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Mediating Role of Digital Service Adoption in Enhancing Human Resource Management Capacity of SMEs

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Abstract

In the context of rapid digital transformation, small and medium enterprises (SMEs) increasingly recognize the necessity of adopting digital services to enhance their human resource management (HRM) capabilities. This study aims to investigate the mediating role of digital service adoption in improving HRM capacity among Vietnamese SMEs. The Resource-Based View draws upon the Technology-Organization-Environment framework; the research examines how leadership support, organizational readiness, policy mechanisms, perceived benefits, and organizational culture influence digital service adoption and HRM development. A mixed-method was employed, combining qualitative interviews with 30 digital transformation experts across five major cities in Vietnam and a quantitative survey of 1,000 SME managers from July 2024 to February 2025. Structural equation modeling was utilized to test 11 proposed hypotheses. The results demonstrate that digital service adoption significantly enhances HRM capacity and mediates the relationships between organizational factors and HRM outcomes. Leadership support is the strongest predictor of digital adoption and HRM capacity, followed by perceived benefits and policy mechanisms. These findings emphasize the importance of strategic leadership, organizational preparedness, supportive policies, and a digital-friendly culture in fostering successful digital transformation in HRM. The novelty contributes a novel integrated model bridging digital transformation and HRM theories and offers practical insights for SME managers seeking to strengthen workforce capabilities in emerging economies.

Keywords:
Digital Transformation;
SMEs;
Human Resource Management;
Digital Service Adoption.

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1- Introduction

The extraordinary rate of digital revolution in the international economy has profoundly affected organizational operations, human capital management, and competitiveness. Digital technologies such as cloud computing, artificial intelligence, big data analytics, and mobile platforms have recently arisen as game-changers, enabling businesses to innovate, improve decision-making, and enhance operational efficiency [1]. Human resource management (HRM)'s many components are changing fast. Human resource information systems (HRIS), online talent acquisition platforms, cloud-based learning management systems, and AI-driven performance evaluation frameworks are some of the digital solutions that are helping organizations upgrade their strategies for acquiring, developing, engaging, and retaining talent [2].

There is a growing consensus that small and medium firms (SMEs) adopting digital technology is essential for sustainable development in rising economies like Vietnam. Numerous small and medium enterprises contribute substantially to the nation's GDP and employ many people. Even though they play a crucial role in the Vietnamese economy, many SMEs are still in the early phases of digital transformation, particularly in HRM. Lack of strategic

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leadership orientation toward digitalization, insufficient digital infrastructure, staff skill gaps, and limited financial and technological resources are some of the many obstacles these organizations frequently encounter [3]. This limits SMEs' potential to improve organizational agility, employee performance, and long-term competitiveness by limiting their ability to upgrade HRM procedures and exploit digital tools [3, 4].

Although considerable research has examined digital transformation in larger firms and developed economies, a notable gap exists concerning how digital service adoption affects HRM capacity, specifically within SMEs in emerging markets. Existing studies tend to either focus on technology adoption without linking it explicitly to HRM outcomes or investigate HRM development without integrating the digital context. Consequently, there is limited empirical evidence that comprehensively captures the interaction between internal organizational factors, such as leadership support, organizational readiness, and culture), external environmental enablers (policy mechanisms), perceived benefits of digital transformation, and the capacity-building processes in HRM among SMEs operating in transitional economies like Vietnam.

This study gap must be addressed since SMEs differ from large firms in resource allocation, decision-making, and culture. Digital project adoption and implementation may be affected by flatter organizational structures, centralized leadership, and more informal operational processes in SMEs [1, 4]. Government incentives and regulations affect SMEs' digital adoption habits more than larger firms. Both academic advancement and practical policy-making require a context-sensitive understanding of digital service adoption and SMEs' HRM capacity.

This study develops and evaluates an integrated conceptual model based on Institutional Theory, the organization's Resource-Based View (RBV), and the Technology-Organization-Environment (TOE) paradigm to fill that gap. Technology adoption is explained by the TOE framework, which considers technological, organizational, and environmental aspects [4]. Human capital and organizational culture are crucial to competitive advantage, according to the RBV. Institutional theory views policy procedures and industry standards as external incentives and organizational constraints. This study examines contextual factors and HRM competency growth in Vietnamese SMEs through digital service use.

The global acceleration of digital transformation has reshaped organizational practices, particularly in human resource management (HRM). Technologies such as cloud-based systems, artificial intelligence, and HR analytics have enabled firms to streamline recruitment, training, and performance management processes. While large corporations have widely adopted these innovations, small and medium enterprises (SMEs) in emerging economies often lag behind due to structural, cultural, and resource-related constraints [2, 3].

Recent studies have explored the factors influencing technology adoption in SMEs using frameworks such as the Technology Organization Environment (TOE) model and the Resource-Based View (RBV). However, few have focused on how digital service adoption specifically mediates improvements in HRM capacity within these smaller firms [4, 5]. In particular, there is a lack of integrated models examining internal enablers, e.g., leadership support, organizational readiness, and culture, and external drivers, e.g., policy mechanisms that shape HR transformation outcomes in transitional economies like Vietnam.

This study addresses that gap by developing and empirically testing a comprehensive model that investigates the mediating role of digital service adoption in enhancing HRM capacity among Vietnamese SMEs. Drawing on three complementary theoretical frameworks - TOE, RBV, and institutional theory- this research provides a nuanced understanding of how internal capabilities and institutional pressures jointly shape digital HR transformation. It also contributes to the literature by situating the analysis in a context underrepresented in prior research, thereby providing both conceptual enrichment and practical policy insights.

Specifically, the study examines five critical antecedents: leadership support, organizational readiness, policy mechanisms, perceived benefits, and organizational culture. Leadership support refers to the degree to which top management actively promotes, facilitates, and invests in digital transformation initiatives [5]. Organizational readiness captures the internal technical, financial, and human resource preparedness to embrace digital change. Policy mechanisms encompass governmental or institutional programs that encourage digital adoption among enterprises, including financial subsidies, regulatory clarity, and training initiatives. Perceived benefits pertain to how SME managers and employees recognize digital services' tangible and strategic advantages. Finally, organizational culture reflects the shared values, norms, and attitudes that facilitate or hinder innovation, technological openness, and change readiness within firms.

Using a mixed-methods approach, the research first refines measurement constructs through qualitative interviews with 30 digital transformation experts from five major Vietnamese cities. Subsequently, a large-scale quantitative survey of 1,000 SME managers across 10 provinces and towns provides robust empirical data. Structural Equation Modeling (SEM) is employed to validate the research model and test 11 hypotheses regarding the direct and mediating effects of the key variables.

This study contributes to the extensive literature in several ways. First, it bridges the theoretical gap by integrating digital transformation and HRM development into a unified analytical model tailored to the SME context in an emerging economy. Second, it offers empirical validation of the mediating role of digital service adoption in strengthening HRM

capacity, an area that has been largely overlooked in prior research. Third, it extends the TOE framework by incorporating leadership support and organizational culture as critical factors and highlighting their influence on HRM outcomes. Fourth, it provides nuanced insights for motivating SME leaders by identifying practical levers such as leadership commitment, policy support, and fostering a digital-ready culture that can facilitate effective HRM modernization through digital adoption.

Lastly, small and medium enterprises (SMEs) in transitional economies must not be left out of the global digital economy. They must grasp the dynamics of digital service acceptance and HRM capacity development. This project hopes to help build more robust, creative, and inclusive business ecosystems in developing economies by educating HR experts and SME leaders with evidence-based insights and practical methods.

The remainder of this paper is structured as follows: Section 2 presents a detailed review of relevant literature and develops the research hypotheses. Section 3 describes the research methodology, including the mixed-method design, data collection procedures, and analytical techniques. Section 4 reports the results of the SEM analysis and discusses key findings. Section 5 offers theoretical and practical implications, policy recommendations, and limitations of the study, along with directions for future research.

2- Literature Empirical Review and Hypothesis Development

2-1- Human Resource Management Capacity (HRMC)

An organization's capacity to strategically and efficiently manage its human resources is known as human resource management. It is part of recruiting, developing, training, managing performance, engaging employees, and retaining talent. Human resource management competence in the digital era also comprises making better use of data and technology to make decisions [1, 6]. High HRM capability allows a company to react to change, grow sustainably, and connect HR with business strategy. To successfully navigate digital change, SMEs must enhance their HRM capacity. As a performance facilitator, it affects creativity, productivity, and the organization's ability to succeed in the long run [2, 7]. This study conceptualizes HRM capacity as a multidimensional construct capturing a firm's capabilities in recruitment, training, performance management, and the strategic use of HR technologies. It reflects how digital service adoption translates into organizational readiness and talent effectiveness.

2-2- Adoption of Digital Services (ADS)

When small and medium enterprises (SMEs) adopt digital services, they use and incorporate digital technology into their operations. This category includes resources such as HR information systems, online learning management systems, performance dashboards, digital recruitment platforms, and cloud computing [4, 8]. Technology must be actively utilized to enhance business processes and decision-making for it to be considered adopted [9]. Factors in the technical, organizational, and environmental domains all contribute to the widespread use of the TOE framework. To mediate the relationship between HRM inputs and outputs in terms of capacity, digital service adoption facilitates strategic workforce planning, boosts operational efficiency, and raises employee engagement [10].

2-3- Leadership Support (LS)

Leadership support is how much senior management promotes, facilitates, and invests in digital transformation and strategic HR development. It involves creating goals, allocating resources, and encouraging staff innovation [7, 11]. Leadership assistance is crucial in SMEs due to centralized decision-making and limited resources. Supportive leadership reduces change resistance and improves organizational readiness. Employee motivation is essential for digital efforts and HR capacity building. TOE and RBV frameworks see leadership support as a critical enabler of organizational transformation. Leadership support affects the adoption of digital services and human resource management capacity. Organizational functions, including HR management, are strategically guided by leadership support. Leaders actively supporting HR and digital transformation are more likely to invest in HR capacity, innovation, and workforce strategies matching technology development [8, 12]. Leadership vision and devotion may overcome structural constraints in SMEs.

Leadership involvement improves HRM results by empowering employees, developing capabilities, and learning institutions [13]. Also, leadership is crucial to digital transformation. Top management attitudes and decisions strongly impact digital service adoption in SMEs. Supportive leadership reduces change resistance, optimizes resource allocation, and fosters innovation. The technology-organization-environment framework and UTAUT model say top management support drives digital adoption [14]. Digital leaders boost workforce confidence and organizational readiness to use technology. Leadership support is critical in driving digital transformation initiatives, especially in SMEs with centralized decision-making. Effective leadership allocates resources and articulates a compelling vision, fosters innovation, and motivates employees to embrace change [9, 15]. Previous research indicates that leadership commitment significantly enhances technology adoption rates and strengthens HRM capabilities by enabling strategic workforce development. Therefore, the authors proposed H1 and H2 in Figure 1.

H1: Leadership support positively influences human resource management capacity (HRMC).

H2: Leadership support positively influences the adoption of digital services (ADS).

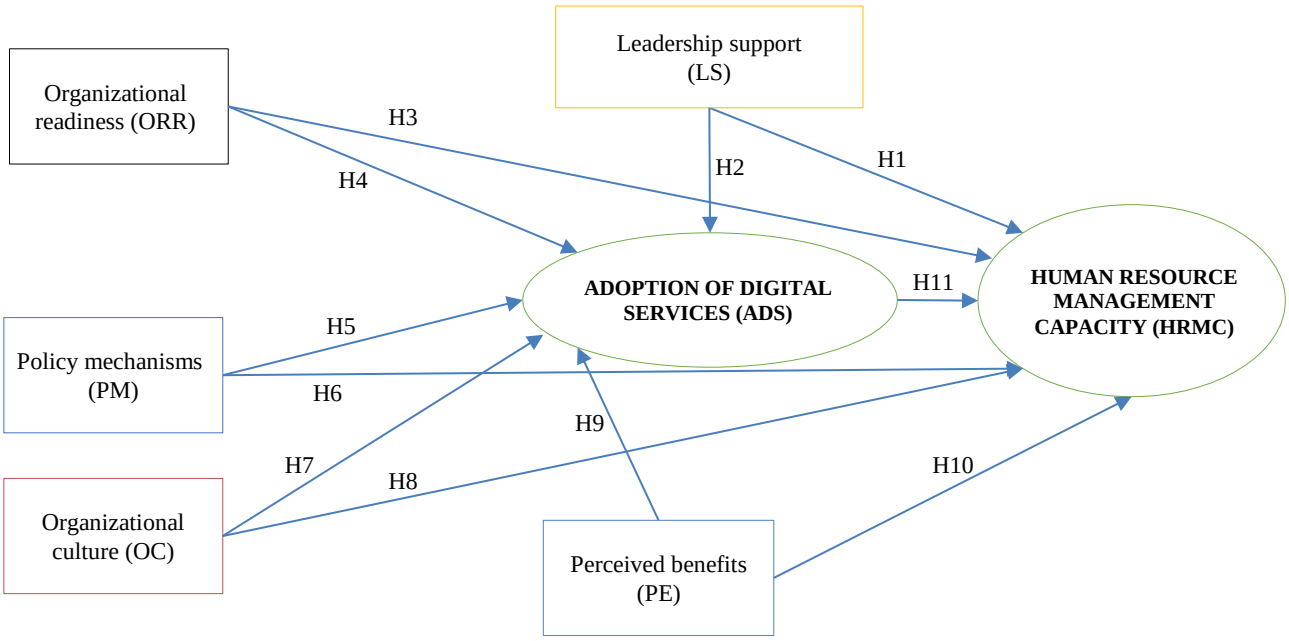

Figure 1. Impacting the adoption of digital service on human resource management capacity

The authors chose to inherit five factors influencing the adoption of digital service and human resource management capacity at SMEs in Vietnam. Specifically, the research model is as Figure 1. Figure 1 depicts five factors influencing the adoption of digital service and human resource management capacity at SMEs in Vietnam, with essential factors such as leadership support, organizational readiness, policy mechanisms, perceived benefits, and organizational culture as determinants of digital adoption and HRM capacity. The proposed conceptual model (Figure 1) posits that leadership support, organizational readiness, policy mechanisms, organizational culture, and perceived benefits act as antecedents, including adopting digital services and strengthening human resource management capacity in SMEs.

2-4- Organizational Readiness (ORR)

Internal infrastructure, digital skills, financial resources, and procedural flexibility determine an organization's technological readiness. A "ready" company has the technology, skills, and management to adopt and sustain digital advancements [10, 16]. The Technology-Organization-Environment (TOE) concept predicts technology adoption through readiness. SME preparedness includes technical, strategic, and innovative attitudes. Digital transformation and HR operational agility improve with preparedness. Organizational readiness (ORR) affects the adoption of digital services (ADS) and human resource management capacity (HRMC) [17]. Organizational readiness is a company's technological infrastructure, people capabilities, and internal processes for digital technology adoption.

Digitally ready companies are agile, can integrate new systems, and adapt to change. The TOE framework emphasizes organizational preparedness as a key driver of technology adoption. SMEs may be ready with skilled IT staff, training plans, or adaptable operational processes [13, 18]. Even useful technology is unlikely to be adopted efficiently without readiness. HRM capacity is also directly affected by a firm's digital infrastructure and organizational flexibility. Companies can better deliver modern HR processes like digital recruitment, training, and performance tracking with the right technology and resources [19]. Organizational readiness aligns HR and business goals, especially in digitally changing environments, HR innovation, and employee satisfaction. Organizational readiness reflects the extent to which a firm possesses the necessary infrastructure, skills, financial resources, and operational flexibility to implement digital initiatives [20]. A high level of readiness reduces resistance to change, enhances technological integration, and fosters a supportive environment for HR digitalization. Therefore, the authors proposed H3 and H4 in Figure 1.

H3: Organizational readiness positively influences human resource management capacity (HRMC).

H4: Organizational readiness positively influences the adoption of digital services (ADS).

2-5- Policy Mechanisms (PM)

Policy mechanisms assist or regulate the digital transformation of businesses through government or institutional initiatives. Examples include financial incentives, digital infrastructure, regulatory frameworks, training, and national innovation plans [15, 21]. Policy strategies lower technology costs, bridge competence gaps, and encourage SME digital economy involvement in emerging nations. The institutional theory says enterprises respond to policy incentives and pressures. Policy measures help Vietnamese SMEs use digital tools and strengthen their human resource management systems to meet digital goals. Policy mechanisms (PM) affecting the adoption of digital services (ADS) human resource management capacity (HRMC). Government support programs, tax incentives, and digital transformation roadmaps

foster technology adoption, especially by SMEs. Public policy may lower risks and boost digital investment. Institutional theory says regulatory and normative influences shape organizational behavior [17, 22]. The policy compensates for limited internal resources and promotes digital involvement in emerging markets. Strong policy frameworks encourage SMEs to use digital services to compete [23]. In many developing economies, including Vietnam, digital transformation policies indirectly affect human resource development. The government can help SMEs create digital HR capabilities by offering training subsidies, technology grants, or regulatory guidelines. Policy tools lower digital tool entrance barriers and support enterprise personnel upskilling. Research shows that good policies increase capacity, notably in HRM. Policy mechanisms include government incentives, regulatory frameworks, financial support programs, and national digitalization strategies. These external factors support lower entry barriers, mitigate adoption risks, and promote the digital transformation of SMEs [24]. Institutional Theory suggests that regulatory pressures and normative guidance significantly shape organizational behavior in emerging economies [19, 25]. Therefore, the authors proposed H5 and H6 in Figure 1.

H5: Policy mechanisms positively influence the adoption of digital services (ADS).

H6: Policy mechanisms positively influence human resource management capacity (HRMC).

2-6- Organizational Culture (OC)

Organizational culture is the shared values, beliefs, norms, and practices that shape employee behavior. It affects how employees adapt, innovate, and collaborate. A culture that values learning, adaptation, and technology adoption is more likely to use digital services [20, 26]. The Resource-Based View (RBV) considers culture a strategic intangible asset that may help or hinder capability development. In SMEs with strong informal norms, culture significantly impacts digital transformation and HR system evolution. Organizational culture (OC) affects the adoption of digital services (ADS) and human resource management capacity (HRMC). Corporate culture influences employee attitudes toward change, learning, and innovation. A culture that values innovation, open communication, and digital literacy encourages technology adoption. Adaptability and engagement are cultural attributes that promote technological change [22, 27]. SMEs' flatter hierarchies make cultural alignment even more critical. Restrictive cultures may oppose digital technologies, but proactive cultures ease adoption. A company's culture also affects its digital orientation, development, and maintenance of HRM. Learning, collaboration, and innovation-focused cultures foster human capital [28]. The resource-based approach (RBV) holds that intangible assets like culture shape organizational competencies, especially HRM. Founders and leaders typically shape SMEs' cultures, which can strengthen or weaken HR systems. Organizational culture, defined as shared values and norms, profoundly affects an enterprise's openness to change and technological innovation. A culture that values learning, flexibility, collaboration, and technological experimentation facilitates smoother digital transformation and HRM modernization [29, 30]. Therefore, the authors proposed H7 and H8 in Figure 1.

H7: Organizational culture positively influences the adoption of digital services (ADS).

H8: Organizational culture positively influences human resource management capacity (HRMC).

2-7- Perceived Benefits (PE)

Managers and employees' perceptions of digital service adoption's value to the company. This may involve efficiency, cost savings, decision-making, customer satisfaction, or employee performance improvements [31]. According to the Technology Acceptance Model (TAM), perceived utility strongly predicts technology adoption. When SMEs see how digital transformation can improve HRM processes like recruitment, training, and performance management, they are more willing to implement technology and invest in HR development [22, 32]. Thus, perceived rewards influence intention and action. Perceived benefits (PE) affect the adoption of digital services (ADS) and human resource management capacity (HRMC). The extent to which decision-makers feel digital technology will benefit the firm is called perceived benefits. Perceived utility drives technology adoption according to the technology acceptance model [33]. Managers are more likely to use digital services if they believe they improve efficiency, cost, and HR outcomes. Critical antecedent: SMEs with limited finances assess perceived benefits more critically than large enterprises [27, 34]. Beyond digital adoption, anticipated benefits affect how organizations view and invest in HRM capability. When SMEs believe digital technologies will improve talent management, employee performance, and HR processes, they invest more in HR development. Positive attitudes promote proactive modernization. Perceived benefits refer to the degree to which managers and employees believe adopting digital services will improve operational efficiency, reduce costs, enhance decision-making, and boost employee satisfaction [28, 35]. According to the Technology Acceptance Model, perceived usefulness is a key determinant of technology adoption. According to research, HR investment is driven by perceived strategic value and proposed H9 and H10 in Figure 1.

H9: Perceived benefits positively influence the adoption of digital services (ADS).

H10: Perceived benefits positively influence human resource management capacity (HRMC).

2-8- Adoption of Digital Services (ADS) Affecting Human Resource Management Capacity (HRMC)

Digital services provide automation, better decision-making, and data-driven HR initiatives. E-learning, performance dashboards, staff engagement, and online recruitment are made possible by digital tools. Thus, organizations using such tools can better manage their workers [36, 37]. SEM studies in emerging markets show that digital adoption improves HRM capabilities. Adoption of digital services includes using HRIS, digital recruitment platforms, e-learning systems, and cloud-based HR management tools. These technologies enhance strategic workforce planning, operational efficiency, employee engagement, and HR decision-making quality [38-40]. Thus, the authors proposed hypotheses H11 Figure 1.

H11: The adoption of digital services positively influences human resource management capacity (HRMC).

While the TOE and RBV frameworks have been widely applied in technology adoption and organizational technology research, their integration in HRM digital transformation is limited, especially within SMEs in emerging markets. Traditional TOE applications in HRM tend to focus mainly on external drivers, e.g., technology availability and competitive pressure, while RBV applications often treat HR practices as static resources rather than dynamic, evolving capabilities. This study advances the literature by positioning HRM capacity as a strategic outcome of digital service adoption mediated by technological and organizational enablers. By combining TOE's attention to context with RBV's focus on internal resources, the framework captures the dual role of digital adoption as both a dependent outcome driven by infrastructure and leadership and as a mediator that enhances HRM functions such as recruitment, training, and performance management. Furthermore, by incorporating institutional theory, the model accounts for the influence of Vietnam's unique policy and regulatory landscape, which is often overlooked in prior research. Multi-theoretical integration enables a more nuanced and context-sensitive understanding of how SMEs build digital HR capabilities through resource possession and adaptation to their institutional and technological environments.

3- Methods of Research

This study uses a sequential exploratory mixed-methods design to guarantee theoretical and empirical validity. Separate from the quantitative phase, which concentrated on testing hypotheses using large-scale survey data, the qualitative phase sought to refine the conceptual model and measuring tools. The mixed-methods research recommendations, which stress incorporating qualitative insights to strengthen quantitative rigor, are consistent with this strategy [41]. The study model uses three theoretical frameworks: the Technology-Organization-Environment (TOE) paradigm, Resource-Based View (RBV), and Institutional Theory to investigate SMEs' digital service acceptance and HRM capacity development. This study adopts a mixed-method approach, integrating qualitative and quantitative research methods to ensure theoretical robustness and empirical validity. The mixed-method design was implemented in two main phases: (1) qualitative exploration and (2) quantitative validation. All participants consented to engage and reply to the author's inquiries in Table A1 for research questionnaires (see Appendix I). Besides, questionnaires had ethics approval from the Faculty of Postgraduate Studies at Lac Hong University (LHU), Vietnam (*https://lhu.edu.vn/244/Khoa-Sau-dai-hoc.html*). To examine essential elements impacting the adoption of digital service on human resource management capacity, this study takes a structured mixed-methods approach, combining qualitative and quantitative methodology in Figure 2.

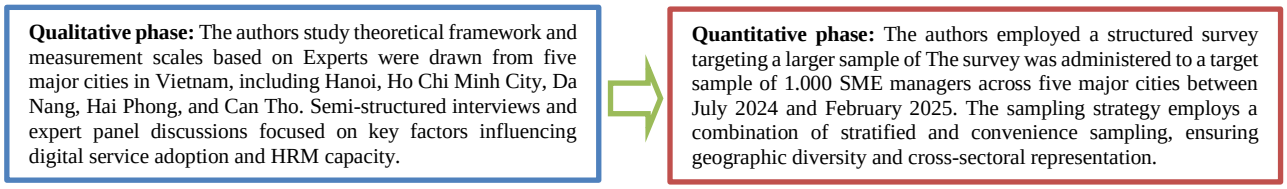

Figure 2. A research process for critical factors affecting the adoption of digital service on HRMC

3-1- Qualitative Phase

The qualitative phase aims to explore practical insights from industry experts and refine measurement items for each construct in the proposed model. Moreover, a total of 30 experts in digital transformation were selected using purposive sampling. Experts were selected using purposive sampling based on the following criteria: (1) At least five years of professional experience managing or consulting digital transformation projects for SMEs, and (2) In-depth knowledge of HRM practices and digital adoption processes. All participants had at least five years of professional experience managing or consulting SMEs' digital transformation projects. Experts were drawn from five major cities in Vietnam, including Hanoi, Ho Chi Minh City, Da Nang, Hai Phong, and Can Tho. Semi-structured interviews and expert panel discussions focused on (1) Key factors influencing digital service adoption. (2) Challenges in HRM capacity development. (3) Perceived value of policy, culture, and leadership in digital contexts. (4) The qualitative data were analyzed using thematic coding with the support of SPSS 20.0 software. Key dimensions and patterns were identified and mapped to existing theoretical constructs. Insights were used to develop or revise measurement items for the formal survey instrument. (5) The qualitative phase results in a validated set of scale items, forming the foundation for the quantitative survey instrument.

3-2- Quantitative Phase

The quantitative phase empirically tests the proposed SEM model through survey data and follows five structured steps.

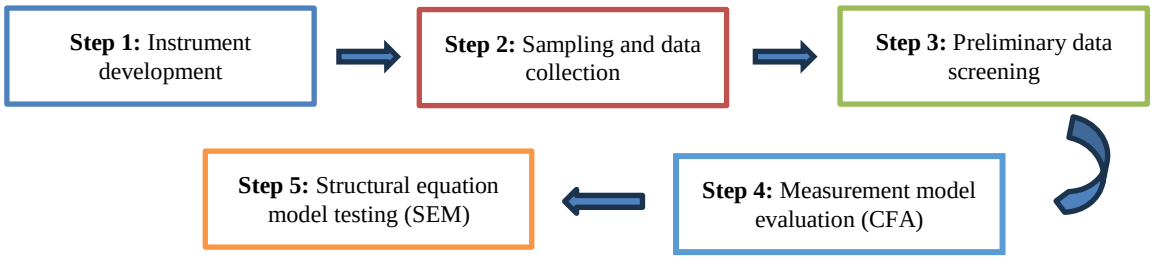

Figure 3. A research steps for testing critical factors affecting the adoption of digital service on HRMC

Step 1: Instrument development - The quantitative phase began with developing a structured survey instrument. Scale items were adapted from existing validated sources grounded in theories such as the Technology-Organization-Environment (TOE) framework, the Resource-Based View (RBV), and the Technology Acceptance Model (TAM). Items were further refined through insights gathered during the qualitative phase with 30 digital transformation experts. The included questionnaire 11 constructs with five items each, using a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). A pilot test was conducted with 20 SME managers to ensure item clarity, relevance, and linguistic appropriateness. Feedback from the pilot was used to refine clear items and ensure cultural alignment with the Vietnamese SME context. This step lays the groundwork for robust measurement in the later stages.

Step 2: Sampling and data collection - The survey was administered to a target sample of 1.000 SME managers across five major cities (Hanoi, Ho Chi Minh City, Da Nang, Hai Phong, Can Tho) and five leading provinces (Bac Ninh, Binh Duong, Dong Nai, Quang Ninh, Thua Thien Hue) between July 2024 and February 2025. The sampling strategy employs a combination of stratified and convenience sampling, ensuring geographic diversity and cross-sectoral representation (e.g., manufacturing, trade, IT services, logistics). Respondents included CEOs, HR managers, and digital transformation executives with in-depth knowledge of their firms' digital practices and HR operations. Surveys were distributed online and on paper via SME support centers and professional networks. A research team based in each region assisted in local data collection and verification. This step aims to collect a sufficient dataset for structural equation modeling [41]. The study employed a stratified purposive sampling method to ensure diverse representation across Vietnam's SME sector. 1.000 SME managers were surveyed from key economic regions, including North, Central, and South, representing most of Vietnam's SME activity. Stratification was applied based on the industry sector, e.g., manufacturing, logistics, services, retail, and enterprise size (micro, small, medium) following Vietnam's SME classification standards. The sample included approximately 35% manufacturing, 30% service, 20% retail, and 15% logistics, reflecting national SME composition as reported by the General Statistics Office of Vietnam (GSO, 2023). Within each sector, regional quotas were used to ensure proportional inclusion of respondents from urban and peri-urban areas. No post-survey weighting was applied, as the pre-stratified design ensured balance across key strata.

Step 3: Preliminary data screening - After the data was collected, a thorough screening of the 1.000 returned surveys was carried out. It all started with removing answers with too much missing or inconsistent data. The skewness and kurtosis were then evaluated using normality tests. By employing the Mahalanobis distance, we were able to identify multivariate outliers. To make sure that no one component explained most of the variation, we used Harman's single-factor test to assess standard method bias. We also double-checked the demographic and firmographic profiles to ensure they aligned with our target audience. After filtering, responses that met the criteria for high quality were kept for further study. This step aimed to check that the data was valid, consistent, and appropriate for structural modeling for cleaning and preparation; SPSS 20.0 and Excel were utilized [41].

Step 4: Measurement model evaluation (CFA) - To ensure the reliability and validity of the measurement scales, a CFA was carried out using AMOS 20.0. Reliability, convergent, and discriminant validity were the three characteristics used to evaluate the model's measurement properties. Both Cronbach's Alpha and Composite Reliability (CR) were used to measure reliability, and it was anticipated that both would be more than 0.70. Average Variance Extracted (AVE) value greater than 0.50 was used to confirm convergent validity. The Fornell-Larcker criterion was used to evaluate discriminant validity. Each item's factor loading had to be more than 0.60. To assess the model's fit, goodness-of-fit indices were utilized, which include CFI > 0.90, TLI > 0.90, RMSEA < 0.08, and SRMR 0.08. The CFA results are necessary for structural model analysis [41].

Step 5: Structural equation model testing (SEM) - The last stage used structural equation modeling (SEM) to examine the eleven hypotheses and test the correlations between the variables. Multicollinearity was tested using variance inflation factors (VIF). All VIF values were below 2.5, indicating no multicollinearity problems among independent

variables. The path coefficients, t-values, and significance levels of the structural model were assessed using Amos 20.0. We used bootstrapping approaches to evaluate the mediating influence of digital service adoption. We looked at direct, indirect, and total effects to understand how leadership, preparedness, culture, policy, and perceived advantages impact HRM capacity. To confirm the structure of the model, goodness-of-fit indices were re-evaluated. This study provided empirical evidence to support theory-driven discoveries while elucidating each pathway's relative strengths and importance. Practical and theoretical implications regarding digital transformation in SMEs were drawn from the findings of this stage.

4- Results and Discussion

4-1-Analysis of descriptive statistics

Table 1 shows the demographic profile of respondents, including gender, marital status, age group, average monthly income, and type of enterprise, as presented below:

Table 1. Demographic profile of respondents

Variable	Category	Frequency	Percent (%)
Gender	Male	396	42.4
	Female	539	57.6
Marital Status	Single	351	37.5
	Married	584	62.5
Age Group	18 to under 25 years	72	7.7
	25 to under 35 years	225	24.1
	35 to under 45 years	491	52.5
	45 years and above	147	15.7
Average Monthly	Below 15 million VND	45	4
	15 to under 20 million VND	206	22
	More than 20 million VND	343	36.7
	Over 25 million VND	341	36.5
Type of Enterprise	Private enterprise	271	29
	Limited liability company (LLC)	322	34.4
	Joint-stock company	159	17
	Joint venture	183	19.6

Gender distribution of respondents: Among the 935 valid respondents, 42.4% were male (396 individuals), and 57.6% were female (539 individuals). This indicates a relatively balanced distribution with a higher representation of female participants. The results reflect the increasing involvement of women in management roles and digital transformation initiatives within Vietnamese SMEs. A diverse gender representation enhances the validity of the findings by ensuring that insights are gathered from a wide range of managerial perspectives. Overall, the gender structure contributes to the robustness and generalizability of the research outcomes.

Marital status of respondents: The survey results show that among 935 valid respondents, 37.5% were single (351 individuals), and 62.5% were married (584 individuals). The higher proportion of married respondents suggests that individuals with greater family responsibilities actively engage in SME management and digital transformation initiatives. Marital status may also reflect the career maturity of participants, involving their perspectives on organizational development and technology adoption. A balanced representation between single and married individuals enhances the demographic diversity of the sample, contributing to the robustness and generalizability of the research findings on digital service adoption and HRM capacity.

Age distribution of respondents: Among the 935 valid respondents, the majority (52.5%) were aged 35 to under 45 years (491 individuals), followed by 24.1% aged 25 to under 35 years (225 individuals). Respondents aged 45 and above accounted for 15.7%, while those aged 18 to under 25 represented 7.7%. The dominance of respondents aged 35–45 suggests that mid-career professionals are leading digital transformation and HRM initiatives in Vietnamese SMEs. This age group typically possesses both managerial experience and openness to technological change, which are critical for successful digital adoption. The age diversity enhances the representativeness and credibility of the research findings.

Average monthly income of respondents: Among the 935 valid respondents, 36.7% reported an average monthly income of 20 to 25 million VND, while 36.5% earned over 25 million VND. Meanwhile, 22.0% had incomes between 15 and under 20 million VND, and only 4.8% earned below 15 million VND. The data suggests that most respondents belong to the mid-to-high income bracket, reflecting their professional positions within SMEs, particularly in management and HRM roles. Higher income levels may also correlate with greater access to digital tools and stronger motivation for digital transformation initiatives, thus increasing organizational readiness and adoption behaviors.

Types of enterprises: Among the 935 valid respondents, 34.4% worked in limited liability companies (Limited), 29.0% in private enterprises, 19.6% in joint ventures, and 17.0% in joint-stock companies. The dominance of limited liability companies and private enterprises reflects the typical structure of SMEs in Vietnam, where these forms offer operational flexibility and scalability. The notable presence of joint ventures also suggests increasing international cooperation in business operations. The diversity in enterprise types adds robustness to the study, ensuring that the findings on digital service adoption and HRM capacity are representative across different organizational ownership and management structures.

4-2- Testing Cronbach's Alpha and Factors Affecting the Adoption of Digital Service and Human Resource Management Capacity

Table 2 presents the internal consistency reliability (Cronbach's Alpha) and descriptive statistics for seven key constructs. All factors exhibit high reliability, with Cronbach's Alpha values exceeding 0.83, indicating strong internal consistency across the items. The constructs organizational readiness (0.944) and policy mechanisms (0.941) show the highest reliability, followed by leadership support (0.932) and organizational culture (0.926). These findings provide a strong foundation for further analysis, such as exploratory factor analysis and structural equation modeling. The descriptive statistics reveal that the survey SMEs have varied levels of construct development. Perceived Benefits (PE) achieved the most excellent average score, indicating that people usually understand the benefits of using digital services (M = 3.408). The robust mean (M = 3.307) revealed by the Adoption of Digital Services (ADS) also indicates moderate to actual engagement with digital solutions. The significantly lower mean scores obtained by Organizational Culture (OC) and HRMC (M = 2,497 and M = 2,370, respectively) indicate that there are still ongoing issues in creating digital-friendly organizational cultures and improving HR capabilities in SMEs.

Table 2. Testing of Cronbach's alpha for factors affecting the adoption of digital service and human resource management capacity

Items	Cronbach's alpha	Mean	Std. Deviation
Leadership support (LS)	0.932	3.024	1.005
Organizational readiness (ORR)	0.944	3.049	0.973
Policy mechanisms (PM)	0.941	3.054	1.003
Organizational culture (OC)	0.926	2.497	0.803
Perceived benefits (PE)	0.860	3.408	0.939
Adoption of digital services (ADS)	0.891	3.307	0.984
Human resource management capacity (HRMC)	0.834	2.370	0.656

Modest dispersion around the mean answers is shown by standard deviations ranging from 0.656 to 1.005 among constructs. The most significant degree of heterogeneity (SD = 1.005) is seen in Leadership Support (LS), suggesting that SME managers have different perspectives on digital efforts. With a standard deviation of only 0.656, HRMC shows that people consistently understand the limits of HR capability. Overall, the findings confirm that small and medium enterprises (SMEs) have a favorable impression of digital service benefits. However, a significant overhaul of HRM systems and internal cultural preparation must be done to make the most of digital transformation initiatives.

Table 3 shows The KMO value of 0.825 indicates “meritorious” sampling adequacy ($p < 0.001$), indicating that correlations between, confirming that the dataset is suitable for exploratory factor analysis (EFA). Bartlett's test is significant ($p < 0.001$), indicating that correlations between items are sufficiently substantial for factor analysis.

Table 3. Testing of Kaiser-Meyer-Olkin for factors affecting the adoption of digital service and human resource management capacity

Code	Component						
	LS	ORR	PM	OC	PE	ADS	HRMC
LS1	0.930						
LS2	0.925						
LS4	0.887						
LS3	0.831						
ORR3		0.931					
ORR4		0.927					
ORR2		0.926					
ORR1		0.918					
PM4			0.959				
PM1			0.919				
PM3			0.912				
PM2			0.893				
OC2				0.936			
OC1				0.914			
OC3				0.903			
OC4				0.866			
PE4					0.871		
PE1					0.867		
PE2					0.835		
PE3					0.788		
ADS3						0.894	
ADS1						0.878	
ADS2						0.847	
HRMC1							0.878
HRMC3							0.867
HRMC2							0.834
Kaiser-Meyer-Olkin Measure of Sampling Adequacy is 825; Sig is 0.000							
Initial Eigenvalues is 1.222; Extraction Sums of Squared Loadings is 81.317							

To assess the appropriateness of the dataset for factor analysis, the Kaiser-Meyer-Olkin (KMO) test and Bartlett's test of sphericity were conducted. The KMO value was 0.825, which exceeds the recommended threshold of 0.70, indicating meritorious sampling adequacy. Bartlett's test was significant (Sig. = 0.000), confirming that the variables were sufficiently correlated to proceed with factor analysis. Exploratory factor analysis (EFA) was used to examine the factor structure of the measurement model. All 28 observed items representing 7 latent constructs: Leadership Support (LS), Organizational Readiness (ORR), Policy Mechanisms (PM), Organizational Culture (OC), Perceived Benefits (PE), Adoption of Digital Services (ADS), and Human Resource Management Capacity (HRMC) exhibited strong factor loadings, ranging from 0.788 to 0.959. Each item loaded clearly on its respective construct, demonstrating high construct validity. The extracted factors resulted in a total variance of 81.317%, further supporting the robustness of the scale structure. These results provide evidence of convergent validity and support the suitability of the measurement model for subsequent Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM).

In conclusion, all factor loadings exceed the 0.70 threshold, demonstrate strong construct validity, and confirm that each item loads well onto its respective factor. The cumulative variance confirms that each item loads well onto its respective factor. The cumulative variance explained (81.317%) indicates that the factor model explains a large proportion of variance in the dataset, supporting the dimensionality of the proposed measurement model.

Figure 4 shows confirmatory factor analysis (CFA) was conducted to assess the validity and reliability of the measurement model, which included seven latent constructs: Leadership support (LS), organizational readiness (ORR), policy mechanisms (PM), organizational culture (OC), perceived benefits (PE), adoption of digital services (ADS), and human resource management capacity (HRMC). The model demonstrates a good fit to the data with the following fit

indices: χ^2 = 1121.240, df = 271, χ^2/df = 4.137, GFI = 0.917, TLI = 0.949, CFI = 0.957, and RMSEA = 0.058. These values meet the acceptable thresholds, confirming the inconsistent proposed measurement model. All factor loadings were above 0.69, indicating strong convergent validity across constructs. Leadership support and organizational readiness notably recorded high standardized loadings (ranging from 0.83 to 0.96), reflecting robust internal consistency. The correlations among constructs were all 0.85, confirming discriminant validity and the distinctiveness of the theoretical dimensions. Overall, the CFA results provide strong empirical support for the construct validity of the measurement model and justify proceeding with Structural Equation Modeling (SEM) to examine the causal relationships between digital service adoption and HRM capacity.

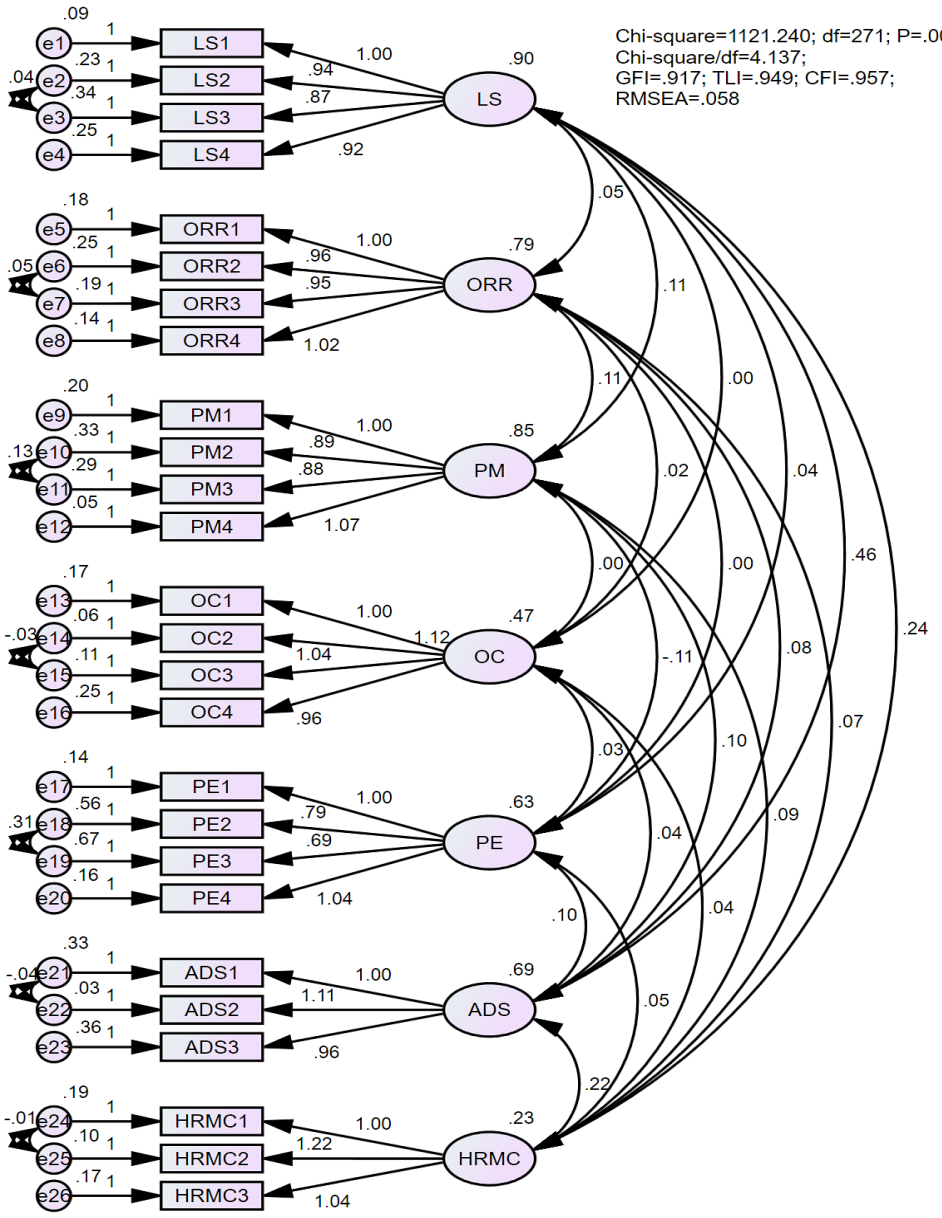

Figure 4. Testing CFA for factors affecting the adoption of digital service and human resource management capacity

Table 4 presents the results assessing the influence of organizational factors on the adoption of digital services (ADS) and human resource management capacity (HRMC). All predicted paths (H1–H11) are significantly significant ($p < 0.05$), indicating strong empirical support for the proposed model. Among the predictors of ADS, leadership support (LS) has the most significant impact ($\beta = 0.575$), followed by perceived benefits (PE) ($\beta = 0.141$) and policy mechanisms (PM) ($\beta = 0.100$). Organizational readiness (ORR) and organizational culture (OC) have more minor yet significant influences. Regarding HRMC, ADS ($\beta = 0.332$) and LS ($\beta = 0.325$) exert the most potent effects. Other contributors include ORR, PM, OC, and PE, although their effects are more modest. These results confirm that leadership and digital directly enhance HR capabilities, while structural and cultural conditions enable adoption factors. Overall, the SEM confirms the validity of all hypotheses, highlighting the interconnected roles of leadership, policy, readiness, and perceived value in digital transformation success.

Table 4. Testing SEM model for factors affecting the adoption of digital service and HRM capacity

Relationships	Standardized Estimate	S.E	C.R	P	Hypothesis	Result
LS → ADS	0.575	0.029	17.287	***	H2	Accepted
ORR → ADS	0.060	0.026	2.122	0.034	H4	Accepted
PM → ADS	0.100	0.022	3.578	***	H5	Accepted
OC → ADS	0.068	0.033	2.693	0.007	H7	Accepted
PE → ADS	0.141	0.030	4.667	***	H9	Accepted
LS → HRMC	0.325	0.022	8.159	***	H1	Accepted
ORR → HRMC	0.107	0.018	3.543	***	H3	Accepted
PM → HRMC	0.066	0.015	2.286	0.022	H6	Accepted
OC → HRMC	0.098	0.022	3.610	***	H8	Accepted
PE → HRMC	0.085	0.020	2.700	0.007	H10	Accepted
ADS → HRMC	0.332	0.026	8.033	***	H11	Accepted

*Note *** significance at 0.01.*

(1) Leadership support (LS): Leadership support demonstrates the most decisive influence on both digital service adoption (β = 0.575) and HRM capacity (β = 0.325). This highlights the pivotal role of leaders in shaping digital agenda transformations within SMEs. When leadership is proactive, digitally aware, and resource-committed, it fosters a culture of innovation and accelerates the implementation of digital tools across HRM functions. Supportive leadership also improves organizational alignment, reduces resistance to change, and facilitates strategic decision-making. As such, leadership commitment is essential for enabling digital adoption and ensuring long-term capability development in HRM systems. The finding that leadership support is the most influential predictor of digital service adoption suggests that managerial behavior is pivotal in enabling HRM digital transformation within SMEs. While the study measured leadership support as a general construct, this result invites deeper exploration into the specific leadership styles or behaviors that may be driving this effect. Prior literature highlights that transformational leadership, characterized by vision, inspiration, and proactive change, has been positively associated with digital innovation. Leaders who articulate a clear digital strategy and align team goals with digital capabilities tend to foster stronger adoption environments.

(2) Organizational readiness (ORR): Organizational readiness significantly affects both digital adoption (β = 0.060) and HRM capacity (β = 0.107), indicating that internal infrastructure and resource preparedness are vital. Readiness encompasses digital infrastructure, a skilled workforce, flexible processes, and the willingness to adapt. Although its impact on ADS is modest, its contribution to HRMC is more notable, as preparedness enables better integration of digital tools into HR functions. Technological and structurally prepared SMEs are more likely to implement HR technologies effectively, improve service quality, and adapt HR practices to dynamic environments.

(3) Policy mechanisms (PM): Policy mechanisms influence both digital service adoption (β = 0.100) and HRM capacity (β = 0.066). Government incentives, regulatory frameworks, and support programs provide critical external motivation for SMEs to adopt digital solutions. Well-designed policies can reduce barriers to technology uptake, offer financial and technical assistance, and legitimize digital practices. Although the impact is moderate, the findings suggest that a supportive policy environment is essential in emerging markets where internal SME capacity is often limited. Thus, institutional mechanisms are enablers for technology adoption and HRM system development.

(4) Organizational culture (OC): Organizational culture showed a significant effect on both ADS (β = 0.068) and HRMC (β = 0.098). A culture that embraces innovation, learning, and adaptability enhances employees' willingness to engage with digital change. SMEs with collaborative, future-oriented cultures are likelier to experiment with and sustain digital HR tools. Culture also plays a direct role in shaping how HR practices are perceived and implemented. While not the strongest factor, organizational culture supports the internalization of digital initiatives and complements structural and leadership factors in building HRM capacity.

(5) Perceived benefits (PE): Perceived benefits had a meaningful influence on both ADS (β = 0.141) and HRMC (β = 0.085), underscoring the importance of value perception in digital transformation. When SMEs perceive clear advantages such as efficiency gains, cost reductions, and workforce optimization, they are more inclined to adopt digital tools. These perceptions also motivate managers to invest in HR development, seeing technology as a driver of employee performance and organizational competitiveness. Thus, perceived benefits are psychological enablers of adoption and strategic catalysts for HRM enhancement.

(6) Adoption of digital services (ADS): Digital service adoption had the most substantial direct effect on HRM capacity (β = 0.332), confirming its mediating role in the model. The practical implementation of digital services such as e-recruitment, digital training, performance tracking, and HR analytics translates directly into stronger HR systems.

ADS enables data-driven decision-making, improves workforce agility, and enhances HRM's strategic alignment with business goals. For SMEs, digital adoption is not merely a technological shift but a foundational step toward modernizing human capital management and sustaining long-term competitiveness.

In conclusion, this research delves deeply into how SMEs' HRMC is boosted by digital service uptake and how various organizational and environmental elements play a role in this process. Through structural modeling validation of the integrated model, the research confirms the mediating function of digital service uptake and identifies leadership equation support and perceived advantages as the most crucial factors. The significance of internal preparation and external institutional assistance was further underscored by the fact that organizational culture, policy procedures, and readiness emerged as key enablers. The results fill voids in the current literature on digital HRM transformation in developing nations and provide theoretical and practical insights. These findings can serve as a foundation for future studies investigating sector-specific dynamics and long-term impacts. This study highlights the importance of strong leadership, a solid infrastructure, cultural flexibility, and proactive policy involvement in driving digital transformation. It mentions how these factors are crucial in the ever-changing SME development context.

Figure 5 presents the final Structural Equation Model (SEM) assessing the relationships between internal and external factors, the adoption of digital services (ADS), and human resource management capacity (HRMC) in Vietnamese SMEs. The model demonstrates a good fit to the data, with fit indices exceeding standard thresholds: Chi-square = 1022.424, df = 263, χ^2/df = 3.888, GFI = 0.925, TLI = 0.953, CFI = 0.962, and RMSEA = 0.056. These values indicate that the hypothesized model is both acceptable and theorized sound.

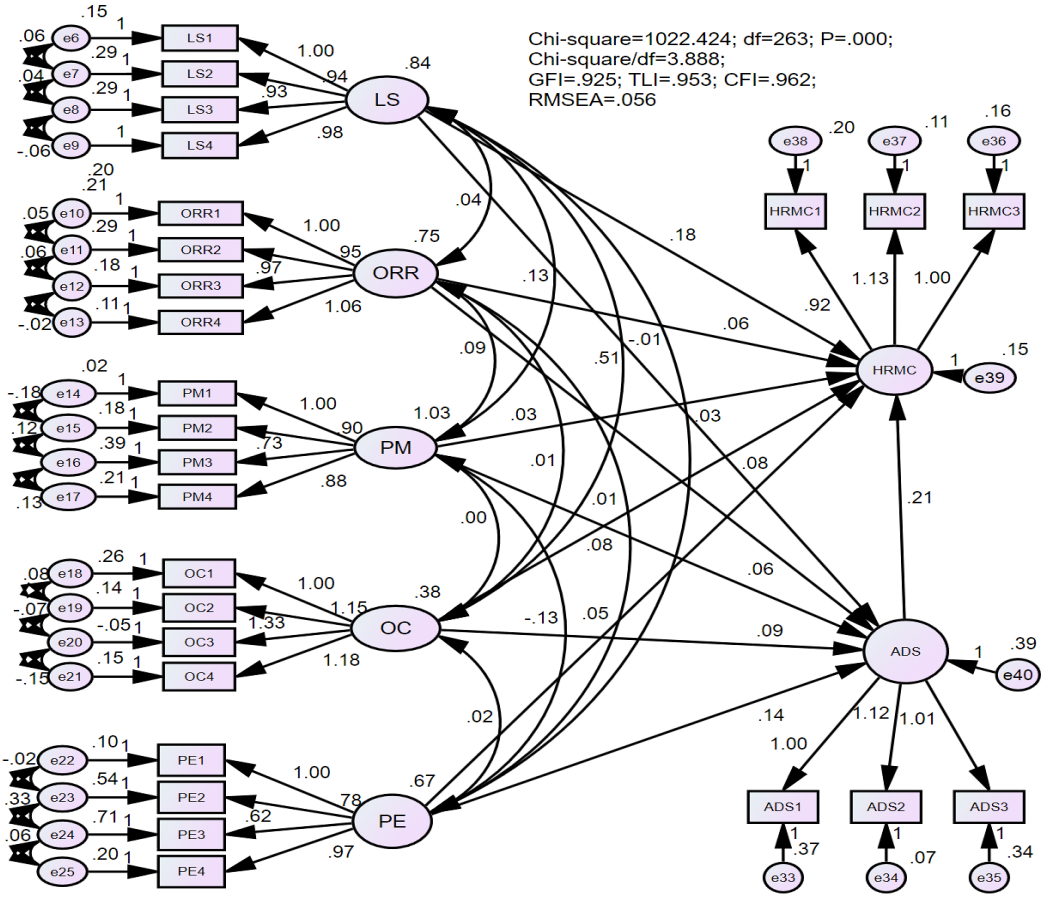

Figure 5. Testing SEM for factors affecting the adoption of digital service and human resource management capacity

All five contextual variables, Leadership Support (LS), Organizational Readiness (ORR), Policy Mechanisms (PM), Organizational Culture (OC), and Perceived Benefits (PE), were found to have significant effects on the Adoption of Digital Services (ADS). Among them, Leadership Support has the most substantial positive impact (β = 0.51), highlighting the essential shows the most significant positive effects (β = 0.51), highlighting the indispensable role of top management in fostering digital initiatives. Perceived Benefits (β = 0.21) and Policy Mechanisms (β = 0.13) also contributed meaningfully to ADS (β = 0.13) contributed meaningfully to ADS.

Regarding HRM Capacity, ADS exerted the most significant direct effect (β = 0.39), confirming its central mediating role in the model. Additionally, the most important direct effect (β = 0.39) was exerted, confirming its central mediating role in the model. Leadership Support, Organizational Readiness, and Policy Mechanisms also

exhibited smaller, significant, direct influences on HRMC. These findings highlight the importance of internal drivers (visionary leadership, preparedness) and external enablers (policy, perceived value) in facilitating digital HR transformation. Furthermore, all observed variables demonstrated strong standardized factor loadings (> 0.70), confirming the construct reliability and validity of the model. Overall, the SEM analysis provides robust empirical support for the theoretical framework, validating the critical pathways through which digital service adoption influences HRM development in SMEs.

Table 5 shows that all constructs demonstrate high internal consistency reliability, with composite reliability (CR) values exceeding 0.80, well above the acceptable threshold of 0.70. The average variance extracted (AVE) values ranged from 0.606 to 0.606 to 0.809, confirming strong convergent validity for each construct. Furthermore, the AVE exceeded all factors' maximum shared variance (MSV), indicating discriminant validity was also achieved. To assess the quality of the measurement model, both convergent validity and discriminant validity were evaluated using Composite Reliability (CR), and discriminant validity was assessed using composite reliability, average variance extracted, and maximum shared variance. As shown in Table 5, all constructs demonstrate satisfactory levels of CR, with values ranging from 0.835 to 0.944, exceeding the recommended threshold of 0.70. This indicates strong internal consistency and reliability of the scale items measuring each latent construct.

Table 5. Testing average variance extracted for factors influencing the adoption of digital service and human resource management capacity

Code	CR	AVE	MSV	Results
ADS	0.895	0.740	0.350	Good
LS	0.934	0.779	0.350	Good
ORR	0.944	0.809	0.025	Good
PM	0.940	0.798	0.040	Good
OC	0.928	0.763	0.016	Good
PE	0.857	0.606	0.029	Good
HRMC	0.835	0.630	0.323	Good

The AVE values for all constructs also exceeded the accepted threshold of 0.50, ranging from 0.606 to 0.809. These results confirm convergent validity, implying that the indicators for each construct adequately reflect the intended latent variable. Notably, Organizational Readiness (ORR) and Leadership Support (LS) demonstrated the highest AVE scores (0.809 and 0.779demonstrated the highest AVE scores (0.809 and 0.779, respectively), indicating robust item alignment within these constructs.

Each construct's AVE was compared to its corresponding MSV to evaluate discriminant validity. In all cases, AVE > MSV satisfies the Fornell-Larcker criterion and confirms that each construct correlates more strongly with its own indicators than with other constructs. For instance, the AVE for HRM Capacity is 0.630, greater than its highest shared variance with another construct (MSV = 0.323). Similarly, digital service adoption and perceived benefits maintain distinctiveness with AVE values well above their MSV scores.

In summary, the CR, AVE, and MSV results collectively validate the robustness of the measurement model. The constructs meet the necessary criteria for both convergent and discriminant validity, confirming that the measurement scales are reliable and conceptually distinct. This provides a solid foundation for advancing to the research's structural model and hypothesis-testing stages.

To test the robustness of the SEM results, bootstrapping with 80.000 resamples was conducted. This technique allows for a more accurate estimation of standard errors and bias in the model's path coefficients, enhancing the statistical reliability of the findings. All eleven hypothesized relationships were confirmed, with the critical ratio (CR) values ≥ 1.00 and p - p-values indicating statistical significance. The standard error (and p-values indicate statistical significance. The standard error (SE) values remain low across all relationships, reflecting stable coefficient estimates. Notably, values remain low across all relationships, reflecting stable coefficient estimates. Notably, the path from leadership support (LS) to adoption of digital services (ADS) shows strong support (mean = 0.508, SE = showed strong support (mean = 0.508, SE = 0.036), affirming leadership's role as a central driver of digital adoption (see Table 6).

Table 6. Testing Bootstrap 80.000 samples for factors affecting the adoption of digital service and human resource management capacity

Relationships	SE	SE-SE	Mean	Bias	SE-Bias	C.R	Result
LS → ADS	0.036	0.001	0.508	0.001	0.001	1.00	Accepted H2
ORR → ADS	0.030	0.001	0.052	0.003	0.003	1.00	Accepted H4
PM → ADS	0.022	0.000	0.074	0.006	0.004	1.50	Accepted H5
OC → ADS	0.043	0.001	0.084	0.006	0.005	1.20	Accepted H7
PE → ADS	0.034	0.001	0.136	0.003	0.003	1.00	Accepted H9
LS → HRMC	0.024	0.001	0.182	0.000	0.001	0.00	Accepted H1
ORR → HRMC	0.025	0.001	0.057	0.006	0.004	1.50	Accepted H3
PM → HRMC	0.023	0.001	0.034	0.000	0.001	0.00	Accepted H6
OC → HRMC	0.028	0.001	0.080	0.002	0.003	0.67	Accepted H8
PE → HRMC	0.021	0.000	0.052	0.001	0.001	1.00	Accepted H10
ADS → HRMC	0.029	0.001	0.212	0.001	0.001	1.00	Accepted H11

*Note *** significance at 0.01.*

Similarly, ADS → HRMC (mean = 0.212, SE = 0.029) confirms the mediating role of digital service adoption in strengthening human resource capacity. Other influential paths included PE → ADS (mean = 0.136) and LS → HRMC (mean = 0.182), showing that both perceived benefits and strategic leadership contribute directly and indirectly to HRM outcomes. Bias and SE-Bias values across all constructs were minimal, suggesting no overestimation or distortion in the original SEM results. The consistency of these bootstrapped coefficients with the initial model supports the theoretical framework's robustness, accuracy, and generalizability.

In conclusion, the bootstrapping study offers strong statistical evidence that internal and external factors substantially impact the digital adoption process and that digital services are essential for improving SMEs' HRM capabilities. It is possible that the results cannot be applied to other situations because they are heavily impacted by the policy climate, cultural norms, and economic structure of Vietnam. Moreover, the National Digital Transformation Program (2025–2030) is one government-backed initiative that heavily emphasizes digital transformation and the development of small and medium enterprises in Vietnam's national policy agenda. The perceived relevance of digital service uptake may be amplified by this top-down drive, particularly among SMEs looking to match government agendas. Secondly, compared to more individualistic cultures, the Vietnamese corporate culture is characterized by a high power distance and collectivist ideals, which means that significant leadership influence may have a bigger impact. When it comes to organizational transformation, top-down endorsement is crucial, and this cultural attribute may explain why support from leadership is the most significant predictor. Finally, many Vietnamese SMEs function in semi-formal or informal sectors instead of codified structures, depending on personal trust and relational networks. Because compliance is often seen as voluntary or inconsistently enforced, environmental or regulatory pressures may not have a significant influence. While the results hold up well inside Vietnam, it would be unwise to extrapolate them to small and medium enterprises in countries with vastly different institutional, regulatory, and cultural make-ups due to these contextual variables. Future cross-country studies could investigate the model's potential usefulness in other ASEAN or transitional markets.

4-3- Discussions

The findings of this study provide empirical evidence for the conceptual model examining the impact of digital service adoption on human resource management capacity (HRMC) in Vietnamese SMEs. Drawing from the Technology-Organization-Environment (TOE) framework and the Resource-Based View (RBV), this study confirms that internal and external factors significantly influence the adoption of digital services, strengthening HRM capacity. All factors in the model are significantly significant and positively impact the adoption of digital services and HR capacity. Leadership support and adoption of digital services are the most impactful core enablers of digital transformation [2, 5, 15]. Factors like perceived benefits, readiness, and culture are foundational supports that indirectly strengthen HR development through digital adoption.

Leadership support is crucial for digital service uptake ($\beta = 0.575$) and human resource management capacity building ($\beta = 0.325$). Leaders who actively encourage digital transformation through vision, direction, and resource allocation strengthen company readiness and employees [13, 23, 27]. Leadership creates a strategic environment for innovation, talent development, and performance management, helping HR capacity. Clear direction and inspiration from effective leadership assist in overcoming change resistance. Strong top-level support is essential for digital projects and long-term human capital expansion. This strong and highly significant result confirms that technological infrastructure, such as the

availability of internet access, cloud computing systems, and data-sharing platforms, has a decisive influence on SMEs' likelihood of adopting digital HR tools. This is consistent with the Technology–Organization–Environment (TOE) framework, which positions technological readiness as a fundamental enabling condition. It also echoes previous findings in the ASEAN region, where infrastructure gaps often explain delayed adoption. In Vietnam's context, this suggests that government or donor-led efforts to expand SME access to digital infrastructure could directly accelerate transformation in HRM.

Despite mild effects, organizational readiness significantly affects digital adoption ($\beta = 0.060$) and HR capacity ($\beta = 0.107$). This element shows an organization's digital expertise, technology infrastructure, and change preparedness [1, 30, 34]. A well-prepared company reduces staff resistance to digital implementation. Its significantly greater impact on HRMC implies that readiness is essential for system utilization and people-driven transformation. Infrastructure, digital literacy, and adaptive planning are needed to foster technology and human growth. Organizational support, including leadership commitment, employee openness, and training programs, significantly contribute to digital service adoption. This supports the Resource-Based View (RBV), where internal capabilities, primarily intangible resources such as culture and leadership, are key sources of competitive advantage. Vietnamese SMEs with digitally supportive leadership and a flexible learning culture appear more likely to implement new tools like online recruitment platforms or digital performance appraisal systems. This highlights the importance of not only providing technology but also cultivating the organizational environment to sustain its use.

Policy mechanisms positively impact digital service adoption ($\beta = 0.100$) and HR capacity ($\beta = 0.066$), emphasizing the significance of structured frameworks [6, 18, 37]. Policy clarity, support, and alignment with digital goals influence employee behavior and improve execution. Clear regulations, digital guidelines, incentive programs, and compliance frameworks foster transformation. HR policies that encourage upskilling, digital onboarding, and performance measures boost effectiveness. Effective policy stabilizes digital transition and ensures institutional expectations and operational efficiency, notwithstanding its small influence. This path is statistically significant but relatively weaker. It indicates that while external forces such as pressure from customers, partners, or government policies play a role, they are not the primary driver for digital HR transformation among SMEs. This may reflect Vietnam's institutional context, where regulatory enforcement and digital maturity vary significantly across regions and industries. Unlike larger firms that may face direct compliance requirements, SMEs often lack such pressure unless operating in export-oriented or regulated sectors. This finding suggests that institutional incentives need to be stronger and more targeted to influence digital HR behavior.

Organizational culture impacts digital adoption ($\beta = 0.068$) and HR capability ($\beta = 0.098$), emphasizing shared values and innovation awareness. Digital change requires collaboration, risk-taking, and adaptation, which supportive cultures enable [4, 38, 39]. It reduces change resistance by getting people to use new tools and processes. Positive HR management cultures encourage learning, accountability, and shared goals. Culture guides technological perception and use. Strengthening an innovation-driven culture supports technical, social, and behavioral acceptance of digital solutions. Benefit perception strongly impacts digital adoption ($\beta = 0.141$) and HR capacity ($\beta = 0.085$). Employees are more inclined to support digital service adoption if they improve efficiency, workload, or outcomes [15, 24, 39]. Usefulness changes behavior and boosts commitment. Digital technologies for performance tracking and development aid HRM capacity-build. Success stories, user feedback, and training boost confidence and encourage digital transformation involvement.

Role of digital service adoption: The strongest predictor of HRM capacity was the adoption of digital services ($\beta = 0.332$), confirming its mediating role [19, 25, 40]. This finding suggests that while contextual factors matter, their influence on HRM is primarily channeled through implementing and utilizing digital tools. This result aligns with recent research showing that digital transformation in HR through systems like e-recruitment, digital performance management, and training platforms can improve SMEs' efficiency, transparency, and strategic alignment. This is the most influential path in the model, indicating that digital adoption significantly enhances HRM capability in SMEs. This includes improved recruitment efficiency, employee training via e-learning platforms, and real-time performance tracking. The result underscores that digital transformation is a technological upgrade and a strategic enabler of human resource development. It demonstrates how digital HR tools empower SMEs to act with greater agility, transparency, and scalability, factors vital for competitiveness in emerging markets.

This study aims to provide a complete understanding of digital service uptake and its impact on HRM capacity in SMEs by merging the Technology Organization Environment (TOE) framework with the Resource-Based View (RBV) and Institutional Theory. Technological preparedness (e.g., access to digital platforms), organizational characteristics (e.g., leadership, culture, and human capital), and environmental constraints (e.g., regulatory forces and market competitiveness) are the three main variables around which the TOE framework organizes the investigation. Research on technology adoption, particularly in the context of developing nations, makes heavy use of this paradigm, which provides light on the role of internal security. This is supplemented by the RBV, which emphasizes the strategic value of a company's internal resources, such as its digital infrastructure, competent leadership, and human resources department. This research views HRM capacity as an adaptable skill that, with proper digital adoption, can be built and maintained. Last but not least, institutional theory offers a perspective through which to comprehend how governmental

rules, professional standards, and industry conventions are examples of external institutional factors that impact organizational behavior. Institutional pressure plays a crucial role in driving digital transformation for small and medium enterprises in transitional economies like Vietnam, where internal push forces may be lacking. Using these models, we can see how digital adoption accounts for Vietnam's specific institutional setting to buffer the connection between organizational/internal drivers and HRM effectiveness.

In summary, the results show that both organizational and environmental preparation are crucial to promoting digital transformation and HRM modernization. Combining theory with practical advice for managers of small and medium-sized enterprises (SMEs) and retention strategies, the integrated approach advances digital HRM. A unified corporate vision and external backing are necessary for the technological challenge of digital adoption, which affects leadership, culture, and capacity. This study adds to our knowledge of digital transformation by providing evidence that adopting digital services mediates the relationship between improved HRMC and digital transformation among SMEs in Vietnam. The backing of leadership was shown to be the most critical factor, highlighting the crucial role of top management in digital projects. Both digital adoption and HRMC were greatly influenced by factors such as organizational readiness, policy procedures, corporate culture, and perceived benefits. Adopting digital services was a vital link that allowed contextual elements to be channeled into HRM modernization. These findings offer new insights into the interaction between internal capabilities and external enablers, which incorporate the Technology-Organization-Environment framework, the Resource-Based View, and Institutional Theory into a cohesive model. Filling a significant void in the existing literature, the study places digital HR transformation within the framework of small and medium-sized enterprises (SMEs) in an emerging economy. It then offers managers practical recommendations for encouraging digital-driven workforce development and addresses a crucial gap in the literature.

5- Conclusions and Policy Recommendations

5-1- Conclusions

This study aims to investigate how digital service adoption mediates the relationship between organizational and environmental factors and human resource management capacity (HRMC) within Vietnamese SMEs. By integrating the Technology-Organization-Environment (TOE) framework, the Resource-Based View (RBV), and Institutional Theory, the research comprehensively analyzes internal and external drivers of digital transformation in the HRM domain. The findings confirm that leadership support, organizational readiness, policy mechanisms, organizational culture, and perceived benefits significantly influence digital service adoption, strengthening HRM capacity. Among these factors, leadership support and adoption of digital services emerged as the most critical enablers. These results offer strong empirical evidence for the pivotal role of digital adoption in HRM modernization, particularly within resource-constrained SME contexts. Theoretically, this study contributes by bridging the gap between digital transformation and HRM development research streams, offering a novel integrated model for emerging economies. Practically, the findings highlight the need for SME leaders to actively foster digital readiness, invest in leadership development, and leverage supportive policy mechanisms to build sustainable HR capabilities. Despite its contributions, the study has some limitations. The cross-sectional design restricts causal inferences, and the focus on Vietnamese SMEs may limit the generalizability of the findings to other national or sectoral contexts. Future research should adopt longitudinal designs, explore sector-specific digital transformation patterns, and conduct comparative studies across emerging markets. Overall, the study advances the understanding of digital-driven HRM transformation in SMEs and offers actionable insights for scholars and practitioners. It also aims to foster workforce innovation and competitiveness in the digital era.

5-2- Policy Recommendations

The findings from Table 2 provide valuable insights for SME leaders and human resource professionals, and they aim to enhance HRM capacity through digital service adoption. The standardized estimates clearly indicate which factors should be prioritized in strategic decision-making.

(1) Prioritize leadership support ($\beta = 0.575 \rightarrow$ ADS; $\beta = 0.325 \rightarrow$ HRMC): Leadership plays a vital role in driving digital transformation, especially within the human resource management (HRM) function of SMEs. The measurement items reveal that leadership must move beyond symbolic endorsement to active involvement. When leaders strongly support digital initiatives (LS1), actively promote digital tools (LS2), and encourage employee participation (LS3), they create an environment where digital change is embraced. Furthermore, involvement in strategic planning (LS4) ensures alignment between digital investments and long-term HRM objectives. Without committed leadership, digital projects are often underfunded, poorly managed, or resisted by staff. Therefore, SME executives should position themselves as digital change agents, visibly championing transformation and empowering HR teams with the resources and autonomy to innovate. There should be a strong emphasis on digital literacy, strategic planning, and the ability to communicate change as part of any leadership development program. Organizational readiness, trust in digital technology, and resistance to change can all be improved through these initiatives. Ultimately, the organization's dedication to digital HR innovation and strategic workforce development is strengthened by leadership support, which activates all other components in the transformation process. Regarding HRM capabilities and digital services, leadership support was king. This highlights how important it is for senior leadership to be involved in digital transformation initiatives. To

motivate employees to buy into digital HRM efforts, leaders of SMEs can set an example by having a clear vision, providing sufficient resources, and endorsing them personally. Leadership development programs ought to be a focal point, particularly for owner-managers in SMEs. This discovery lends credence to the idea that strong leadership is essential for SMEs to successfully undergo digital transformation. Digital strategies need leaders to do more than just start them; they must also actively steer and champion them. Executives at SMEs would benefit from specialized education in digital leadership and the art of managing strategic transformation. They are also responsible for sharing the vision, distributing funds, and providing HR staff the freedom to try out new digital technologies. When top management visibly supports digital initiatives, it boosts employee morale, reduces resistance to change, and increases organization. Finally, governments should create incentive-rich, nationally-focused initiatives. Financial hurdles for SMEs can be significantly reduced by targeted programs, including tax breaks for digital tool adoption, low-interest tech loans, digitalization awards, and subsidized access to HR software platforms. Recognizing that SMEs have smaller resources and lower economies of scale than bigger firms, these initiatives should be customized to their unique characteristics. Affordable packaged digital service bundles could also be delivered through public-private partnerships. Two priorities for policymakers are simplifying application processes and decentralizing support through regional SME development centers. Greater adoption of HR technologies and overall enhancement of HRM capacity can be achieved through these incentives, which make digital investment less risky and more financially attractive. These initiatives will help strengthen the small company sector, which is essential for long-term economic growth, by making it more digitally adept and resistant to shocks.

(2) Strengthen digital adoption as a catalyst for HRM capacity ($\beta = 0.332 \rightarrow$ HRMC): Adopting digital services represents the practical implementation of technology within HRM processes. The measurement items focus on core HR functions already supported by digital platforms: recruitment and onboarding (ADS1), operational processes (ADS2), and performance evaluation (ADS3). These areas are ideal starting points for SMEs seeking a phased approach to transformation. Cloud-based HR systems can reduce paperwork, ensure compliance, and enable real-time data tracking. Managers should begin by identifying pain points in existing HR workflows and selecting digital tools that address them cost-effectively. New systems should be introduced with training programs to guarantee user-friendliness. In addition, adoption is not a one-and-done IT project but rather a continuous process of improvement and education. To enhance and develop digital technologies, it is essential to consistently collect feedback from users, particularly HR professionals and employees. If the adoption goes well, it will increase productivity, free up HR to focus on strategy and pave the way for more innovation. Since HR strategy and operational excellence are interdependent, ADS is an essential cog in the wheel. Digital service adoption directly and substantially affects HRM capabilities, confirming its critical role in HR modernization. Managers should view technology not as a crutch but as a tool that could assist them in reaching their long-term objectives. Greater investment in human resource information systems (HRIS), digital recruiting, online learning, and performance analytics is required to build HR competency over the long term. As a strategic facilitator, it is not moving forward but instead remaining put. External consultants or technology partners can assist with the selection and implementation as an alternative to a technical supplement. To stay competitive in the long run, SMEs should regard digital HR solutions like HRIS, online performance reviews, and e-learning platforms as investments, not expenses. Managers can track the adoption rate using phased digital transformation methods, including training, change communication, and measurable outcomes. Scalable solutions that align with the HR goals of the company can be chosen and implemented with the help of outside consultants or technology partners. Finally, leaders of SMEs significantly influence the outcomes of digital transformation since they are in charge of establishing long-term objectives and distributing available resources. As a result, leadership development should be at the center of any national or sectoral strategy for digital transformation. Targeted programs are needed to help small and medium-sized enterprise (SME) owners and managers develop digital leadership mindsets. To succeed in this digital age, you must be able to plan strategically, manage innovation, articulate digital change, and recover quickly from technological disruptions. It might be helpful for SMEs to have leadership coaching, mentorship programs, and workshops designed specifically for their operations. Furthermore, promoting peer learning networks among digital leaders undergoing transition across sectors has the potential to quicken the dissemination of information and exchange best practices. The chances of effective technology integration, cultural acceptance inside companies, and sustained organizational growth in competitive digital settings are greatly enhanced when leaders have a clear vision, commitment, and competence for digital HRM innovation.

(3) Enhance the perceived value of digital tools ($\beta = 0.141 \rightarrow$ ADS; $\beta = 0.085 \rightarrow$ HRMC): Perceived benefits strongly influence the motivation to adopt digital services and invest in HRM capacity. The items questionnaire identifies key areas where technology adds value: business efficiency (PE1), cost reduction (PE2), improved decision-making (PE3), and employee engagement (PE4). SME managers should actively communicate these advantages to their teams, especially during the early stages of digital adoption. Demonstrating how HR tools streamline recruitment, automate routine tasks, or improve performance reviews can help build employee support and justify resource allocation. Moreover, HR analytics and dashboards should be used to visualize performance improvements, making benefits more tangible. When employees and managers recognize direct improvements in their day-to-day work, their engagement with the systems deepens. Additionally, emphasizing the positive employee experience (e.g., mobile apps for leave requests or digital onboarding) can increase satisfaction and retention. The more clearly the benefits are understood and experienced, the more likely the enterprise will embrace further digital innovations. Therefore, perceived value must be

continuously measured, communicated, and integrated into digital strategy planning. Perceived Benefits significantly influence both adoption and capacity development. SME managers must actively communicate and demonstrate the practical advantages of digital HR tools, such as cost savings, improved decision-making, and operational efficiency. Awareness campaigns and internal training can help shift employee attitudes toward digital innovation. This underscores the importance of demonstrating the tangible value of digital tools across all levels of the organization. Managers must ensure that employees and HR practitioners understand how technology can simplify workflows, improve decision-making, and enhance employee engagement. Internal success stories, dashboard reporting, and promoting time savings or reduced costs can all help increase perceived value. Furthermore, leadership should involve employees in evaluating tools to ensure relevance and usability. Finally, enhancing awareness of digital HRM benefits by increasing global digitalization, many SME managers still lack awareness of the tangible advantages digital HRM systems can deliver. Therefore, targeted awareness campaigns are essential. Governments, trade associations, and technology vendors should collaborate to showcase real-world case studies where digital HRM adoption has led to measurable improvements in efficiency, employee engagement, cost reduction, and decision-making quality. These success stories should be widely disseminated through webinars, online platforms, and SME forums. Demonstration projects where SMEs can trial HR digital tools with minimal investment or risk will further demystify the transformation process. By making the strategic value of digital HRM visible and relatable, these efforts can shift perceptions from viewing digitalization as a costly burden to denying it as a driver of business performance and resilience. Enhancing benefit perception will lead to higher voluntary adoption rates and a stronger foundation for SME modernization.

(4) Improve organizational readiness ($\beta = 0.060 \rightarrow$ ADS; $\beta = 0.107 \rightarrow$ HRMC): Organizational readiness is essential for the successful implementation of digital tools in HRM. As reflected in the survey items, readiness, adequate IT infrastructure (ORR1), a digitally skilled workforce (ORR2), flexible internal operations (ORR3), and system-integrated processes (ORR4). SMEs often face limitations in one or more of these areas, which can hinder their ability to execute digital strategies effectively. Therefore, conducting regular digital capability assessments is crucial for identifying readiness gaps. Investments in IT infrastructure, cloud services, and cybersecurity are foundational. Equally important are human capital development training programs in digital HR systems, analytics, and remote collaboration tools, which should be provided for HR professionals and other key staff. Adapting swiftly to new technology also requires organizational structure and workflow flexibility. Businesses are better able to incorporate digital technologies and reap their benefits when they are culturally and structurally ready. Enabling a smoother and more lasting digital transition in HRM, organizational readiness bridges leadership vision and operational execution. Organizational readiness significantly impacts both results, even if it is not the strongest predictor. SMEs need to assess their workflow flexibility, employees' digital capabilities, and technical infrastructure. Regularly, you should conduct a digital readiness assessment to uncover gaps and help you allocate resources. This highlights the significance of SMEs assessing their internal capabilities before launching digital projects. Information technology (IT) infrastructure, personnel skill sets, operational adaptability, and internal procedures contribute to readiness. Invest in staff upskilling, especially in data management, system integration, and HR analytics, and regularly analyze your company's digital maturity. Last but not least, developing human capital that can thrive in digital settings is a key enabler of digital transformation success for SMEs. Consequently, trade groups and construction companies should launch massive capacity-building programs emphasizing HRM digital skills and digital leadership. The goal of these programs should be to provide HR professionals, senior managers, and owners of small and medium enterprises (SMEs) with the knowledge and skills necessary to effectively use cloud-based HR systems, digital recruitment platforms, e-learning, and HR analytics. To fit into the busy schedules of SME leaders, these training programs need to be practical, case-based, and available in both online and offline formats. In addition to signaling organizational readiness to stakeholders and incentivizing involvement, a certification system that recognizes "Digital HRM Competency" could be implemented. Improving managers' digital literacy and skills can close the skills gap, lessen opposition to technology change, and generate internal advocates for HR digitalization. This will make external digital assistance programs even more effective.

(5) Leverage policy mechanisms ($\beta = 0.100 \rightarrow$ ADS; $\beta = 0.066 \rightarrow$ HRMC): Policy mechanisms serve as critical enablers in SME digital transformation, especially in resource-constrained environments like Vietnam. The items assessed suggest that government support (PM1), tax or funding incentives (PM2), regulatory clarity (PM3), and HR-specific digital policy interventions (PM4) all contribute to motivating enterprises to adopt digital solutions. SMEs should stay informed and proactive in leveraging these opportunities by engaging with local business associations, chambers of commerce, and digital transformation support agencies. Policymakers, in turn, should design more accessible, targeted programs that reduce the cost and complexity of adopting digital HR systems. These may include subsidized HR technology packages, digital literacy training grants, and simplified compliance procedures for digital practices. HRM-specific incentives, such as support for cloud-based employee management systems or AI-based recruitment tools, can help SMEs shift from manual to intelligent HR processes. Furthermore, building a transparent regulatory environment helps reduce risk perception and strengthens organizational confidence in digital adoption. Policy mechanisms can close the gap between potential and actual transformation when properly aligned, allowing SMEs to enhance digital adoption and HRM capacity. Policy mechanisms have a moderate impact, especially on technology adoption. Policymakers and industry associations should offer financial incentives, digital vouchers, and training programs targeting SME HRtargeting SME HR digitalization. SMEs should proactively engage with available government or industry-level support schemes. Policymakers should continue offering digital transformation incentives such as training subsidies, tax relief for software adoption, and SME tech support centers. Managers should stay informed

about national programs, partner with public institutions, and leverage such resources to overcome budgetary and knowledge constraints. In addition to financial incentives, supportive regulatory environments are critical to encourage SMEs to adopt digital HRM solutions. Policymakers must establish clear and accessible legal frameworks covering e-signatures, electronic labor contracts, data privacy, cybersecurity standards, and digital HRM compliance. Ambiguity or absence of such frameworks increases perceived risk and discourages digital investment. Therefore, governments should introduce regulations and communicate and disseminate guidelines through SME training programs, public awareness campaigns, and consultation services. Moreover, regulatory sandboxes allow SMEs to pilot new digital HRM practices without immediate legal exposure, which could foster innovation. By providing legal clarity and reducing institutional uncertainty, it is possible to create a secure environment where SMEs are more confident to invest in HR digitalization. Over time, a robust digital governance ecosystem will catalyze broader technological adoption, organizational modernization, and workforce development in emerging economies. The study's findings suggest that policy support does influence digital service adoption among SMEs, although its impact was moderate compared to internal factors like leadership and technological readiness. A closer look at interview comments and survey data indicates that financial and technical policy instruments are more effective than purely regulatory ones. Motivating financial supports, such as tax incentives, subsidized software licenses, or low-interest loans for digital infrastructure, were frequently cited by SME respondents as motivating factors for digital investment. Meanwhile, technical assistance programs, such as government-sponsored training workshops, digital literacy campaigns, and consulting support through SME development agencies, were highly valued by firms lacking internal IT capacity. On the other hand, regulatory mandates, e.g., digital reporting requirements and labor compliance automation, had a weaker impact, possibly due to inconsistent enforcement or lack of awareness among SMEs. These results suggest that carrot-based incentives and capability-building supports in transitional economies like Vietnam are more effective policy levers than top-down compliance frameworks, especially for smaller firms.

(6) Foster a digital-friendly organizational culture ($\beta = 0.068 \rightarrow$ ADS; $\beta = 0.098 \rightarrow$ HRMC): Organizational culture significantly shapes how employees respond to technological change. The measurement items highlight key cultural traits that support digital HRM transformation: innovation (OC1), openness to technology (OC2), teamwork (OC3), and adaptability (OC4). In SMEs, a culture that values experimentation and continuous learning is crucial to overcoming fear and resistance to digital systems. Leading by example, management should recognize and reward creativity, promote learning from one another, and standardize technology usage throughout the company. A collaborative learning environment can be created by creating internal forums where employees can share their successes and failures. HR directors should incorporate digital competencies into development programs and performance evaluations to reinforce cultural expectations. New systems can be implemented quickly and with less resistance in an environment that encourages change. In addition to boosting buy-in and long-term sustainability, it gives employees the power to contribute ideas and co-create solutions. Lastly, digital transformation in human resource management is about rolling out new tech and encouraging the correct mentality company-wide. By establishing a nurturing environment, SMEs pave the way for digital expansion and innovative workforce strategies. Digital adoption and HR capability are positively impacted by a culture that promotes innovation, learning, and change. To foster innovation, creativity, and a willingness to try new things, managers should create workplaces that encourage these traits. To make sure any digital rollout lasts, there should be programs to modify people's culture. A culture that encourages and supports learning, creativity, and adaptation should be promoted by managers. Building digital literacy, celebrating experimentation, and rewarding behaviors that correspond with transformation goals should be led by HR departments. The key to long-term success is keeping communication open and including people in the transition process.

5-3- Limitations and Further Research

Despite its valuable contributions, this study has several limitations that warrant consideration and open avenues for future research. First, the cross-sectional research design limits the ability to infer causal relationships among variables. While structural equation modeling (SEM) provides strong evidence of associations, longitudinal or experimental studies are needed to causality and capture dynamic changes confirmed in digital service adoption and HRM capacity over time. Second, the study's geographic focus on Vietnam may restrict the generalizability of the findings to other emerging or developed economies with different institutional, technological, and cultural environments. Future research should replicate the model in diverse national contexts, enabling comparative analysis across countries or regions to enhance external validity. Third, while this study concentrated on SME managers' perspectives, it did not include the perspectives of other stakeholders such as employees, HR practitioners, or technology providers. Future studies could adopt a multi-stakeholder approach to gain a more comprehensive understanding of digital HRM transformation processes. Fourth, although an extensive set of organizational and environmental factors was examined, potential moderating or mediating influences, such as digital maturity level, firm size, or industry type, were not fully explored. Future research could incorporate these moderating variables to refine and contextualize the proposed model. Finally, qualitative or mixed-methods longitudinal case studies could provide richer insights into the lived experiences, challenges, and best practices encountered during HRM digitalization journeys in SMEs, offering valuable to theory and practice alike. By addressing these limitations, future research can build a deeper, more nuanced, and globally relevant understanding of how digital transformation strategies impact HRM effectiveness in SMEs.

6- Declarations

6-1- Author Contributions

Conceptualization, L.P.N. and P.T.T.; methodology, L.P.N. and P.T.T.; formal analysis, L.P.N. and P.T.T.; investigation, L.P.N. and P.T.T.; writing—original draft preparation, L.P.N. and P.T.T.; writing—review and editing, L.P.N. and P.T.T. All authors have read and agreed to the published version of the manuscript.

6-2- Data Availability Statement

The data presented in this study are available in the article

6-3- Funding

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6-4- Acknowledgements

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6-5- Institutional Review Board Statement

Not applicable.

6-6- Informed Consent Statement

Not applicable.

6-7- Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this manuscript. In addition, the ethical issues, including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, and redundancies have been completely observed by the authors.

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Appendix I

Table A1. Research questionnaires

Measured items	5-point Likert scale				
Leadership Support (LS)					
LS1: Manager strongly supports digital transformation initiatives	(1)	(2)	(3)	(4)	(5)
LS2: Leadership in the organization actively promotes the use of digital services	(1)	(2)	(3)	(4)	(5)
LS3: Senior leaders encourage employees to participate in digital change	(1)	(2)	(3)	(4)	(5)
LS4: Leaders are involved in strategic planning related to digital HRM	(1)	(2)	(3)	(4)	(5)
Organizational Readiness (ORR)					
ORR1: Enterprise has adequate IT infrastructure to support digital services	(1)	(2)	(3)	(4)	(5)
ORR2: Enterprise has trained staff who are capable of using digital tools	(1)	(2)	(3)	(4)	(5)
ORR3: Enterprise is flexible and can adapt quickly to technological changes	(1)	(2)	(3)	(4)	(5)
ORR4: Internal processes are ready to be integrated with digital systems	(1)	(2)	(3)	(4)	(5)
Policy Mechanisms (PM)					
PM1: Government support encourages us to adopt digital technologies	(1)	(2)	(3)	(4)	(5)
PM2: Tax or funding policies reduce the cost of technology adoption for enterprises	(1)	(2)	(3)	(4)	(5)
PM3: There are clear legal/regulatory guidelines for digital transformation	(1)	(2)	(3)	(4)	(5)
PM4: Policy support helps enterprises improve HR practices through digital tools	(1)	(2)	(3)	(4)	(5)
Organizational Culture (OC)					
OC1: Enterprise encourages innovation and experimentation	(1)	(2)	(3)	(4)	(5)
OC2: Employees are open to adopting new technologies	(1)	(2)	(3)	(4)	(5)
OC3: There is a strong culture of teamwork and collaboration	(1)	(2)	(3)	(4)	(5)
OC4: Enterprise culture supports change and adaptability.	(1)	(2)	(3)	(4)	(5)
Perceived Benefits (PE)					
PE1: Digital services help improve the business efficiency	(1)	(2)	(3)	(4)	(5)
PE2: Using digital tools reduces operational costs	(1)	(2)	(3)	(4)	(5)
PE3: Digital solutions enhance HR decision-making processes	(1)	(2)	(3)	(4)	(5)
PE4: Technology adoption improves employee satisfaction and engagement	(1)	(2)	(3)	(4)	(5)
Adoption of Digital Services (ADS)					
ADS1: Enterprise currently uses digital platforms for employee recruitment and onboarding	(1)	(2)	(3)	(4)	(5)
ADS2: HR processes are supported by cloud-based or digital tools	(1)	(2)	(3)	(4)	(5)
ADS3: Performance evaluation system is supported by digital technology	(1)	(2)	(3)	(4)	(5)
Human Resource Management Capacity (HRMC)					
HRMC1: Enterprise has an effective system for managing employee performance	(1)	(2)	(3)	(4)	(5)
HRMC2: The HR department contributes to organizational growth and innovation	(1)	(2)	(3)	(4)	(5)
HRMC3: Enterprise is capable of aligning HR strategies with business goals	(1)	(2)	(3)	(4)	(5)

Note: A 5-point Likert scale states the level of agreement in five points. The 5-point Likert scale consists of the below points – (1) Strongly Disagree; (2) Disagree; (3) Neither Agree nor Disagree; (4) Agree; (5) Strongly Agree.