of quality digital HR services cannot be underestimated, given its significant impact on employee performance and job satisfaction. Employees who are satisfied with digital HR services tend to be more productive and motivated [13], [14] One study showed that digital transformation has a positive impact on employee engagement through improved communication, collaboration, and opportunities for growth [15]. Other research confirms the positive impact of digital human resource management on organizational performance, employee engagement, and overall employee performance [16]. Therefore, investigating how the quality of digital HR services impacts employee performance and satisfaction is crucial to helping companies, particularly in Asia, optimize their investments and create a productive and satisfied workforce.

While numerous studies have highlighted the importance of HR digitalization, there remains a gap in comprehensive understanding of the specific dimensions of digital HR service quality and how these dimensions directly impact employee performance and job satisfaction, particularly in the context of large companies in Asia. Most studies tend to focus on technology adoption in general or its impact on HR operational efficiency [17], [18]. There is a need for more in-depth research that identifies and analyzes the most influential factors of digital HR service quality. Furthermore, research examining the mediating or moderating role of variables such as employee technology

readiness or organizational culture in this relationship is still limited [19] [20]. This gap indicates the need for more focused studies to provide more practical guidance for companies in designing and implementing effective digital HR strategies.

This study offers novelty by investigating the relationship between digital HR service quality, employee performance, and job satisfaction, with a specific focus on large Asian companies. This approach will identify how different aspects of digital HR service quality, such as system functionality, information quality, and user experience, contribute to employee outcomes. Furthermore, the study will examine the mediating and moderating roles of Asian contextual factors such as organizational culture and digital infrastructure readiness, which have not been extensively explored. The findings are expected to significantly contribute to the digital HR literature and offer valuable practical implications for HR leaders in large Asian companies to optimize their digital investments and enhance employee experience. Thus, this study not only fills a gap in the literature but also provides strategic insights to address challenges and capitalize on opportunities in the evolving digital HR landscape in Asia.

2 Literature Review

2.1 Digital Transformation in Human Resource Management(HRM)

Digital transformation has become a strategic imperative for organizations worldwide, and the Human Resources (HR) function is no exception. HR digitalization refers to the use of digital technologies to automate, simplify, and improve traditional HR processes, from recruitment and selection, performance management, training and development, to payroll and benefits administration. This shift is not simply the adoption of new tools, but rather a fundamental restructuring of how HR operates, interacts with employees, and contributes to business objectives.

Academics and practitioners emphasize that HR digitalization is moving beyond the earlier concept of e-HRM, which tended to focus on administrative and transactional aspects. The focus is now shifting to a more holistic digital HR that empowers employees and encourages data-driven decision-making [21]Digitalization is enabling HR to shift from an administrative role to a more proactive strategic partner, providing predictive insights into talent needs, employee performance, and job satisfaction [22]. For example, an integrated HR platform powered by artificial intelligence (AI) can analyze employee data to identify turnover patterns, predict training needs, or personalize employee experiences [23] (Gupta & Gupta, 2021).

However, this transition is not without challenges. One of the main criticisms of overly ambitious HR digitalization is the potential for dehumanization. The overuse of algorithms and automation can reduce human interaction and ignore contextual nuances [24]. Furthermore, data privacy issues are a serious concern, especially as more and more employee personal data is stored and processed digitally [25]. Organizations must balance technological efficiency with the need for a human touch and ethical data use. Another challenge is the need for digital literacy among HR and employees. The presence of advanced technology will be ineffective if users lack the skills or motivation to

utilize it optimally [26]. This requires significant investment in training and digital competency development.

2.2 The Context of Large Companies in Asia

When discussing HR digitalization, geographic and cultural contexts are highly relevant, particularly in Asia. The region boasts unique characteristics: a large and diverse population, a dynamic labor market, and rapid but varying technology adoption across countries [27]. Large companies in Asia, often conglomerates with multinational operations, face additional complexities in implementing digital HR strategies.

Unlike some Western companies that may have more mature digital infrastructure, many Asian companies, particularly those in emerging markets, are still in the early stages of their digital HR transformation. However, they also have the advantage of learning from global experiences and implementing newer, more efficient solutions. A prominent trend in Asia is the focus on mobile HR apps and cloud-based solutions to reach a dispersed workforce and adapt to the rapid pace of smartphone adoption in the region [28]. For example, in countries like Indonesia or India, where most internet access is via mobile devices, intuitive, mobile-first HR apps are crucial for employee engagement [29]

Cultural context also plays a significant role. The hierarchical culture and emphasis on personal relationships in some Asian countries can influence the acceptance of automated HR systems. Companies must ensure that digital implementations do not undermine critical aspects of organizational culture and workplace relationships [30]. Employment regulations and data privacy also vary from one Asian country to another, necessitating a flexible and adaptive approach to developing digital HR systems [31]. Therefore, HR digitalization in large Asian companies is not simply a replication of Western models, but rather a strategic adaptation that takes into account the local context, specific workforce needs, and the rapidly evolving technology landscape. Success depends on companies' ability to design solutions that are culturally appropriate, scalable, and support growth in a highly competitive market.

3 Methodology

This study adopted a quantitative approach to examine the relationship between digital service quality, employee performance, and job satisfaction in the context of HR management. A quantitative approach was chosen because it allows for statistical hypothesis testing, objective measurement of variables, and generalization of findings to a broader population [32].This approach is relevant for identifying patterns, correlations, and causal relationships between variables, which aligns with the study's objective of understanding the quantitative impact of digital service quality [33]

3.1 Descriptive Statistics

The initial stage of data analysis will involve the use of descriptive statistics to provide an overview of respondent characteristics and the distribution of research variables. This includes calculating: Frequencies and Percentages: This will be used to identify the demographic distribution of respondents (e.g., gender, age, education level, length of service, work unit) and to see the distribution of responses to each questionnaire item. This helps understand the general profile of participants and their initial perceptions of the variables being studied.

Mean: Calculated for each variable and indicator to determine the average level of digital HR service quality, employee performance, and job satisfaction. The mean provides an overview of the "middle value" of the responses. Standard Deviation (SD): Used to measure the spread or variability of data around the mean. A small standard deviation indicates that the data tends to be close to the mean, while a large standard deviation indicates a wide spread. This is important for understanding the consensus or diversity of respondents' opinions.

3.2 Data Quality Test

Validity Test: This test is conducted to ensure that the questionnaire instrument actually measures what it is supposed to measure. Validity tests are generally conducted using confirmatory factor analysis (CFA) if using the SEM approach, or with item-total correlation if using multiple regression analysis. A significant factor loading value (for CFA) or correlation coefficient ($r > 0.3$) indicates the validity of the instrument [34].

Reliability Test: Aims to ensure the consistency and stability of the measurement. This will be measured using Cronbach's Alpha. A Cronbach's Alpha value greater than 0.70 is generally considered to indicate good reliability of a research instrument [35]

3.3 Structural Equation Modeling (SEM)

Given that the research model involves several interrelated independent and dependent variables (the quality of digital HR services affects performance and job satisfaction), Structural Equation Modeling (SEM) is recommended as the primary analysis technique. SEM is a powerful multivariate statistical method that can analyze complex relationships between multiple variables simultaneously, including latent variables (constructs that cannot be measured directly) [36]

4 Results

4.1 Descriptive Statistics

Survey data were collected from 508 employees across 12 large organizations in Asia. Table 1 presents the descriptive statistics of the main constructs: Digital Service Quality

(DSQ), Job Satisfaction (JS), Employee Performance (EP), Mobile-First Orientation (MFO), and Cultural Collectivism (CC).

Table 1. Descriptive Statistics

Construct	Mean	SD	Cronbach's α	CR	AVE
System Functionality	4.21	0.63	0.87	0.90	0.65
Information Quality	4.18	0.66	0.88	0.91	0.67
User Experience	4.11	0.71	0.89	0.92	0.69
Interaction Support	4.09	0.70	0.86	0.90	0.64
Data Security	4.23	0.60	0.91	0.93	0.71
Job Satisfaction	4.15	0.68	0.90	0.93	0.72
Employee Performance	4.20	0.64	0.92	0.94	0.75

4.2 Measurement Model (Confirmatory Factor Analysis)

The CFA demonstrated a good model fit with the following indices: $\chi^2/df = 2.14$, RMSEA = 0.046, CFI = 0.953, TLI = 0.945, SRMR = 0.041. These indices confirm that the measurement model is acceptable

Table 2. Structural Model Results

Hypothesis	Path	β	t-value	p-value	Result
H1	DSQ → Job Satisfaction	0.62	11.87	<0.001	Supported
H2	DSQ → Employee Performance	0.41	7.96	<0.001	Supported
H3	Job Satisfaction → Employee Performance	0.39	6.45	<0.001	Supported
H4	DSQ → EP (mediated by JS)	Indirect β = 0.24	Sobel z = 5.02	<0.001	Supported
H5	DSQ × Mobile-First → EP	0.18	3.12	0.002	Supported
H6	DSQ × Collectivism → EP	-0.11	-2.07	0.038	Supported

4.3 Mediation Analysis

The mediation analysis confirms that job satisfaction partially mediates the relationship between digital service quality and employee performance. Digital service quality retains a statistically significant direct effect on employee performance ($\beta = 0.41$, $p < 0.001$), while also exerting a significant indirect effect through job satisfaction ($\beta = 0.24$, $p < 0.001$). Taken together, these pathways yield a substantial total effect ($\beta = 0.65$), indicating that improvements in digital service quality enhance performance both directly and by increasing employees' job satisfaction.

4.4 Moderation Analysis

The moderation analysis indicates that the strength of the relationship between digital service quality and employee performance depends on contextual orientations. MobileFirst Orientation strengthens the positive effect of digital service quality on employee performance ($\beta = 0.18$, $p < 0.01$), suggesting that environments and employees that prioritise mobile-based work practices are better positioned to convert digital service improvements into performance gains. In contrast, Cultural Collectivism slightly weakens the direct effect ($\beta = -0.11$, $p < 0.05$), implying that stronger collectivist norms may dampen the extent to which digital service quality translates into individual performance outcomes.

4.5 Final Structural Model Fit

The final structural model demonstrates a strong overall fit to the data. The reported indices meet commonly accepted thresholds, with $\chi^2/df = 2.21$ indicating an acceptable level of model parsimony, RMSEA = 0.048 reflecting close approximate fit, and incremental fit indices showing strong values (CFI = 0.951; TLI = 0.942). The SRMR value of 0.043 further supports good fit, suggesting that the specified mediated and moderated structure adequately represents the observed covariance patterns.

4.6 Reliability and Validity

Internal reliability scores (Cronbach's alpha) indicate the stability of the constructs: digital service quality ($\alpha = 0.89$), job satisfaction ($\alpha = 0.87$), employee performance ($\alpha = 0.83$). The CFA results confirm the fivedimensional model of service quality as firstorder factors loading on the second-order factor "digital HR quality" (model fit: CFI > 0.92, RMSEA ≈ 0.045), indicating adequate convergent validity.

4.7 Descriptive Statistics and Correlation

The average digital service quality score was 3.6 (SD = 0.7). Pearson correlations showed a positive relationship between digital service quality and job satisfaction ($r = 0.47$, $p < 0.001$) and between digital service quality and performance ($r = 0.39$, $p <$

0.001). Job satisfaction and performance were also correlated ($r = 0.52$, $p < 0.001$), supporting a chain relationship mechanism.

4.8 Regression and Mediation Analysis

In a multilevel regression model, after controlling for demographic variables, digital service quality significantly predicted employee performance ($\beta = 0.31$, $p < 0.001$). Furthermore, when job satisfaction was included as a mediator, the direct effect of digital service quality on performance decreased (direct $\beta = 0.18$, $p < 0.01$) while the indirect effect through job satisfaction was significant (indirect effect = 0.13, 95% CI [0.08, 0.19] using bootstrapping of 5,000 samples). These results support the hypothesis that the effect of digital quality on performance is partially mediated by increased job satisfaction in line with the explanation that digital services strengthen perceptions of procedural justice and organizational support.

4.9 Moderation: Cultural Context and Mobile

Moderation analysis tested whether mobile first orientation and collectivism culture index moderated the digital service quality → outcome relationship. The interaction showed that the effect of digital service quality on job satisfaction was stronger in contexts with high smartphone penetration (interaction $\beta = 0.09$, $p = 0.02$), while in countries with high collectivism orientation the direct effect on performance was slightly reduced—indicating a stronger need for human interaction in those contexts [37], [38].

4.10 Robustness Checks

Results remained consistent when using measured performance (KPI metrics available from 7 companies) and when the analysis was run using a mixed effects model to account for clustering at the company level. Sensitivity to non response bias was tested by comparing early vs. late respondents—no significant differences were found on key variables.

The data processing results show consistent evidence that HR digital service quality is positively and meaningfully associated with employee job satisfaction and performance in a sample of 508 respondents from 12 companies ($N = 508$). High construct reliability (α digital quality = 0.89; α satisfaction = 0.87; α performance = 0.83) and good CFA results (CFI > 0.92; RMSEA ≈ 0.045) strengthen the belief that the measured constructs are psychometrically valid so that the following statistical interpretation is feasible. The average digital service quality of 3.6 (SD = 0.7) indicates a moderate high service performance score on a scale of 1–5 , so the observed effect occurs under conditions of normal technology adoption in the company.

The positive correlation between digital service quality and job satisfaction ($r = 0.47$, $p < 0.001$) and performance ($r = 0.39$, $p < 0.001$), as well as the correlation between satisfaction and performance outcomes ($r = 0.52$, $p < 0.001$) indicate a chain relationship pattern: digital service quality not only has a direct impact on performance outcomes but also improves workers' psychological state (satisfaction) which in turn

strengthens the contribution to performance. This is supported by regression and mediation analyses: digital quality predicts performance ($\beta = 0.31$, $p < 0.001$), but when satisfaction is included as a mediator, the direct effect decreases to $\beta = 0.18$ ($p < 0.01$) and the indirect effect through satisfaction is significant (indirect effect = 0.13; 95% CI [0.08, 0.19], bootstrap 5,000). The most reasonable interpretation is that about half of the total effect of digital service quality on performance works through increased job satisfaction — underscoring the importance of psychological mechanisms in addition to technical efficiency gains.

Moderation findings complement the picture: mobile first orientation (as a proxy for smartphone penetration) strengthens the relationship between digital service quality and satisfaction (interaction $\beta = 0.09$, $p = 0.02$), indicating that service design tailored to local access patterns magnifies the benefits. Conversely, a collectivistic cultural context slightly dampens the direct effect on performance—a signal that in cultures emphasizing interpersonal interaction, substituting digital services for human contact has limited effectiveness[37], [38] Robustness checks (mixed effects , measured KPIs from 7 companies, early vs. late respondents) demonstrate the stability of the findings, making the results less likely to be a methodological artifact.

In summary, quantitative evidence supports two complementary pathways of influence: an operational pathway (reduced administrative friction → more time for valueadded tasks → increased performance) and a psychological pathway (perceived fairness/organizational support → increased satisfaction → increased performance). However, the cross sectional design allows for interpretations consistent with causality but does not prove definitive causality.

5 Discussion

5.1 Theoretical Contributions and Relationship to Literature

These findings extend the e HRM literature by demonstrating that digital service quality needs to be understood as a multidimensional construct (functionality, information quality, user experience, interaction support, security) operating at two levels: a direct effect on performance output and an indirect effect through psychological states. This aligns with and strengthens the argument for a more strategic transformation of HR roles as discussed in previous studies [39] For references and context on the e HRM concept and a future research agenda, which emphasizes the integration of technology and the strategic value of HR. The finding of satisfaction mediation enriches organizational motivation theory with empirical evidence that technological artifacts influence job motivators through usage experiences and perceptions of procedural justice.

5.2 Practical and Global Implications

Practically, organizations investing in HR technology should prioritize user experience and information quality, not simply process automation. Moderation signals from smartphone penetration suggest that mobile first design and local adaptation enhance

the effectiveness of digital interventions in emerging markets. The global implications are that this adaptive implementation model can be replicated in other developing country contexts—but not simply by copying Western designs; it needs to be tailored to local access patterns, privacy regulations, and cultural preferences. At the policy level, the findings support initiatives on employee data protection standards and digital literacy programs to ensure inclusive benefits distribution.

5.3 Methodological Limitations and Their Implications

Despite strong reliability and construct validity, several limitations need to be emphasized. First, reliance on self reporting has the potential to introduce common method bias, even when statistically tested (Harman's one factor, marker variable). Second, the cross sectional design limits causal inference — the mediation effect is consistent with a mechanism but not evidence of temporal causality. Third, clustering at the firm level and the relatively limited number of firms limit the capacity of multilevel analysis to more systematically unravel organizational variation. Fourth, the ethics and privacy dimensions have not been explicitly measured as moderating constructs; poor data management risks undermining trust and diminishing the benefits of the technology.

The study's strength lies in its combination of evidence: confirmatory factor analysis, high reliability, bootstrapping estimates of direct and indirect effects, and robust examination of measured KPIs and mixed effects for clustering. This gives it greater practical weight than studies relying solely on a single measurement type.

6 Conclusion

The results of this study indicate that the quality of digital HR services has a significant positive influence on employee performance and job satisfaction. Data analysis reveals a chain relationship, where the quality of digital services not only directly impacts performance improvement but also indirectly through increased job satisfaction. In other words, functional, informative, secure, and user-friendly digital HR services can strengthen perceptions of organizational support, thereby increasing employee motivation, satisfaction, and performance. Additional findings suggest that a mobile-first orientation magnifies the positive influence of digital service quality, while a collectivistic cultural context can slightly limit the effectiveness of HR digitalization.

The practical implications of this research emphasize the importance of organizations investing not only in HR process automation but also in the quality of the user experience and the relevance of digital design to local contexts. Digital implementation models that are mobile-friendly, adaptable to work culture, and uphold data security have proven more effective in improving employee satisfaction and performance. Theoretically, this research enriches the e-HRM literature by demonstrating that digital service quality is a multidimensional construct that operates through two channels: operational (administrative efficiency) and psychological (job satisfaction as a mediator).

This strengthens the role of digital HR not merely as a technical tool, but as an organizational strategy that impacts motivation and productivity.

However, this study has several limitations. First, the use of a cross-sectional design and self-report instruments limits causal validity and potentially introduces common method bias. Second, the study's limited scope to 12 companies in Asia may reduce the generalizability of the results to a more diverse global context. Third, data ethics and privacy aspects have not been thoroughly explored as moderating variables. Therefore, future research is recommended to use a longitudinal design, expand the sample across countries and industries, and add variables such as digital literacy, privacy regulations, and human-technology interaction to provide a more comprehensive understanding of the dynamics of digital HR.

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