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Applying Structural Equation Model to Explore the Impact of Performance Management on Business Performance at Small and Medium Enterprises

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Abstract

This study investigates how key organizational factors shape performance management and how performance management, in turn, enhances business performance among small and medium enterprises in Vietnam. The research aims to clarify the extent to which enterprise culture, internal communication, training and development, reward systems, and digital transformation influence managerial effectiveness and organizational outcomes. Building on strategic human resource management and organizational performance theories, the study develops and validates a structural model that integrates both human and technological dimensions of enterprise performance. A mixed-methods design was employed. The qualitative phase involved in-depth interviews with managers to refine the conceptual framework and contextualize measurement indicators. The quantitative phase surveyed 864 managers from small and medium enterprises across southern Vietnam to empirically test the model. Structural equation modeling was applied to examine the relationships among core organizational factors, performance management, and business performance, as well as the moderating effect of digital transformation. The findings show that training and development exert the most substantial positive influence on performance management, followed by reward systems, internal communication, and enterprise culture. Performance management significantly enhances business performance, confirming its role as a strategic mechanism that translates organizational capabilities into improved outcomes. Digital transformation directly improves business performance and enhances the impact of performance management by enabling real-time data use, transparency, and process efficiency. Overall, the study provides empirical evidence that strengthening human resource practices and integrating digital technologies are essential for improving performance management and fostering sustainable growth among Vietnamese small and medium enterprises. The results have important implications for managers and policymakers seeking to build performance-driven, digitally adaptive business environments in emerging economies.

Keywords: Performance Management, Business Performance, Digital Transformation, Smes, Structural Equation Modeling

1. Introduction

In the era of global integration and digital transformation, Small And Medium Enterprises (SMEs) play a pivotal role in driving economic growth, generating employment, and fostering innovation in emerging economies. In Vietnam, SMEs account for approximately 97% of all registered enterprises and contribute more than 45% of the national GDP. Despite their critical role, many Vietnamese SMEs continue to face challenges in improving productivity, sustaining competitiveness, and achieving consistent business performance. Among the key drivers of organizational success, Performance Management (PM) has emerged as a central mechanism linking human resource practices with strategic outcomes.

Performance management is not merely a process of evaluating employee performance but a strategic and continuous cycle that includes goal setting, monitoring, feedback, and development to align individual and organizational objectives [1], [2]. In the SME context, PM acts as a vital system for translating organizational vision into measurable performance indicators, enhancing accountability, and fostering employee engagement. However, previous research indicates that many Vietnamese SMEs implement PM informally, with limited integration into strategic planning or technological systems. This often leads to inconsistent evaluations, unclear performance indicators, and a weak connection between employee results and overall business performance.

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Moreover, the Digital Transformation (DT) era introduces both opportunities and complexities for SMEs. The adoption of digital technologies, such as performance dashboards, data analytics, and HR information systems, can significantly enhance the effectiveness of performance management [3], [4]. Yet, the successful integration of such technologies depends on organizational readiness, leadership commitment, and employee adaptability. Consequently, understanding how digital transformation interacts with performance management to influence business performance is both timely and crucial [5].

From a theoretical standpoint, this study builds upon the Strategic Human Resource Management (SHRM) framework, which posits that well-designed HR practices, including PM, can lead to improved organizational outcomes when aligned with strategic objectives [6], [7]. In this regard, Training And Development (TD), Reward Systems (RS), Internal Communication (IC), and Enterprise Culture (EC) are identified as key antecedents influencing the effectiveness of performance management. Prior studies have suggested that these factors foster motivation, clarity, and commitment, ultimately driving better business results. However, empirical research examining these relationships within the Vietnamese SME sector remains limited.

To fill this gap, this study proposes and empirically tests a Structural Equation Model (SEM) to explore the relationships among these organizational factors, performance management, and business performance, while incorporating the moderating role of digital transformation. The study is grounded on the premise that effective PM systems act as a strategic bridge between human capital and business outcomes, and that digital transformation can amplify this linkage by enabling more transparent, data-driven, and responsive management practices.

The research was carried out in two phases. The qualitative phase involved in-depth discussions with 30 SME managers to validate constructs and contextualize measurement scales for the Vietnamese environment. The quantitative phase then surveyed 900 managers in Dong Nai Province and Ho Chi Minh City, yielding 864 valid responses for statistical analysis using SmartPLS 4.0. The findings reveal that training and development have the most substantial impact on PM effectiveness, while PM itself exerts a strong positive influence on business performance. Additionally, digital transformation both directly enhances performance outcomes and strengthens the PM–BP relationship.

This study contributes to the literature in three important ways. First, it extends PM research by incorporating digital transformation as a moderating factor in the SME context. Second, it provides robust empirical evidence from a developing economy, offering practical insights for managers seeking to improve performance through human resource and technological alignment. Third, it provides policy implications for promoting performance-oriented, digitally integrated management practices among Vietnamese SMEs.

Finally, this paper underscores the strategic importance of performance management as a core driver of business performance, primarily when supported by human resource practices and digital transformation initiatives. The subsequent sections present the theoretical framework, methodology, empirical results, and managerial implications derived from the study.

2. Literature Empirical Review and Hypothesis Development

2.1. Performance Management (PM)

PM is widely recognized as a strategic, continuous process that improves both individual and organizational effectiveness through goal alignment, evaluation, and feedback [8], [9]. Unlike traditional performance appraisal, which focuses on evaluating past achievements, PM emphasizes future-oriented development by integrating planning, monitoring, and coaching into daily management activities. It ensures that employees' efforts are directed toward achieving the organization's strategic objectives while fostering motivation and accountability.

In the context of SMEs, performance management plays a crucial role in enhancing productivity and sustaining competitiveness [10]. Given their limited resources and often informal management structures, SMEs can benefit greatly from a structured PM system that clarifies performance expectations, links rewards to outcomes, and provides opportunities for learning and improvement. Studies suggest that effective PM systems not only improve employee engagement but also enhance organizational performance, particularly when combined with transparent communication and supportive leadership [11], [12]. Therefore, understanding the mechanisms through which PM

influences business performance provides both theoretical and practical value for SME development and competitiveness.

2.2. Business Performance (BP)

BP represents the degree to which an enterprise achieves its strategic and operational objectives through efficient utilization of resources, human capital, and innovation [13], [14]. It encompasses both financial and non-financial dimensions, including profitability, revenue growth, productivity, customer satisfaction, and employee retention. In SMEs, business performance is often influenced by internal managerial practices, particularly those related to human resource management and organizational learning [15]. Effective PM systems contribute significantly to business performance by translating strategic goals into measurable outcomes and fostering a performance-oriented culture [16], [17], [18]. In emerging economies such as Vietnam, where SMEs face limited resources and technological constraints, improving business performance depends on aligning human capital management with strategic direction. Thus, BP serves as a key dependent construct in this study, reflecting the combined effect of performance management practices, organizational culture, communication, rewards, and digital transformation on the long-term success of SMEs.

2.3. Enterprise Culture (EC)

EC refers to the shared values, beliefs, norms, and behavioral expectations that shape how employees interact, make decisions, and pursue organizational goals [19]. A strong, cohesive culture lays the foundation for collaboration, innovation, and commitment, creating an environment where employees understand and internalize the organization's vision and mission [20], [21]. In SMEs, where formalized management systems are often limited, culture plays a particularly critical role in aligning employee behavior with strategic objectives. The performance-oriented culture enhances the organization's capacity for adaptability, consistency, and mission clarity, all of which contribute to effective PM. When cultural values support accountability, teamwork, and continuous improvement, managers and employees are more likely to engage actively in goal setting, monitoring, and feedback processes [22], [23], [24], [25]. Therefore, a positive, performance-driven organizational culture is expected to have both direct and indirect impacts on organizational outcomes through PM, and the authors had hypotheses H1 and H2 in figure 1.

2.4. Internal Communication (IC)

IC refers to the processes and systems through which information, ideas, and feedback are exchanged among members of an organization to support decision-making, coordination, and engagement [26]. Effective internal communication ensures that employees understand organizational goals, performance expectations, and changes in business strategy [27]. It also enhances transparency, trust, and collaboration between managers and subordinates, key factors that determine the success of PM initiatives. In small and medium enterprises (SMEs), internal communication serves as the connective mechanism that links leadership vision with employee action. Because SMEs typically have flatter structures and limited formal systems, open communication channels help maintain alignment and responsiveness [28], [29]. In Vietnamese SMEs, where cultural characteristics emphasize hierarchy and interpersonal relationships, effective communication is essential for translating strategic objectives into measurable performance outcomes. The authors formulated hypotheses H3 and H4 in figure 1.

2.5. Training and Development (TD)

TD plays a crucial role in building human capital and compensating for the limited technological and financial resources that often constrain competitiveness [30], [31], [32]. An effective TD program contributes to the success of performance management by ensuring that employees possess the necessary competencies to meet performance standards and organizational objectives [33]. Regular training enhances employees' confidence, engagement, and alignment with company goals, thereby improving the accuracy and acceptance of performance evaluation processes. Prior research found that continuous learning opportunities foster a high-performance culture, reduce turnover, and positively influence both individual and organizational outcomes [34]. Moreover, TD directly influences Business Performance (BP) by increasing productivity, innovation, and adaptability to market changes. In emerging economies such as Vietnam, investment in training and development is increasingly recognized as a strategic lever for sustainable growth among SMEs, and the authors had hypotheses H5 and H6 in figure 1.

2.6. Reward System (RS)

RS encompasses all financial and non-financial incentives provided by an organization to recognize employee contributions and encourage desired behaviors [35]. It includes salaries, bonuses, promotions, recognition programs, and career advancement opportunities. A well-designed reward system links employee performance to organizational objectives, ensuring that individual efforts are aligned with the enterprise's strategic goals [36]. In SMEs, where resources are often limited, an effective RS serves as a critical motivational tool to attract, retain, and engage talent. Empirical research has consistently demonstrated that reward practices positively influence PM by reinforcing accountability and enhancing employee motivation [37], [38]. In addition to its influence on PM, the reward system directly affects business performance by driving productivity, creativity, and employee commitment. In the Vietnamese SME context, performance-based rewards are increasingly viewed as strategic mechanisms for achieving competitiveness and long-term sustainability, and the authors had hypotheses H7 and H8 in figure 1.

2.7. Digital Transformation (DT)

DT is the process of integrating digital technologies across all aspects of business operations to enhance efficiency, innovation, and customer value creation [39]. It involves not only adopting digital tools such as data analytics, cloud computing, and performance dashboards, but also transforming organizational culture and processes to leverage these technologies effectively [40]. For small and medium enterprises (SMEs), DT is particularly crucial in improving competitiveness and responsiveness in an increasingly digital economy. In the context of PM, digital transformation enables real-time data collection, objective evaluation, and transparent communication between managers and employees. Digital tools facilitate continuous monitoring of performance indicators, support timely feedback, and improve decision-making accuracy [41], [42]. Furthermore, DT directly contributes to business performance by increasing operational efficiency, market adaptability, and innovation capacity. It also plays a moderating role in the relationship between PM and BP, amplifying the impact of effective PM systems on organizational outcomes through data-driven insights and faster performance tracking. The authors had hypotheses H9 and H10 in figure 1.

2.8. Performance Management (PM) affecting Business Performance (BP).

PM has long been recognized as a strategic mechanism that links human resource practices with organizational outcomes [43]. By setting clear objectives, monitoring progress, providing feedback, and rewarding achievements, PM aligns employee behavior with the enterprise's strategic goals. Effective PM systems ensure that individuals understand performance expectations, receive support to enhance their competencies, and are evaluated on objective, transparent criteria [44]. This alignment fosters motivation, accountability, and engagement, key drivers of improved organizational performance.

Numerous empirical studies have established a strong relationship between PM and Business Performance. The study demonstrated that organizations with structured PM systems achieve higher levels of productivity, innovation, and profitability. PM contributes not only to financial outcomes but also to non-financial performance indicators such as customer satisfaction, employee retention, and organizational learning [45]. In SMEs, where resources are often constrained, PM provides a systematic framework for optimizing human capital and ensuring operational efficiency. In the Vietnamese SME context, effective performance management is essential to sustaining competitiveness and adapting to digital and market changes. The present study fills this gap by integrating organizational culture, communication, training, rewards, and digital transformation into a unified structural model grounded in SHRM. This offers a more focused lens on the mechanisms through which SMEs build internal capabilities that subsequently convert into measurable performance gains.

By integrating RBV and dynamic capabilities, the model proposed in this study explains not only what resources SMEs possess but also how they deploy and reconfigure these resources through performance management to achieve business performance improvements. This dual-theoretical grounding highlights that performance management is not a static administrative tool but an organizational capability that shapes, aligns, and transforms internal resources in response to changing competitive demands. When employees are empowered through continuous evaluation and development, the organization achieves superior business outcomes, as hypothesized in H11 in figure 1.

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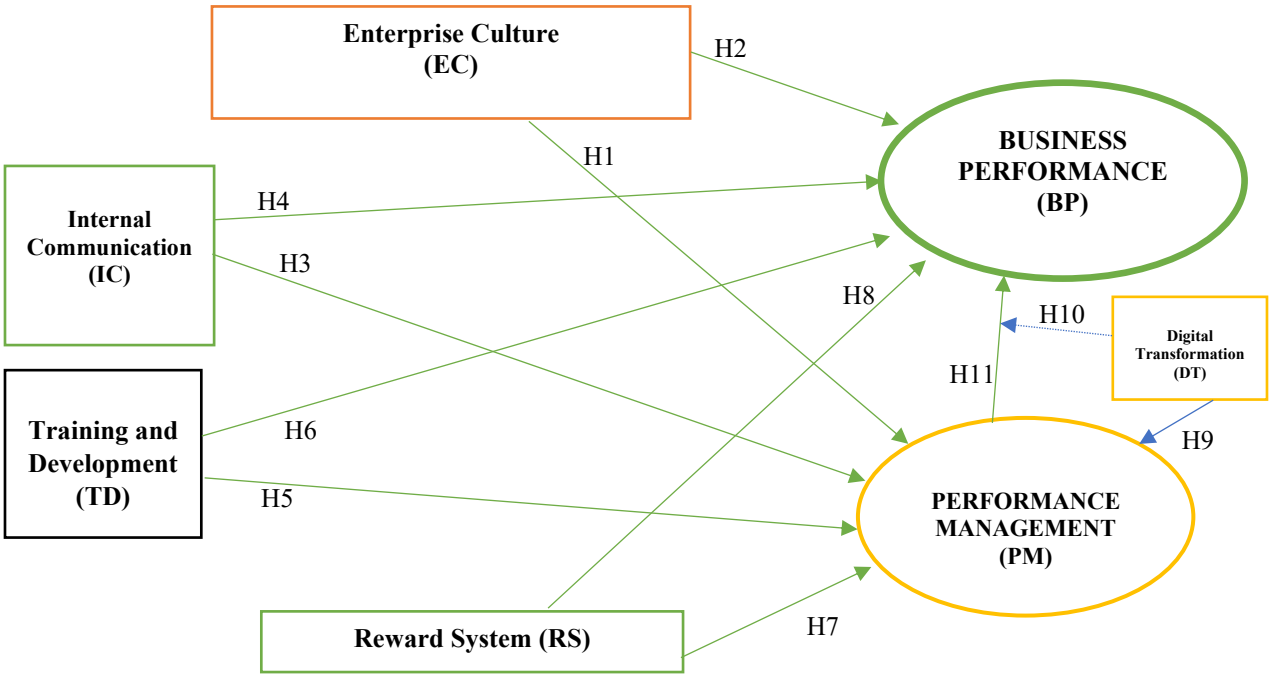

Figure 1. A study model for factors influencing performance management and business performance

Figure 1 shows that the model assumes that Enterprise Culture (EC), Internal Communication (IC), Training and Development (TD), and Reward System (RS) serve as the primary organizational determinants that directly influence PM and BP. In turn, PM acts as a mediating construct that channels the effects of these internal factors toward improved business outcomes. Additionally, Digital Transformation (DT) is incorporated as both a direct antecedent of PM and BP and a moderating factor that strengthens the relationship between PM and BP.

3. Methodology and Data

3.1. Qualitative Research

The study adopted a two-phase mixed-methods design, beginning with a qualitative exploration to refine the conceptual model and develop measurement instruments suitable for the Vietnamese small- and medium-sized enterprise (SME) context. This phase was essential to ensure the reliability, cultural relevance, and content validity of the research constructs before conducting the large-scale quantitative survey.

A series of in-depth interviews and focus group discussions was conducted with 30 managers and executives from SMEs operating in Dong Nai Province and Ho Chi Minh City, two major economic regions in southern Vietnam. The participants represented diverse industries, including manufacturing, services, trade, and logistics. They were selected through purposive sampling, ensuring each had at least 5 years of managerial experience and direct involvement in PM or human resources.

The interviews were semi-structured, guided by a discussion framework derived from the literature on performance management, business performance, and digital transformation [46]. Each interview lasted approximately 60–90 minutes, allowing participants to express their perspectives on factors affecting PM effectiveness, digital transformation adoption, and overall business outcomes.

Data collected from the interviews were transcribed and analyzed using thematic analysis [46]. Key themes were identified and compared with constructs from the theoretical framework. The findings confirmed the relevance of five key dimensions, such as EC, IC, TD, RS, and DT, as significant antecedents influencing PM and BP.

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Insights from the qualitative phase guided the refinement of measurement items and the wording of the official questionnaire. This process ensured conceptual clarity, contextual appropriateness, and strong construct validity, forming a solid foundation for the subsequent quantitative analysis.

3.2. Quantitative Research

Following the qualitative phase, the quantitative research was conducted to test the conceptual framework empirically and the proposed hypotheses using the SEM approach. This phase aimed to identify the relationships among enterprise culture, internal communication, training and development, reward systems, digital transformation, performance management, and business performance within Vietnamese SMEs.

3.2.1. Research Design and Sampling

A cross-sectional survey design was adopted, employing a structured questionnaire as the primary data collection instrument. The target population consisted of managers, department heads, and executives working in SMEs in Dong Nai Province and Ho Chi Minh City, Vietnam. These two regions were selected because they represent the most dynamic industrial and service-oriented economic areas in the southern part of the country, with a high concentration of SMEs operating across various sectors such as manufacturing, trade, and logistics [46].

A purposive sampling technique was applied to ensure that respondents possessed relevant experience in managing or evaluating PM systems. Each participant was required to have at least three years of managerial expertise and to be directly involved in HR-related or operational decision-making. A total of 900 questionnaires were distributed via both online platforms (Google Forms and email - Table A1) and in-person visits between April and July 2025. After data screening and validation, 864 usable responses were retained for further analysis, representing a response rate of 96%. The final sample of 864 valid responses is adequate for structural equation modeling according to commonly cited rules of thumb. The measurement model includes 36 observed indicators and seven latent constructs, which yields a ratio of approximately 24 respondents per item. This substantially exceeds the frequently recommended minimum of 10–20 respondents per estimated parameter or indicator for structural equation models. In addition, for partial least squares structural equation modeling, methodological guidelines propose that the sample size should be at least ten times the number of structural paths directed toward any endogenous construct. In the present model, the maximum number of predictors converging on a single construct is 7; therefore, the minimum recommended sample size is 70 observations. Our N of 864 greatly surpasses this requirement, supporting the sufficiency of the sample for reliable estimation and hypothesis testing.

3.2.2. Measurement of Variables

The questionnaire consisted of 36 observed items measuring seven latent constructs: (1) Enterprise Culture (EC), (2) Internal Communication (IC), (3) Training and Development (TD), (4) Reward System (RS), (5) Digital Transformation (DT), (6) Performance Management (PM), and (7) Business Performance (BP). All items were measured on a five-point Likert scale ranging from 1 = Strongly Disagree to 5 = Strongly Agree. The measurement scales were adapted from established instruments in prior studies and modified to fit the Vietnamese SME context [46]. The final questionnaire was translated into Vietnamese and back-translated into English to ensure linguistic equivalence and conceptual accuracy.

3.2.3. Data Analysis Procedures

The authors continue utilizing SPSS 26 and SmartPLS 4.0, and the data analysis was carried out. The reliability and validity of the structural and measurement models were checked using a multi-step analytical approach. Using reliability tests and descriptive statistics, we looked at the responder demographic profile. Good internal consistency was indicated by Cronbach's Alpha and Composite Reliability (CR), both of which exceeded the required 0.70. An Exploratory Factor Analysis (EFA) was carried out to evaluate the components' dimensionality. The data were deemed adequate for factor analysis, as the Kaiser-Meyer-Olkin (KMO) score exceeded 0.5 and Bartlett's Test of Sphericity was statistically significant ($p < 0.001$). All standardized factor loadings in the measurement model exceeded 0.60, indicating that the model was validated via Confirmatory Factor Analysis (CFA). Convergent validity was confirmed by Average Variance Extracted (AVE) values over 0.50, while discriminant validity using the Fornell-Larcker criterion.

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Structural Equation Modeling (SEM): SEM was used to test the hypothesized relationships among the latent variables. The model fit indices met acceptable thresholds: $\chi^2/df < 3.0$, CFI > 0.90, TLI > 0.90, and RMSEA < 0.08. The results indicated strong explanatory power, with R^2 values of 0.3 for Performance Management and 0.3 for Business Performance. Hypothesis Testing: The path coefficients were evaluated for direction, magnitude, and significance. All hypothesized relationships (H1–H11) were supported, confirming that PM mediates the effects of EC, IC, TD, and RS on BP. At the same time, DT has both a direct and moderating impact on these relationships. Among the 864 respondents, approximately 67% held middle-management positions, while 33% occupied senior or executive roles. Most respondents (72%) had 5–10 years of professional experience, and 61% worked in organizations employing 50–300 employees, consistent with the SME classification under Vietnamese law. These characteristics indicate that the respondents had sufficient managerial experience to provide informed insights into performance management practices.

4. Empirical Results

4.1. Demographic Characteristics of Respondents

A total of 864 valid responses were collected from managers and executives of Small And Medium Enterprises (SMEs) in Dong Nai Province and Ho Chi Minh City. The demographic distribution of the respondents is summarized and analyzed as follows. Gender Distribution: Out of the 864 respondents, 511 were male (59.1%) and 353 were female (40.9%). This distribution indicates that male managers still hold a majority of leadership and management roles within Vietnamese SMEs, though female participation remains significant. The gender balance suggests increasing representation of women in managerial positions, reflecting the gradual shift toward gender diversity in SME leadership. Marital Status: 537 respondents (62.2%) were single, while 327 (37.8%) were married. The predominance of single respondents suggests that many managers are relatively young professionals, consistent with the age profile of SME leadership in Vietnam's growing business environment.

Age Structure: The largest age group among respondents was 30–40 years old (52.2%), followed by 25–30 years old (24.2%), above 40 years old (16.0%), and under 25 years old (7.6%). This distribution reflects a workforce dominated by middle-aged professionals with sufficient managerial experience and adaptability to new management practices and technologies. Monthly Income: 38.0% of respondents earned between 15 and 20 million VND per month, while 36.0% earned more than 20 million VND per month. Approximately 21.2% earned between 15 and 20 million VND, and 4.9% earned less than 15 million VND monthly. The results indicate that most managers receive relatively competitive compensation levels within Vietnam's SME sector.

Type of Enterprise: Regarding business type, 33.8% of respondents worked in single-member limited liability companies, followed by 28.9% in private enterprises, 19.7% in joint-stock companies, and 17.6% in multi-member limited liability companies. This diversity demonstrates the sample's representativeness, encompassing a range of ownership structures typical of the SME sector. Operating Time of the Enterprises: In terms of operating duration, 39.9% of the surveyed enterprises had been in operation for 10–15 years, 33.0% for over 15 years, 20.3% for 5–10 years, and 6.8% for less than 5 years.

Table 1. Testing of Cronbach's alpha and composite reliability

Factors	Code	Items	Mean	Std. Deviation	Cronbach's alpha	Composite reliability	Average variance extracted
1. Enterprise Culture	EC	4	3.223	0.915	0.939	0.940	0.846
2. Internal Communication	IC	3	3.157	0.928	0.894	0.962	0.822
3. Training and Development	TD	4	3.253	0.982	0.907	0.910	0.784
4. Reward System	RS	4	3.311	0.922	0.855	0.953	0.636
5. Digital Transformation	DT	3	3.415	0.946	0.836	0.881	0.753
6. Performance Management	PM	3	3.672	0.961	0.834	0.867	0.751
7. Business Performance	BP	3	3.187	0.971	0.810	0.817	0.723

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Table 1 presents the reliability and convergent validity results for all latent constructs. The Cronbach's alpha coefficients range from 0.810 to 0.939, exceeding the threshold of 0.70 and confirming internal consistency across items. Composite reliability (CR) values, which fall between 0.817 and 0.956, also surpass the minimum accepted value of 0.70, indicating that each construct demonstrates strong reliability. Furthermore, all Average Variance Extracted (AVE) scores are above 0.50 (0.636–0.846), indicating satisfactory convergent validity and confirming that the indicators explain a substantial portion of the variance in their respective constructs. The mean scores (3.15 – 3.67) suggest moderate to high agreement among respondents.

Table 2. Factors affecting performance management and business performance

Factors	Original sample	Sample mean	Standard deviation	T statistics	P values
DT → BP	0.078	0.080	0.027	2.862	0.004
DT → PM	0.087	0.087	0.030	2.935	0.003
DT x PM → BP	0.050	0.051	0.024	2.051	0.040
EC → BP	0.143	0.143	0.028	5.093	0.000
EC → PM	0.054	0.053	0.024	2.196	0.028
IC → BP	0.063	0.065	0.027	2.373	0.018
IC → PM	0.072	0.073	0.024	2.966	0.003
PM → BP	0.316	0.315	0.034	9.261	0.000
RS → BP	0.088	0.088	0.031	2.872	0.004
RS → PM	0.135	0.138	0.031	4.334	0.000
TD → BP	0.252	0.252	0.032	7.880	0.000
TD → PM	0.504	0.505	0.035	14.241	0.000

Note: *** with 1%.

Table 2 summarizes the PLS-SEM results. All hypothesized relationships are statistically significant ($p < 0.05$), confirming the robustness of the model. Training and Development (TD) exerts the most decisive influence on Performance Management (PM) ($\beta = 0.504$, $p < 0.001$), followed by Reward System (RS) and Enterprise Culture (EC). Performance Management significantly enhances Business Performance (BP) ($\beta = 0.316$, $p < 0.001$), highlighting its mediating role between internal factors and organizational outcomes. Digital Transformation (DT) affects both PM and BP directly and moderates their relationship ($\beta = 0.050$, $p = 0.040$), suggesting that technology adoption amplifies performance outcomes. Overall, the findings validate the model's explanatory power and underscore PM's pivotal role in improving business success among Vietnamese SMEs.

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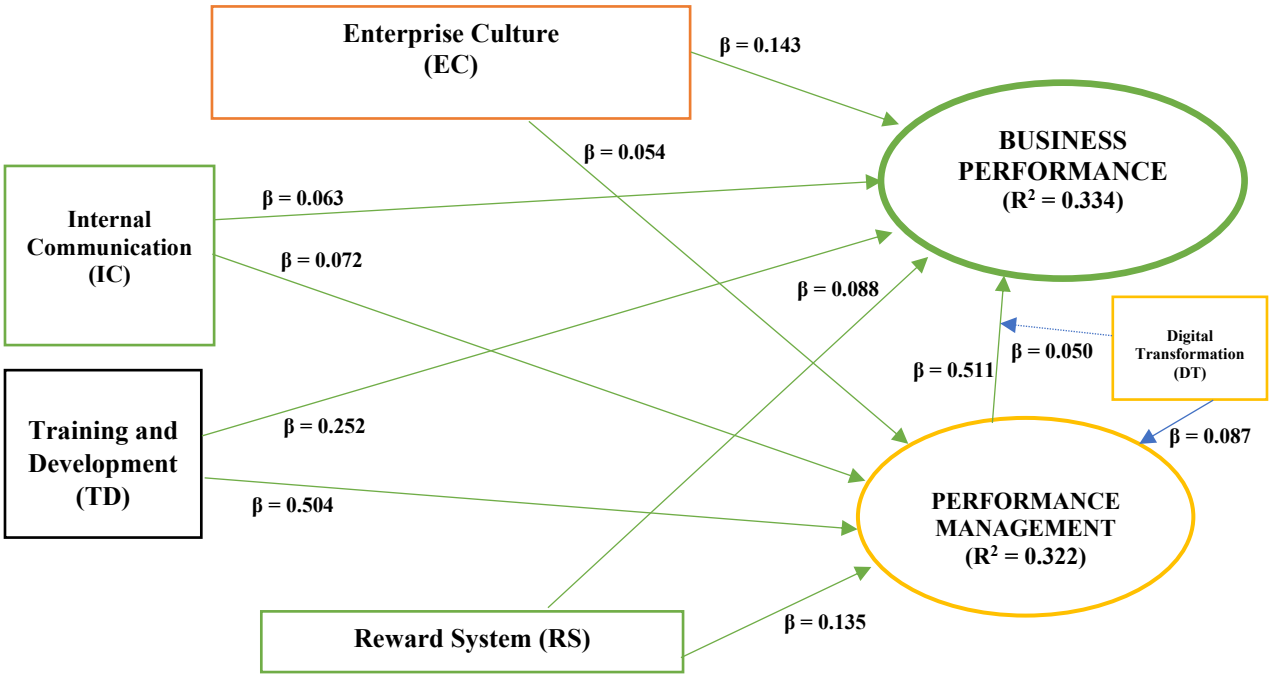

Figure 2. Testing results for factors affecting performance management and business performance

Figure 2 illustrates the structural relationships among the constructs in the research model. The standardized path coefficients and significance levels (in parentheses) demonstrate that all hypothesized paths are statistically significant at the 0.05 level or better. Training and Development (TD) shows the most potent positive effect on Performance Management (PM) ($\beta = 0.504$, $p < 0.001$), followed by Reward System (RS) ($\beta = 0.135$, $p < 0.001$) and Enterprise Culture (EC) ($\beta = 0.054$, $p = 0.028$). Performance Management, in turn, has a substantial positive influence on Business Performance (BP) ($\beta = 0.316$, $p < 0.001$), confirming its mediating role in the model. Digital Transformation (DT) significantly affects both PM ($\beta = 0.087$, $p = 0.003$) and BP ($\beta = 0.078$, $p = 0.004$), and also moderates their relationship ($\beta = 0.050$, $p = 0.040$). The model explains 32.2% of the variance in PM and 33.4% of the variance in BP, indicating strong explanatory power for organizational performance in Vietnamese SMEs. Overall, these results validate the measurement model's reliability and confirm that the scales for enterprise culture, internal communication, training and development, reward system, digital transformation, performance management, and business performance are statistically robust and appropriate for subsequent structural modeling.

To effectively address this issue, enterprises can implement some of the following recommendations:

(1) Linking business strategies and plans to employees' personal goals. Implementing this content will help employees understand that they can achieve personal goals only when the business accomplishes the goals outlined in the proposed business strategy. Therefore, there must be a clear commitment from the manager to the employees that they will achieve the desired benefits when completing assigned work of good quality through the policy system, emulation, and rewards.

(2) Standardize the system for evaluating employee work performance and individual and group achievements. To do this, businesses need criteria and methods for assessing accomplishments that are appropriate to their field of operation. Currently, many tools, such as BSC, OKR, and MBO, are used to evaluate employees. Therefore, it is necessary to consider and apply tools that are truly appropriate to the business's purpose and resources.

Third, the compensation policy needs to ensure market competitiveness and truly encourage employees. Enterprises need to build a salary system that is closely aligned with the job position and the employee's capacity and contribution to the enterprise. Moreover, table 2 shows that performance management is an essential human resource management activity and includes strategy and integration. Performance management activities include both the system and the implementation process, aimed at helping businesses achieve strategic business goals by supporting employees' efforts

to complete personal goals and providing a development roadmap for the entire organization, groups, and employees. However, in Vietnamese enterprises, performance management is mainly focused on performance evaluation, with greater emphasis on the present than the future. The assessment of the impact of performance management on employee performance and organizational and business performance has not been carefully considered.

4.2. Result Discussion

This section discusses the results of the SEM analysis that examined the factors influencing PM and business performance (BP) among SMEs in Vietnam. The model integrated both internal organizational factors, enterprise culture (EC), internal communication (IC), training and development (TD), and reward system (RS), and external dynamics, particularly digital transformation (DT), as determinants of PM and BP. The findings contribute to a deeper understanding of how internal managerial practices and technological adaptation jointly enhance business outcomes in emerging economies.

(1) Enterprise Culture (EC) and Its Impact: The results demonstrate that enterprise culture (EC) has a significant and positive influence on both performance management ($\beta = 0.054$, $p = 0.028$) and business performance ($\beta = 0.143$, $p < 0.001$) (In table 2). These findings confirm hypotheses H1 and H2, underscoring that a supportive, innovation-oriented organizational culture plays a critical role in driving managerial effectiveness and overall firm success [1], [3], [34], [47]. In Vietnamese SMEs, enterprise culture often reflects leadership values, employee cohesion, and shared corporate norms. A positive culture fosters open communication, teamwork, and a commitment to continuous improvement, which, in turn, strengthens PM systems. The significant path coefficient from EC to BP indicates that culture directly enhances performance outcomes such as productivity, customer satisfaction, and profitability. This aligns with previous studies, which argue that organizational culture is a powerful determinant of long-term performance. The result suggests that, for Vietnamese SMEs, cultivating an adaptive culture is particularly crucial in contexts of change and competitiveness.

(2) Internal Communication (IC) and Its Role: Internal communication (IC) significantly influences performance management ($\beta = 0.072$, $p = 0.003$) and business performance ($\beta = 0.063$, $p = 0.018$), supporting hypotheses H3 and H4 (in table 2). Effective communication channels facilitate the flow of information, feedback, and expectations within organizations, which are vital for performance appraisal and coordination [5], [17], [24], [48]. In the SME context, where structures are often less formalized, transparent communication ensures that employees understand strategic goals and performance standards. Moreover, clear communication reduces conflicts and enhances trust between management and staff, thereby improving motivation and engagement. The positive relationship between IC and BP indicates that firms with open internal dialogue are more likely to adapt to market demands and execute business strategies effectively. This finding is consistent with the work of Welch and Jackson (2007), who highlight that communication effectiveness is a critical antecedent of organizational performance.

(3) Training and Development (TD): Among all internal factors, training and development (TD) exerted the most potent effect on both performance management ($\beta = 0.504$, $p < 0.001$) and business performance ($\beta = 0.252$, $p < 0.001$). These results confirm hypotheses H5 and H6, underscoring that human capital development is a cornerstone of sustainable performance in SMEs (in table 2). In rapidly evolving business environments, especially amid digital transformation, continuous learning enhances employees' skills, adaptability, and innovation capacity [15], [23], [36], [49]. The strong link between TD and PM implies that investment in training directly improves the effectiveness of goal setting, performance evaluation, and employee feedback mechanisms. This relationship aligns with assertion that skill enhancement leads to greater alignment between individual and organizational goals. The significant path from TD to BP demonstrates that well-trained employees contribute not only through improved task execution but also through creative problem-solving and higher service quality. This outcome highlights a critical implication for SME managers in Vietnam: allocating sufficient resources to structured training programs is not merely an HR function but a strategic investment in long-term competitiveness.

(4) Reward System (RS) and Motivation: The results show that the reward system (RS) significantly influences both performance management ($\beta = 0.135$, $p < 0.001$) and business performance ($\beta = 0.088$, $p = 0.004$), validating hypotheses H7 and H8 (in table 2). This indicates that equitable, performance-based rewards play an essential role in achieving organizational objectives [13], [26], [50]. Both financial and non-financial rewards enhance employee

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satisfaction, retention, and productivity. In the context of Vietnamese SMEs, where pay structures can vary widely, fair compensation and recognition reinforce employee commitment to performance targets. The significant RS → PM relationship demonstrates that effective reward systems strengthen the feedback and evaluation components of PM, as employees are more likely to engage with transparent and merit-based processes. The RS → BP path further confirms that motivation and reward practices translate into tangible improvements in business outcomes such as sales growth, innovation, and customer retention. This finding resonates with Herzberg's Two-Factor Theory and Vroom's Expectancy Theory, emphasizing that rewards aligned with performance expectations yield stronger motivation and higher organizational performance.

(5) Digital Transformation (DT) as a Strategic Driver: Digital transformation emerges as both a direct and moderating factor affecting PM and BP. The results show that DT significantly influences performance management ($\beta = 0.087$, $p = 0.003$) and business performance ($\beta = 0.078$, $p = 0.004$), supporting hypotheses H9 and H10. Moreover, DT moderates the relationship between PM and BP ($\beta = 0.050$, $p = 0.040$), confirming hypothesis H11 (in table 2). These findings highlight that integrating digital tools and technologies enhances organizational efficiency, decision-making, and data transparency [25], [34], [51]. In performance management, digital platforms facilitate real-time tracking, analytics, and feedback systems, enabling managers to evaluate employee and departmental performance more accurately. Similarly, digitalization enhances BP by improving productivity, reducing costs, and enabling customer-centric innovation.

(6) The moderating effect of DT on PM → BP suggests that technology amplifies the impact of management practices on performance outcomes. In digitally advanced SMEs, performance data are utilized more effectively to inform strategy, improve process efficiency, and adapt quickly to environmental changes [20], [39], [51]. This finding aligns with Vial's framework, which argues that digital transformation reshapes business models by embedding data-driven decision-making and fostering agility. For Vietnamese SMEs, however, the adoption of digital solutions remains uneven due to financial constraints and limited technical expertise. The positive but modest coefficients imply that while DT is beneficial, its full potential can only be realized through complementary investments in skills, culture, and leadership.

(7) The Mediating Role of Performance Management (PM): The results strongly confirm that performance management serves as a mediating mechanism linking internal factors to business performance. The direct path PM → BP ($\beta = 0.316$, $p < 0.001$) is among the most significant in the model, underscoring PM's central role (in table 2). This finding supports the conceptualization that PM translates strategic goals, cultural values, and HR practices into measurable business results. Specifically, EC, IC, TD, and RS indirectly enhance BP by positively affecting PM [23], [37], [51]. This mediating relationship validates the argument that performance management serves as a "strategic integration process" that aligns individual performance with organizational strategy. When SMEs effectively plan, monitor, and evaluate performance, they not only improve operational efficiency but also foster innovation and customer responsiveness. The mediating role of PM has practical implications for SME leaders: strengthening PM systems through clear performance metrics, regular feedback, and digital integration can significantly boost organizational performance even under resource constraints.

Finally, the structural model exhibits strong explanatory power, accounting for 32.2% of the variance in Performance Management and 33.4% of the variance in Business Performance. These R^2 values indicate that the model effectively captures the main determinants of organizational success in the SME context. All path coefficients are positive and statistically significant, confirming the hypothesized relationships.

Theoretically, this study extends existing performance management literature by integrating digital transformation as both a direct and moderating variable. The findings reinforce resource-based and dynamic capability perspectives, suggesting that internal organizational capabilities (culture, communication, training, and reward systems) interact with digital capabilities to drive superior performance. This hybrid model demonstrates that technological adaptation does not replace traditional management practices but rather enhances their effectiveness.

Although the findings confirm the significant effects of organizational factors and digital transformation on performance management and business performance, these relationships may vary across different enterprise contexts. The demographic data collected in this study indicate substantial variation in industry type, ownership structure, and

enterprise maturity; however, these variables were not incorporated into the structural model. It is plausible that firms in manufacturing versus service sectors, younger versus more established enterprises, or privately owned versus limited-liability entities may experience performance management dynamics differently. Because these contextual conditions were not modeled analytically, the results should be interpreted as reflecting general patterns among small and medium enterprises rather than as uniform effects across all organizational settings. Future research should extend the model by treating these demographic characteristics as control variables or examining them through multi-group analysis to assess potential moderating effects.

While demographic descriptors such as gender, age, and marital status were included to characterize the respondent population, these variables were not incorporated into the analytical model because the study's theoretical framing focuses on organizational-level factors influencing performance management and business performance. As such, individual demographic traits were not hypothesized to play a direct or moderating role in the structural relationships. However, demographic differences may influence managerial perceptions, communication patterns, or readiness for digital transformation. Because these factors were not modeled, the results should be interpreted as reflecting aggregated managerial perspectives rather than effects that vary systematically across demographic subgroups. Future studies may benefit from testing whether demographic characteristics moderate the relationships identified in this model.

The effect sizes reveal a clear hierarchy of managerial priorities. The most significant practical gains arise when SMEs invest first in skill development, then reinforce performance expectations with appropriate rewards, and finally cultivate communication and cultural practices that enable these systems to function smoothly. Digital tools serve as amplifiers, strengthening the impact of these practices. This layered interpretation shifts the focus from statistical reporting to actionable strategy, offering SME leaders a roadmap for targeted performance enhancement.

5. Conclusions and Policy Recommendations

5.1. Conclusions

Based on a survey of 864 valid responses from SME managers in Dong Nai Province and Ho Chi Minh City, the research integrated five key determinants enterprise culture (EC), internal communication (IC), training and development (TD), reward system (RS), and digital transformation (DT) to explore their direct, indirect, and moderating impacts on PM and BP. The findings confirm that all proposed hypotheses are statistically significant, thereby validating the conceptual framework. Among internal organizational factors, training and development exerted the most potent positive effect on both PM and BP, highlighting the critical role of human capital enhancement in driving competitiveness. Enterprise culture, internal communication, and reward system also positively influenced PM and BP, reinforcing the view that intangible organizational assets, values, communication, and motivation form the foundation for effective performance management. The study further demonstrates that performance management is a crucial mediating mechanism translating these internal factors into improved business outcomes. This underscores the strategic role of PM as more than an administrative process; it serves as a dynamic system that links individual performance to organizational objectives. Moreover, digital transformation significantly affects both PM and BP and acts as a moderator that strengthens the PM–BP relationship. This finding reflects the growing influence of digital tools and technologies in optimizing performance evaluation, data-driven decision-making, and business efficiency. The model explains 32.2% of the variance in PM and 33.4% of the variance in BP, indicating robust explanatory power and substantial empirical support. Finally, this study provides a comprehensive understanding of how managerial practices and technological integration collectively shape performance management and business outcomes in Vietnamese SMEs. It contributes to both theoretical and practical discussions on how firms in emerging economies can sustain performance in the digital age. Overall, the results underscore that performance management functions as a core strategic capability that enables SMEs to translate internal practices and digital initiatives into improved business performance.

5.2. Policy Recommendations

The study contributes to existing literature in several ways. First, it extends the resource-based view (RBV) by demonstrating that internal organizational capabilities, culture, communication, training, and rewards serve as valuable,

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rare, and inimitable resources that enhance competitive advantage through performance management. Second, it integrates the dynamic capability theory by illustrating how digital transformation acts as an enabling capability that reinforces the impact of PM on business outcomes. Finally, the results of the SEM analysis provide valuable insights into the prioritization of policy and managerial interventions for enhancing PM and business performance (BP) in Vietnamese SMEs. The standardized path coefficients (β) indicate the relative strength of influence among constructs, allowing policymakers and business leaders to allocate resources effectively:

(1) Strengthening Training and Development (TD → PM: β = 0.504; TD → BP: β = 0.252): The strongest standardized coefficient in the model (β = 0.504) highlights training and development (TD) as the most influential driver of performance management (in table 2). This finding confirms that human capital enhancement is the foundation of organizational competitiveness. Policy implication: Government agencies (such as the Ministry of Labor, Invalids and Social Affairs and the SME Development Fund) should design targeted capacity-building programs focused on managerial skills, digital literacy, and performance evaluation methods for SME leaders. Encourage public–private partnerships among universities, business associations, and enterprises to co-develop short-term executive courses tailored to the needs of SMEs. Offer tax incentives or financial support to SMEs that invest in certified employee training programs. Managerial implication: SME managers should institutionalize continuous learning through internal mentorship, online learning platforms, and rotational development assignments. Prioritizing human capital investments yields the most direct and sustainable improvement in both PM and BP outcomes.
(2) Reforming Enterprise Reward Systems (RS → PM: β = 0.135; RS → BP: β = 0.088): Reward systems significantly influence employee motivation and engagement (in table 2). The results indicate that RS is the second most crucial internal driver of PM, with a notable impact on BP as well. Policy implication: The government and industry associations should issue guidelines on performance-based compensation that align bonuses and incentives with quantifiable outcomes. Develop national benchmarking frameworks for SME reward transparency to promote fairness and compliance with labor standards. Managerial implication: SME leaders should integrate monetary and non-monetary rewards, such as recognition programs, promotion opportunities, and flexible work policies, to strengthen employee satisfaction. Linking rewards directly to PM results will reinforce accountability and productivity.
(3) Cultivating Enterprise Culture (EC → BP: β = 0.143; EC → PM: β = 0.054): Enterprise culture, though often intangible, plays a pivotal role in shaping behavior and long-term performance. The coefficients indicate that EC has a greater direct impact on BP than on PM, suggesting that culture acts as a contextual enabler of success. Policy implication: The government should promote corporate culture awards and best-practice recognition programs among SMEs to incentivize innovation, ethics, and social responsibility. Integrate cultural leadership modules into national SME development initiatives to nurture visionary and ethical entrepreneurship. Managerial implication: Managers should build a collaborative, learning-oriented culture that emphasizes shared vision, trust, and adaptability. Cultural alignment enhances cohesion, enabling PM systems to function effectively.
(4) Enhancing Internal Communication (IC → PM: β = 0.072; IC → BP: β = 0.063): Internal communication facilitates coordination, feedback, and alignment of goals. Though its coefficients are moderate, IC remains a vital foundation for the success of PM processes. Policy implication: Encourage digital communication infrastructure within SMEs, particularly cloud-based collaboration tools, through technology adoption subsidies. Provide communication leadership training for SME executives to improve interpersonal and team dialogue skills. Managerial implication: Leaders should create open communication channels, regular performance meetings, suggestion systems, and internal newsletters to reinforce engagement and transparency. A communicative environment supports trust and clarity in PM execution.
(5) Accelerating Digital Transformation (DT → PM: β = 0.087; DT → BP: β = 0.078; DT×PM → BP: β = 0.050): Digital transformation exerts both direct and moderating influences on PM and BP, signifying its role as a strategic enabler. Although its standardized coefficients are lower than those of internal factors, its cross-functional impact is highly strategic. Policy implication: The government should expand its support for digitalization programs for SMEs, including training in ERP systems, HR analytics, and digital marketing. Offer low-interest digital transformation loans or grants for SMEs investing in software, automation, and cloud platforms. Establish regional Digital Innovation Hubs to provide consultation and technology incubation for SMEs. Managerial implication: SME managers must view digital transformation as a strategic necessity, not a short-term initiative. Integrating digital tools into PM, e.g., online

evaluation systems, KPI dashboards, and data analytics, improves the accuracy, speed, and transparency of performance assessments, ultimately strengthening BP.

(6) Cross-Construct Implication: Performance Management as a Strategic Integrator (PM → BP: β = 0.316): Performance management has a substantial and direct effect on business performance, confirming its mediating role among all variables. This relationship underscores PM's function as a strategic bridge that translates human and organizational capabilities into business success. Policy implication: National SME support agencies should promote PM as part of corporate governance and quality certification frameworks, e.g., ISO 9001, Balanced Scorecard, and KPI systems. Create policy incentives for SMEs that implement standardized PM frameworks linked to sustainability or innovation performance metrics. Managerial implication: Executives should embed PM systems into strategic planning to ensure goal alignment, continuous feedback, and data-driven evaluation. Regular PM reviews and digital dashboards can transform PM from a compliance task into a driver of innovation and competitiveness.

Limitations and future research: While the study provides valuable insights, several limitations should be acknowledged. First, the research sample was limited to SMEs in Dong Nai and Ho Chi Minh City, which may not fully represent other regions of Vietnam. Future studies should expand the geographical scope to include northern and central provinces for greater generalizability. Second, the study employed a cross-sectional design; hence, causal relationships should be interpreted with caution. Longitudinal studies could provide more substantial evidence of causality over time. Third, qualitative follow-up research could explore how cultural and digital factors interact dynamically within organizational processes. Future research may also consider external environmental factors, such as market turbulence, government policies, and international integration, that could influence PM-BP relationships. Comparative studies between SMEs and large enterprises, or across ASEAN economies, could further enrich understanding of performance management practices in different contexts. Moreover, the moderating effect of digital transformation, although statistically significant, is small in magnitude. This may reflect early-stage digital maturity among SMEs, variability in technology adoption across industries, or measurement constraints that captured only basic forms of digital use. The modest coefficient suggests that digital tools play a supportive rather than a transformative role in the PM–BP relationship. Future research should incorporate more detailed measures of digital integration or examine industry-specific digital readiness to understand better how technology shapes performance outcomes. Future research should expand the sampling frame to multiple regions or conduct cross-country comparisons to assess the robustness and transferability of the findings. Future research may explore which forms of state support are contextually appropriate and how policy instruments interact with firm-level capabilities. Although focus groups enriched the qualitative phase, their limited number and concentration in two provinces may constrain the range of perspectives captured. Future studies could expand the number of sessions across different regions to enhance qualitative depth. Although the study defines digital transformation at a strategic level, the measurement items may still capture varying degrees of digital maturity across SMEs. Future research should distinguish between baseline digitization, process-level digitalization, and full-scale digital transformation through multi-dimensional or tiered measurement models.

6. Declarations

6.1. Author Contributions

Conceptualization: N.T.T.T. and P.T.T.; Methodology: P.T.T.; Software: N.T.T.T.; Validation: N.T.T.T. and P.T.T.; Formal Analysis: N.T.T.T. and P.T.T.; Investigation: N.T.T.T.; Resources: P.T.T.; Data Curation: P.T.T.; Writing Original Draft Preparation: N.T.T.T. and P.T.T.; Writing Review and Editing: N.T.T.T. and P.T.T.; Visualization: N.T.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 on request from the corresponding author.

6.3. Funding

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6.4. Institutional Review Board Statement

Not applicable.

6.5. Informed Consent Statement

Not applicable.

6.6. Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have influenced the work reported in this paper.

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APPENDIX

Table A1. Research questionnaires

Code	Questionnaire Item	5-point Likert scale
EC1	Our organization encourages a shared sense of mission and purpose among employees.	(1) (2) (3) (4) (5)
EC2	Our employees strongly adhere to the company's core values.	(1) (2) (3) (4) (5)
EC3	The organizational culture consistently supports collaboration and teamwork.	(1) (2) (3) (4) (5)
EC4	Our organizational culture promotes continuous improvement and innovation.	(1) (2) (3) (4) (5)
IC1	Information related to organizational goals is communicated clearly to employees.	(1) (2) (3) (4) (5)
IC2	Managers provide timely and constructive feedback on work performance.	(1) (2) (3) (4) (5)
IC3	Communication channels in the organization support transparency and mutual understanding.	(1) (2) (3) (4) (5)
TD1	Employees receive the training necessary to perform their jobs effectively.	(1) (2) (3) (4) (5)
TD2	Training programs help employees develop competencies relevant to organizational goals.	(1) (2) (3) (4) (5)
TD3	Employees are encouraged to participate in continuous learning and skill enhancement.	(1) (2) (3) (4) (5)
TD4	The organization invests in development initiatives that support long-term employee growth.	(1) (2) (3) (4) (5)
RS1	Employees are rewarded fairly based on their work performance.	(1) (2) (3) (4) (5)
RS2	The reward system motivates employees to achieve higher performance levels.	(1) (2) (3) (4) (5)
RS3	Recognition and appreciation are given when employees perform well.	(1) (2) (3) (4) (5)
RS4	Promotion and advancement decisions are linked to demonstrated performance.	(1) (2) (3) (4) (5)
DT1	The organization adopts digital tools that improve operational efficiency.	(1) (2) (3) (4) (5)
DT2	Digital technologies support real-time performance monitoring and evaluation.	(1) (2) (3) (4) (5)
DT3	Digital systems enhance communication and information sharing across departments.	(1) (2) (3) (4) (5)
PM1	Performance objectives are clearly defined and aligned with organizational goals.	(1) (2) (3) (4) (5)
PM2	Employees receive regular evaluations based on objective performance criteria.	(1) (2) (3) (4) (5)
PM3	The performance management system helps employees improve their work effectiveness.	(1) (2) (3) (4) (5)
BP1	Our business has improved productivity over recent years.	(1) (2) (3) (4) (5)
BP2	Overall financial performance has improved compared with previous years.	(1) (2) (3) (4) (5)
BP3	Customer satisfaction and market responsiveness have increased.	(1) (2) (3) (4) (5)