RESEARCH ARTICLE

DOI: 10.54392/ajir26212

Asian Research Association

ASIAN JOURNAL OF INTERDISCIPLINARY RESEARCH

Performance Management Systems, Leadership, and Digital Maturity on Organizational Performance: A Multi-group SEM Approach

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DOI: https://doi.org/10.54392/ajir26212

Received: 18-09-2025; Revised: 11-04-2026; Accepted: 07-05-2026; Published: 10-06-2026

Abstract: This study investigates how performance management systems, performance management practices, leadership style, organizational culture, top management support, and digital maturity influence organizational performance in the Indian information technology sector. Although prior studies have examined these variables independently, limited research has integrated them within a single framework while also comparing their effects across multinational corporations and local start-up firms. Addressing this gap, the present study develops and tests a comparative model using multi-group structural equation modeling. Data were collected through a structured questionnaire from 371 employees, including 192 respondents from multinational corporations and 179 respondents from start-ups. The measurement model demonstrated satisfactory reliability, convergent validity, discriminant validity, and overall model fit. The structural results reveal that organizational culture and the strategic alignment of performance management systems are the most consistent and significant predictors of organizational performance across both organizational contexts. Leadership style exerts a significant positive influence in multinational corporations, indicating the importance of structured leadership in formalized organizational settings. In contrast, performance management practices show a negative effect in start-ups, suggesting that excessive formalization may constrain flexibility, responsiveness, and innovation in entrepreneurial environments. Top management support and digital maturity do not show significant direct effects, implying that their contributions may operate indirectly through broader organizational mechanisms. Overall, the findings demonstrate that the effectiveness of management practices is strongly context dependent. The study contributes to performance management literature by offering an integrated and comparative perspective and provides practical guidance for managers seeking to design context-sensitive strategies that improve organizational performance in diverse IT environments.

Keywords: Performance Management Systems, Organizational Performance, Digital Maturity, Multi-Group SEM, Multinational Corporations, Start-Up Firms.

1. Introduction

Organizational performance has gained its importance in the management research due to its crucial role in ensuring the sustainability and competitiveness of organizations (Heriansyah *et* al., 2025). Scholars determine organizational performance as both function of resource and organizational practice that integrates people, systems, and technology (Bieńkowska *et al.*, 2022; Tanko *et al.,* 2023). Therefore, Performance Management System (PMS) and Performance Management Practices (PMP) as crucial mechanisms to align individual with organizational objectives, leading to enhancement of overall organizational effectiveness (Bieńkowska *et al.*, 2022; Tanko *et al.*, 2023). Therefore, the dynamic and digital business environment demands organizations to deploy contemporary aspects into their performance management criteria that include leadership style, organizational culture, top management support, and digital maturity (Kurtessis *et al.*, 2017; Nadya Rana Hanum *et al.*, 2023).

PMS and practices provide vital inputs to organizations to determine clear objectives, evaluate employee performance, and provide feedback and determine rewards that enhance productive employee engagement at work (Muthoni Nduati & Wanyoike, 2022; Nadya Rana Hanum *et al.,* 2023; Suárez, 2016). When these systems are deployed, they foster employee motivation, determine roles, and create accountability structures that contribute to overall organizational effectiveness (Muthoni Nduati & Wanyoike, 2022). However, existing studies highlights the intricate relationship between how PMPs associate with broader organizational and contextual factors that include leadership and culture, and further suggests a need for an integrated frameworks for different organizational structures (Nadya Rana Hanum *et al.,* 2023). Another critical determining factor of organizational outcomes is leadership style, which shape employee behavior, organizational climate, and decision-making practices (Pizzolitto *et al.*, 2023). Studies underscores that the effectiveness of leadership depend upon context, with directive, participative, or empowering styles yielding varying results in different industries and organizational types (Pizzolitto *et al.,* 2023). The upper echelon theory further posits that the nature of top management, its values, and cognitive frames directly impact on strategic choices and organizational performance (Cai, 2023). In this way, leadership style and top management support collectively function as enablers of organizational alignment, resilience, and performance enhancement (Cai, 2023; Pizzolitto *et al.*, 2023).

Alongside leadership, organizational culture has constantly been associated with long-term performance. Defined as the common values, beliefs, and practices that guide behavior, culture provides a basis for employee commitment, adaptability, and innovation (Ahmad, 2012; Akpa *et al.*, 2021; Liu & Hussain, 2025). It has been confirmed from the studies, strong and adaptive cultures contribute to engagement, increase decision-making, and to support performance outcomes (Abdullahi *et al.*, 2020; Ichsan *et al.*, 2021). On the other hand, a misaligned culture can weaken organizational effectiveness, which highlights the importance of cultural alignment in dynamic environments (Akpa *et al.,* 2021). Simultaneously, the digital maturity has become one of the key performance drivers in the digital transformation era. It reflects an organization's ability to combine digital technologies, strategies, and capabilities to enhance operations and create value (Tanko *et al.,* 2023; Tubis, 2023). Digital maturity incorporates cultural, strategic, and technological dimensions, which influence innovation, adaptability, and efficiency (Tanko *et al.*, 2023). Experiential evidence shows that digital maturity play a significant role in enhancing organizational performance, especially when mediated by digital literacy and maintained by digital leadership (Tanko *et al.*, 2023). In the case of start-ups, digital maturity can provide agility and innovation, whereas in the case of MNCs, it strengthens scalability and global competitiveness.

Despite the wealth of literature, limited research has integrated PMPs, leadership, culture, top management support, and digital maturity into a unified framework of organizational performance, especially when comparing MultiNational Companies (MNCs) and start-ups. MNCs often possess established PMS and cultural systems, but may face challenges of rigidity, while start-ups exhibit flexibility and innovation but may lack structural consistency (Tanko *et al.,* 2023). Exploring these dynamics through a comparative lens is vital for understanding how organizational type moderates the effects of these factors on performance.

To fill this research gap, the present study employs a quantitative research design using Structural Equation Modeling (SEM) to study the combined effects of PMP, PMS, leadership style, organizational culture, top management support, and digital maturity on the organizational performance. Data were collected from 371 respondents (192 MNC employees and 179 start-up employees), and a multi-group SEM approach was employed to compare the two contexts. By integrating various organizational factors and comparing different organizational forms, this study contributes to a more comprehensive insight into drivers of organizational performance. By doing so, it provides both theoretical insights and practical implications for managers seeking to design effective PMS tailored to context of their organization. Research objectives of the study are as follows:

1. To examine the influence of PMP, PMS, leadership style, organizational culture, top management support, and digital maturity on organizational performance.
2. To compare the structural differences between MNCs and start-ups through multi-group SEM analysis, in order to identify context-specific drivers of organizational performance.

2. Literature Review

2.1 Performance Management Practices and Organizational Performance

PMP refer to a collection of activities that are interrelated, i.e., planning, monitoring, evaluation, and feedback are all activities that are aimed at incorporating individual employee efforts to larger organizational goals (Muthoni Nduati & Wanyoike, 2022). Strategically, PMP is a key mechanism by which organizations can translate intentions into tangible results and make sure that the performance is continuously enhanced. Empirical studies to date indicate that well-planned and well-executed PMPs positively influence the productivity of employees, increase their engagement levels, and help to achieve the long-term organizational performance (Muthoni Nduati & Wanyoike, 2022). These are the positive effects which are commonly attributed to more effective goal alignment, continuous feedback and general accountability within the organization. The literature however has a taking side to it. Prior research claim that extremely formalized and inflexible PMP systems can unintentionally hinder employee creativity and organizational agility, especially in dynamic and uncertain settings, like start-ups (Khan *et al.,* 2020; Naranjo-Valencia *et al.,* 2016). Under these circumstances, too much standardization and control systems can restrict flexibility and responsiveness thus derailing innovation and performance. This variation in results indicates PMP effectiveness does not exist across the board but depends on contextual issues such as organizational structure, environmental dynamism and the level of flexibility inherent in the system. Thus, the connection between PMP and organizational performance may be considered as a situational and not universal one. Based on this fact, we can expect PMP to produce different impacts on performance in different organizational contexts, in which it is applied. Therefore, the hypothesis is as follows:

H1: Performance Management Practices (PMP) significantly influences organizational performance.

2.2 Performance Management Systems and Organizational Performance

PMS is a detailed and strategic approach that includes planning, goal setting, performance appraisal, and employee development with the main goal to align the goals of individual employees with the goals of the organization (Ahmad, 2012; Nadya Rana Hanum *et al.,* 2023). Being an integrated system, PMS helps organizations to convert strategic priorities into performance indicators that can be quantified so that the efforts of employees are channeled systematically towards attaining the organizational desired outcomes. PMS is an important managerial tool that is used to improve organizational effectiveness through creating clear performance expectations, constant monitoring, and providing structured feedback. These processes not only enhance the performance of each individual employee, but also enhance coordination within the various levels of an organization. As a result, PMS is crucial in closing the gap between formulation and implementation of strategies and, therefore, keeping organizational activities in line with the long-term objectives. The positive correlation between PMS and organizational performance is also backed by empirical evidence. According to the previous research, successful PMS implementation will encourage accountability, add to the level of performance appraisal transparency, and promote the culture of continuous improvement (Dewi and Wibowo, 2020; Liu and Hussain, 2025). These are especially significant in the modern business world that is highly dynamic and competitive. PMS helps organizations to respond better to environmental uncertainties and operational challenges by enabling them to conduct performance assessment in time and make informed decisions. In addition, PMS helps in the flexibility of an organization as well as its long-term competitiveness since it combines performance analysis with employee training programs. This two-fold attention will not only guarantee the attainment of immediate performance objectives but also the building up of long-term organizational abilities. Thus, companies with efficient PMS are more likely to maximize the use of resources, improve the productivity of the working force, and attain better performance results. Based on these theoretical arguments and empirical research, it can be fairly concluded that PMS is important in the performance of organizations.

H2: Performance Management Systems (PMS) significantly influences organizational performance.

2.3 Leadership Style and Organizational Performance

Leadership style is well known to be a decisive factor of organizational performance, because it influences employee attitudes, behaviours and general dynamics of working environment. Transformational leadership is among the approaches of leadership that have been linked to the high organizational performance. Transformational leaders

inspire and motivate employees because they build a strong vision, engage commitment, and promote innovation, which improves employee engagement and effectiveness within the organization (Pizzolitto *et al.,* 2023). These leaders also facilitate a friendly atmosphere that helps employees to go the extra mile and lead to success in the long term of the organization. Conversely, transactional and authoritarian leadership types are more inclined to control, compliance, and task accomplishment by using rewards and punishments. Although these methods can be effective in the context of short-term operational efficiency, they are frequently believed to be less supportive of creativity, innovation, and flexibility, especially in the dynamic and unpredictable environment (Hilton *et al.,* 2023). Consequently, the leadership styles could reduce the responsiveness of an organization and slow down the long-term improvement in performance. Nonetheless, there is no entirely consistent relationship between leadership style and organizational performance that is found in the existing literature. There is even some evidence that the leadership style and its influence on performance could be less direct and context-specific (Cai, 2023; Hilton *et al.,* 2023). Specifically, the relationship between leadership and performance outcomes may be mediated or moderated by organizational culture, employee engagement, and structural factors, which suggest that leadership may not be a sufficient factor to achieve performance outcomes. Moreover, although leadership style is a significant factor in organizational behavior and performance, it is likely to affect performance differently based on contextual and intervening factors in the organization.

H3: Leadership style significantly influences organizational performance.

2.4 Organizational Culture and Organizational Performance

Organizational culture is that which describes the shared values, beliefs, norms and practices which determine the behavior of employees and also the manner in which people interact in an organization. It is also considered to be a key component that can inform the decision-making process and significantly influence the overall organizational performance in the long term (Ahmad, 2012; Martinez *et al.,* 2015). Having a well-aligned and powerful organizational culture gives a sense of direction, consistency, and identity which in the end helps to achieve the strategic objectives. Empirical evidence has continuously shown that organizational culture plays a key role in determining employee attitudes and behaviors, such as engagement, knowledge sharing, and innovation. All these aspects are necessary to increase organizational effectiveness and attain high performance results (Çallı and Çallı, 2021; Heriansyah *et al.,* 2025; Khan *et al.,* 2020; Martinez *et al.,* 2015). Specifically, the culture that promotes teamwork, education, and flexibility is likely to support the increased rates of employee motivation and organizational commitment, which further results in the enhanced performance. Moreover, organizational culture serves a twofold purpose in that it encourages stability as well as flexibility in the organization. Stability guarantees continuity in operations and decision making whereas flexibility allows organizations to adapt well to changes and uncertainty in the environment. These two dimensions provide a balance that fosters a conducive environment that improves coordination, efficiency, and sustainability in the long run. Therefore, one may argue that organizational culture is an important driver of organizational performance as it helps to structure the behavior of employees and to focus the organizational efforts on a common set of organizational objectives.

H4: Organizational culture significantly influences organizational performance.

2.5 Top Management Support and Organizational Performance

Top management support has been cited as a key success factor in the implementation of organizational initiatives, which includes PMS. It is the degree to which top leaders are engaged, supportive, and resourceful of organizational activities and strategic efforts (Kurtessis *et al.,* 2017). By being visible, committed, and involved, the top management can convey strategic priorities and proper resource allocation and create organizational legitimacy of performance-related initiatives, which effectively contribute to the overall performance outcomes. Empirical evidence also indicates that high top management support has a positive effect on organizational performance through enhancing alignment between the strategic goals and the operations. Senior leaders who are actively involved in supporting performance initiatives are more likely to be perceived as having importance by employees and become more involved with organizational goals. Such alignment leads to better coordination, accountability, and efficiency, and eventually results in more effective organizations (Kurtessis *et al.,* 2017; Mwesigwa *et al.,* 2020).

However, the literature also brings to view the fact that nature and degree of top management involvement may have mixed impacts. Although supportive leadership is good, excessive or overbearing involvement can lead to lowering employee autonomy, motivation, and create resistance to change (Muthoni Nduati & Wanyoike, 2022). These conditions may restrict creativity and weaken the efficacy of organizational activities, especially in the context of that environment, which demand flexibility and creativity. Therefore, the effects of top management support on organizational performances are not necessarily linear but probably depend on the leadership style, style of implementation, and situation. An optimistic strategy that incorporates both mentorship and empowerment is thus necessary to achieve the best performance results.

H5: Top management support significantly influences organizational performance.

2.6 Digital Maturity, Management Practices and Organizational Performance

Digital maturity is a term that is used to describe how well an organization has adopted digital technologies, digital capabilities, and a digital-oriented culture in its daily operations, strategic planning, and decision-making processes (Tanko *et al.,* 2023). It is not just the adoption of digital tools, but is rather an indication of how an organization can integrate digitalization in its business model. Digital maturity is, therefore, a multidimensional capability to bring together technological infrastructure, the digital skills of the employees, the commitment of the leadership, and the organizational culture to facilitate the process of digital transformation. Empirical research has always pointed out the good contribution of digital maturity to the performance of an organization. Greater operational efficiency, enhanced organizational agility, and enhanced innovation capability are all linked to higher degree of digital maturity, leading to better performance results (Eremina *et al.,* 2019; Tanko *et al.,* 2023; Tubis, 2023). Specifically, organizations are more likely to be digitally mature to react promptly to market shifts, maximize the use of resources, and launch new products and services. All these are beneficial in enhancing their competitive standings in environments that are becoming more dynamic and technological. However, even when such positive relationships are observed, the literature does not cover a completely coherent picture on the direct effect of digital maturity on the organizational performance. Some research suggests that the correlation is not always direct but indirect, with digital maturity determining performance by mediating through other variables, including innovation capacity, process optimization, and digital literacy of employees (Çallı & Çallı, 2021; Tanko *et al.,* 2023). Digital maturity, in this sense, is acting as a facilitating infrastructure enabling other organizational capabilities and not an independent driver of performance outcomes. Thus, the real performance contribution of digital maturity can be determined by the effectiveness with which organizations capitalize on their digital capabilities. Moreover, the degree to which digital maturity is correlated to performance gains can also be subject to other complementary organizational conditions like leadership support, employee readiness, and compatibility of digital strategy and business strategy. This shows that digital maturity cannot be achieved without proper managerial practices and structures of organizational readiness. Although there is still a discussion in the literature, it is widely accepted that in the digital age digital maturity is an essential enabler of long-term organizational competitiveness and sustainability.

H6: Digital maturity significantly influences organizational performance.

Management practices do not work equally on organizational performance and are highly contextual and structural factors. The type of organization, especially the difference between MNCs and start-ups, is an important factor that affects the management practices design, implementation, and experience. Organizational structure in MNCs is usually marked by formalized processes, hierarchies in reporting and standardization of operational processes. These organizational attributes optimize the adoption of structured management practices like PMS, leadership models, and strategic planning systems. Consequently, MNCs tend to have more systematic, stable, and long-term strategic alignment in their management practices, thereby facilitating stability and consistency in performance across geographically dispersed units (Hilton *et al.,* 2023; Muthoni Nduati & Wanyoike, 2022; Suárez, 2016). Start-ups, in turn, have entirely different conditions, which may be marked by the lack of resources, high uncertainty, and a quick transition in market conditions. These circumstances demand more flexibility, communication that is informal and speedy decision making. Excessively strict or highly formal management practices can make responsiveness less important, creativity more limited, and innovation more difficult in such situations. Thus, although structured management systems could improve control and alignment within MNCs, this is not always the case since

in start-up environments flexibility is essential. Moreover, some management dimensions, including organizational culture and strategic alignment, show rather similar impacts in both types of organizations. But the magnitude and orientation of the impact of the factors including leadership style, digital maturity, PMS effectiveness, and top management support are likely to vary with the organizational structure, availability of resources and dynamism of the environment (Hamad, 2024; Heriansyah *et al.,* 2025; Khan *et al.,* 2020; Kurtessis *et al.,* 2017). Organizational type will therefore play the role of a moderating variable that moderates the strength and nature of the relationships between the key management practices namely PMP, PMS, leadership style, organization culture, top management support, and digital maturity and organizational performance. This implies that the effectiveness of management practices is situational and not universal, which boosts the need to take into consideration structural differences among organizations. Figure 1 shows the conceptual model of the study, showing the hypothesized relationships between the variables.

H7: Management practices influence on performance is greatly differed by the organizational type (MNC vs. start-up).

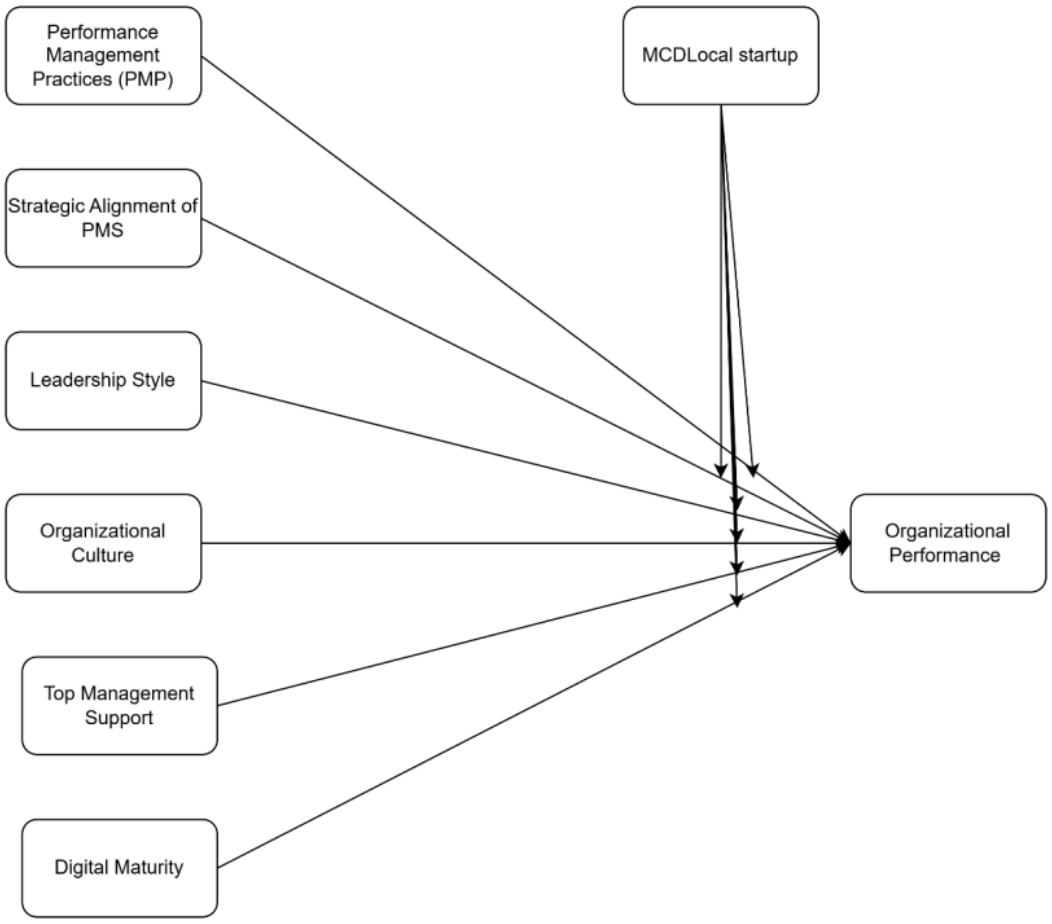

Figure 1. Conceptual framework

3. Methodology

This research employed a quantitative study design with SEM to examine the effects of PMP, PMS, leadership style, organizational culture, top management support, and digital maturity towards organizational performance. Data collection employed a structured questionnaire based on validated scales in previous studies, scored on a five-point Likert scale. A total of 371 valid responses were received, consisting of 192 from MNC employees and 179 from start-ups, who were sampled purposively to capture organizations that had PMSs. Cronbach's alpha, Average Variance Extracted (AVE), and Composite Reliability (CR) all showed values above recommended levels to confirm reliability and validity of constructs, and discriminant validity was also established. Data analysis was also performed using AMOS 24.0 and Confirmatory Factor Analysis (CFA), structural path modeling, and multi-group SEM were used to examine hypotheses.

4. Data Analysis

4.1 Data Collection

Data analysis was carried out using SEM with AMOS 24.0 to test the hypothesized relationships. Reliability, validity, and model fit indices were assessed prior to examining structural paths and multi-group comparisons. Table 1 presents demographic profile the respondents (n=371), the sample exhibited a female majority (55.5%) over males (44.5%) with a nearly balanced split between employees from MNCs (51.8%) and start-ups (48.2%). A significant share of respondents skew younger, with 39.4% below 25 and just 1.3% over 55. In terms of education, most respondents had either graduated (39.4%) or held a post-graduate degree (33.2%), with fewer reporting holding a diploma (22.9%) or a Ph.D. (4.6%).

Table 1. Demographic of the respondents

Demographics (n=371)		Frequency	Percentage
Gender	Female	206	55.5
	Male	165	44.5
Organization	MNC	192	51.8
	Start-ups	179	48.2
Age	<25 Years	146	39.4
	26 to 35 Years	78	21.0
	36 to 45 Years	74	19.9
	46 to 55 Years	68	18.3
	> 55 Years	5	1.3
Education	Diploma	85	22.9
	Graduation	146	39.4
	Post-graduation	123	33.2
	Ph.D.	17	4.6
Employee role	Front level	72	19.4
	Middle level	146	39.4
	Top level	153	41.2
Work experience	Less than 1 year	120	32.3
	1 to 5 years	116	31.3
	6 to 10 years	113	30.5
	More than 10 years	22	5.9
Monthly income	Less than Rs.20,000	106	28.6
	Rs. 20,000 to 50,000	88	23.7
	51,000 to 1,00,000	81	21.8
	1,00,000 to 1,50,000	42	11.3
	Above 1,50,000	54	14.6

Concerning positions held, 41.2% were employed in top-level positions, 39.4% in middle-level, and 19.4% were in front-level roles. Work experience was fairly balanced, with around one-third having less than one year

(32.3%), 1–5 years (31.3%), and 6–10 years (30.5%), with just 5.9% having more than 10 years. Income also varied, starting with the highest proportion earning less than ₹20,000 (28.6%), followed by 23.7% earning ₹20,000–50,000, 21.8% earning between ₹51,000–1,00,000, 11.3% earning between ₹1,00,000–1,50,000, and 14.6% earning more than ₹1,50,000.

4.2 SEM Analysis Results

As shown in Table 2, the measurement model results indicate strong reliability and validity of the constructs. The highest reliability was recorded in PMPs (Cronbach's α=0.983, AVE=0.930), with item loadings exceeding 0.91, confirming excellent consistency. Strategic alignment of PMS and leadership style, organizational culture also demonstrated strong reliability (α=0.920, 0.926, and 0.899 respectively) and convergent validity with AVE values well above the 0.50 threshold. Top management support and digital maturity had acceptable internal consistency (α =0.853 and 0.905) and organizational performance was also reliable (α=0.883, AVE=0.730) with strong loadings across indicators. These results, considered together, support the constructs and predict, they are sound statistically and are ready for hypothesis testing.

Table 2. Estimates, CR, AVE, and Reliability Analysis

Factor	Item	Standardized estimate	Critical ratio	AVE	Cronbach alpha
Performance management practices (PM_Per)	PMP4	.912	0.981	0.930	0.983
	PMP1	.999			
	PMP3	.947			
	PMP2	.996			
Strategic alignment of PMS (StrategicPMS)	PMS4	.896	0.921	0.795	0.920
	PMS6	.896			
	PMS2	.882			
Leadership style	LS1	.962	0.931	0.818	0.926
	LS4	.850			
	LS2	.898			
Organizational culture	OC2	.885	0.900	0.751	0.899
	OC3	.825			
	OC1	.888			
Top management support (Top_MgtSupport)	TMS4	.869	0.870	0.693	0.853
	TMS1	.909			
	TMS3	.705			
Digital maturity	DM1	.983	0.919	0.792	0.905
	DM2	.914			
	DM3	.758			
Organizational performance	OP2	.775	0.890	0.730	0.883
	OP1	.942			
	OP3	.838			

Model fit: CMIN: 444.341; DF: 188; CMIN/DF: 2.364; GFI: 0.907; NFI: 0.950; RFI: 0.938; IFI: 0.970; TLI: 0.963; CFI: 0.970; RMSEA: 0.061; Standardized RMR = .0344.

The outcomes from the model fit indices, as well as the diagram of the SEM (Figure 2), corroborate these findings. As illustrated in the SEM outputs, all of the observed variables' standardized loadings range from 0.70 to 1.00, indicating strong loadings. This serves as evidence for convergent validity. Moreover, the model fit statistics indicate adequacy with the following RMSEA results: CMIN/DF=2.364, GFI=0.907, NFI=0.950, IFI=0.970, TLI=0.963, CFI=0.970 all above the recommended cut-offs. In addition, RMSEA=0.061 and SRMR=0.0344 indicate acceptably low error. From the SEM diagram, the inter-factor correlations depicting the performance management practices with digital maturity, strategic alignment, leadership style, organizational culture, top management support,

and organizational performance reveal significant associations which indicate the model captures the essential elements effectively.

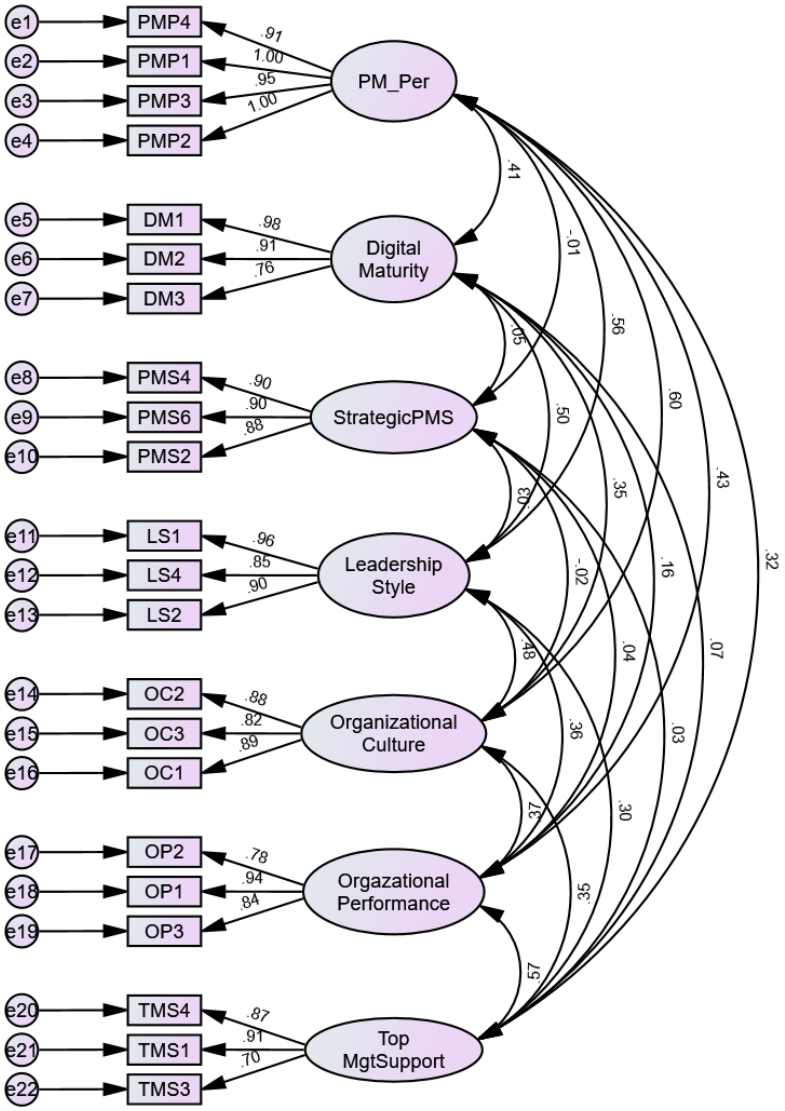

Figure 2. Measurement Model with factor loadings and inter-construct relationships

Table 3. Discriminant validity

	Org_Per	PM_Per	DM	PMS	L_Style	Org_Cul	Top_Sup
Org_Per	0.854						
PM_Per	0.430	0.964					
DM	0.162	0.411	0.890				
PMS	0.036	-0.008	-0.045	0.891			
L_Style	0.362	0.557	0.500	0.034	0.904		
Org_Cul	0.373	0.595	0.349	-0.020	0.479	0.866	
Top_Sup	0.567	0.315	0.072	0.028	0.295	0.349	0.832

Note: Organizational performance (Org_Per); Performance management practices (PM_Per); Digital maturity (DM); Strategic alignment of PMS (PMS); Leadership style (L_Style); Organizational culture (Org_Cul); Top management support (Top_Sup).

Table 3 validates discriminant validity since the square roots of the AVE values (diagonal) exceed the inter-construct correlations, confirming the distinctiveness of the constructs. Thus, confirming both discriminant validity and the proposed inter-construct relationships. Overall, there is evidence of good reliability among the indicators, with the standardized factor loadings being above the suggested value of 0.70. Nevertheless, there are several indicators (for example, PMP1 = 0.999, PMP2 = 0.996, DM1 = 0.983) which show values that are close to 1.00. Although loadings that close to 1.00 imply good reliability of the items, there might be some risk of redundancy in case these indicators are measuring one construct. In order to resolve this issue, an analysis of conceptual uniqueness of the constructs was carried out at the stage of scale construction. Every item used is based on existing literature, and represents a different aspect of the construct. Moreover, construct validity is further validated by AVE, all above 0.50, which suggests acceptable convergent validity. Internal consistency reliability can be verified, with Cronbach's alpha being between 0.853 and 0.983. Despite the very high alpha coefficient of Performance Management Practices (0.983), it can be regarded as excellent internal consistency, not redundancy, considering its theoretical underpinnings. Discriminant validity (Fornell-Larcker criterion) has been also verified to test whether constructs have empirical distinction. Findings show that all constructs are above the necessary criteria, implying that high factor loadings do not affect construct independence.

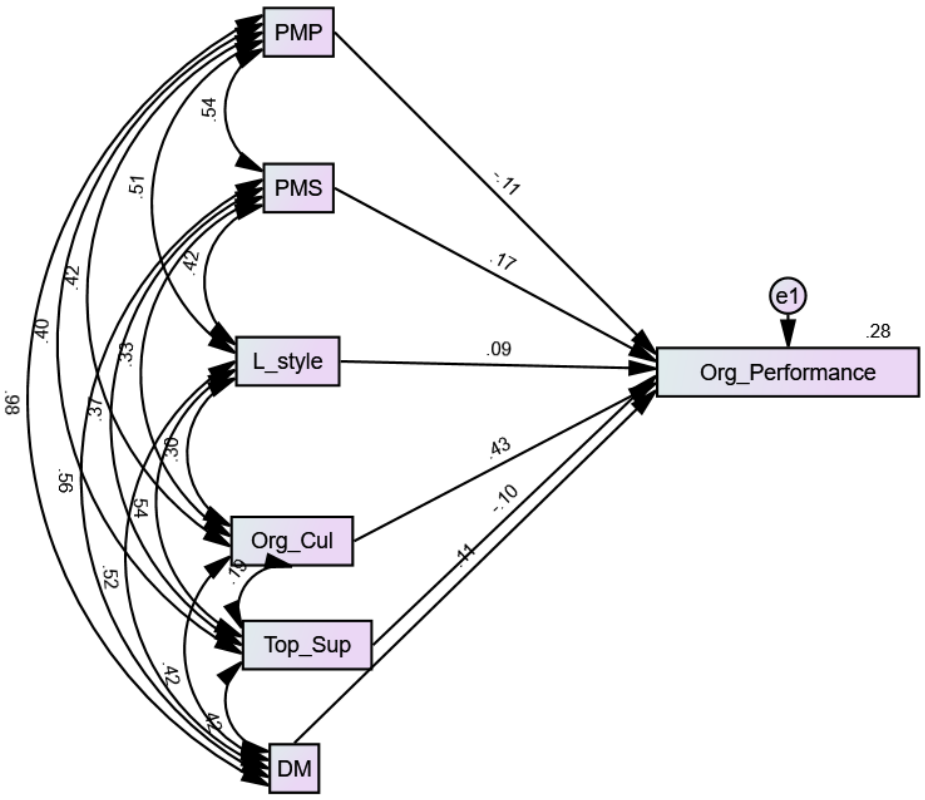

Figure 3. Structural model including all respondents

The results of the analysis of path relationships in organizational performance are summarized in Table 4 and Figure 3. As indicated by the results, 28% of the variance in organizational performance is explained by the model (R^2=0.28). Among the model's hypothesized paths, strategic alignment of PMS (β=0.172, p=0.002) and organizational culture (β=0.425, p<0.001) have significant positive impacts which underscores their importance in determining the organizational results. It is also noteworthy that top management support is insignificant, albeit negatively (β=-0.097, p=0.071) which points to some issues regarding its influence. On the other hand, performance management practices (β=-0.11, p=0.605), leadership style (β=0.094, p=0.102), and digital maturity (β=0.107, p=0.623) seem to have no significant influence on organizational performance.

Table 4. Path Analysis results (including all respondents)

Hypothesis	Independent variable	Dependent variable	Estimate	P-value	Result
H1	PMP	Org_Performance	-0.11	0.605	Insignificant
H2	PMS		0.172	0.002	Significant
H3	L_style		0.094	0.102	Insignificant
H4	Org_Cul		0.425	***	Significant
H5	Top_Sup		-0.097	0.071	Insignificant
H6	DM		0.107	0.623	Insignificant

Note: R^2: 0.28

As shown in Figure 3, organizational culture stands out as the strongest predictor while Strategic Alignment contributes positively as well, illustrating that context and structural alignment are much more important than the leadership style, digital maturity, or performance management practices in determining organizational performance.

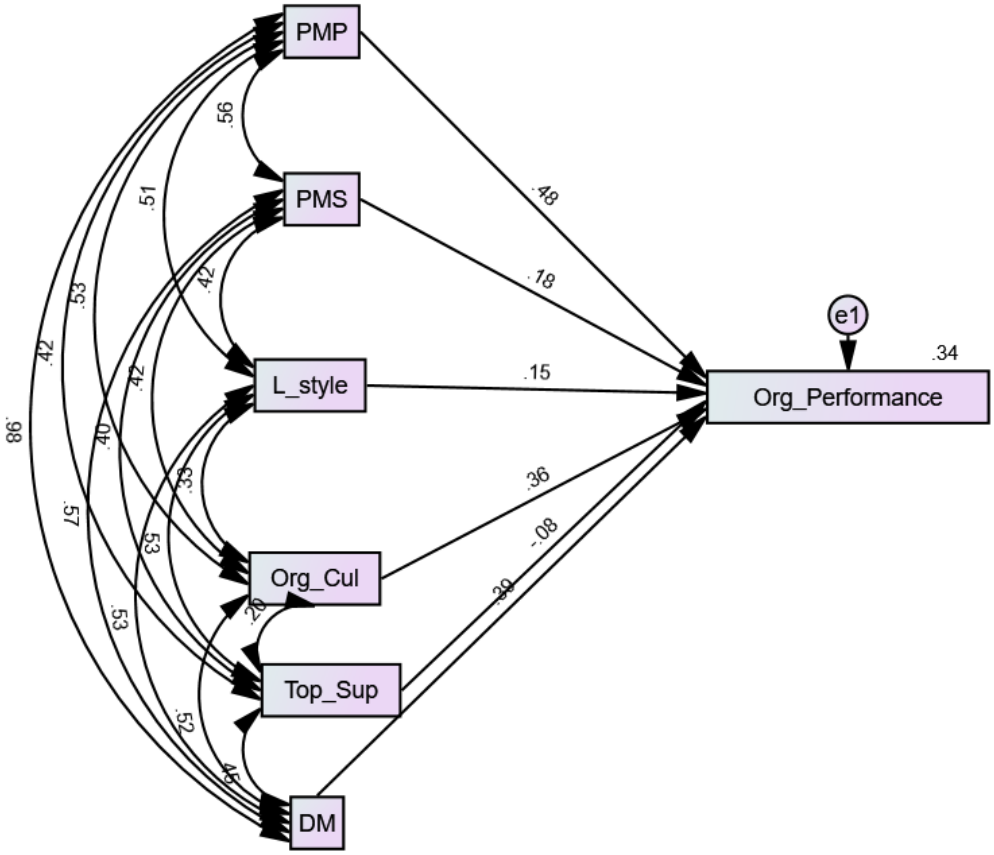

Figure 4. Structural model for MNC employees

Table 5 presents the results of multi-group SEM path analysis, which distinguishes between MNC and start-up employees. For the MNC type of employees, it is interesting to remark that the value of R squared which measures the goodness of fit of the model is this time equal to 0.34. As demonstrated by the performance model in Figure 4, the strategic alignment of PMS leads to cumulative value and all performance contributing to the organizational culture (β=0.361, p<0.001). This suggests that in well-developed and larger companies, cultural values, strategy alignment of performance management and leadership behavior are the drivers of performance. In contrast, the values for performance management practices, top management support and digital maturity (β=0.476, p=0.104, p=-0.082, p=0.259, p=-0.385, p=0.194) seemed to suggest that formal systems and support structures, even in the MNC and with a high level of digital readiness, do not directly enhance performance. Performance Management Practices remains of little value in MNC contexts as to not disrupt formal structures.

Table 5. Multi-group SEM for MNC and start-up employees

Path	Path coefficients (p-value)			
	MNCs (n=192)	Result	Start-ups (n=179)	Result
PMP ->Org_Performance	0.476 (0.104)	Insignificant	-0.532 (0.057)	Significant
PMS ->Org_Performance	0.178 (0.016)	Significant	0.179 (0.028)	Significant
L_Style->Org_Performance	0.148 (0.05)	Significant	0.058 (0.503)	Insignificant
Org_Cul->Org_Performance	0.361 (***)	Significant	0.444 (***)	Significant
Top_Supp->Org_Performance	-0.082 (0.259)	Insignificant	-0.116 (0.138)	Insignificant
DM->Org_Performance	-0.385 (0.194)	Insignificant	0.414 (0.154)	Insignificant

Note: R2: 0.34 for MNC employees; Note: R2: 0.25 for Start-up employee.

For employees at start-up companies (R^2=0.25), the structural model (Figure 5) displays a different story. Organizational culture (β=0.444, p<0.001) and strategic alignment of PMS (β=0.179, p=0.028) still stand as strong positive predictors and of primary importance, as their covariates hold true in both contexts. It is notable, however, that Performance Management Practices have a significant negative impact (β=–0.532, p=0.057), indicating that overly formalized systems in a more flexible start-up context stifle performance. Leadership style (β=0.058, p=0.503), top management support (β=–0.116, p=0.138), and digital maturity (β=0.414, p=0.154) are start-up irrelevant which suggests that flexible chaos over structure and formal hierarchy renders leadership focus and technological readiness trivial. In summary, the findings suggest that culture and strategic alignment are critical in any setting, but the context of the organization is what determines the effectiveness of leadership and management practices.

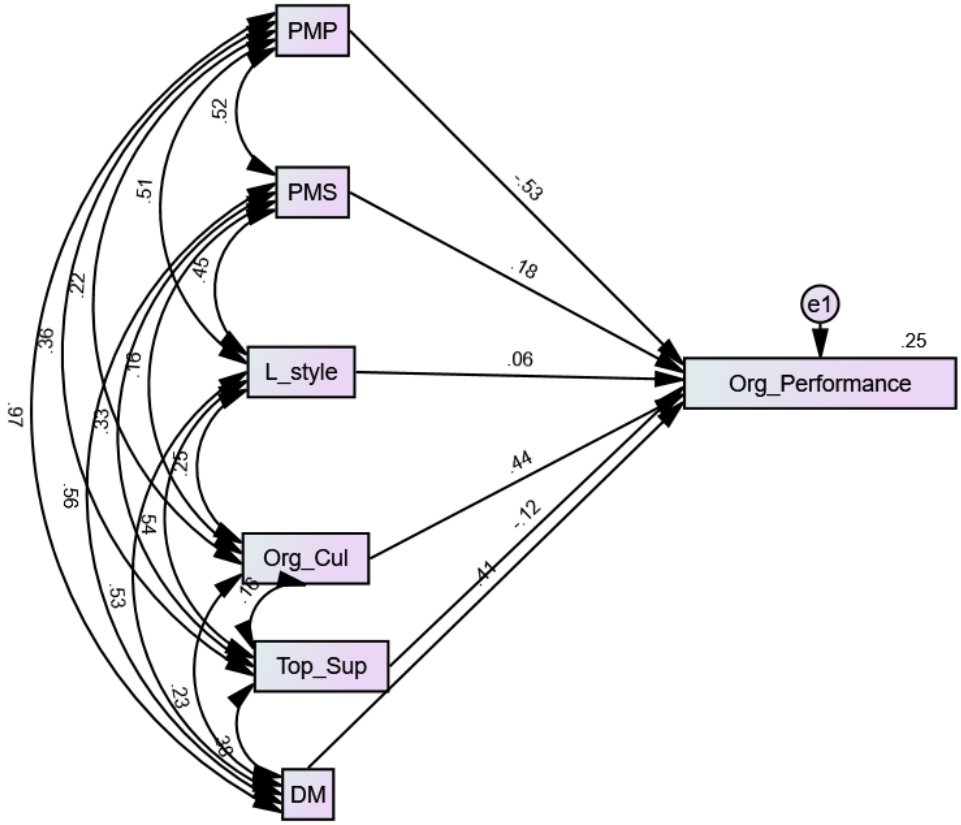

Figure 6. Structural model for start-up employees

Structural models (Figures 4, 5, and 6) along with path analysis (Table 5) show that organizational culture and strategic alignment of PMS are fundamental and robust predictors of performance in both MNCs and start-ups. In MNCs, leadership style also has an important influence, demonstrating the need for dominant leadership in larger organizations. On the contrary, in start-ups, PMP has a significant negative effect, which indicates that too much formality in systems may stifle responsiveness and the ability to change. It is also noteworthy that the digital maturity of an organization and support from the top management were both contextually irrelevant, suggesting that these factors may be more important in an indirect role instead of directly affecting performance.

Table 6. Summary of Results

Path (hypothesis)	MNCs (n=192)	Start-ups (n=179)	Interpretation
H1: PMP → org performance	β=0.476 (p=0.104) → insignificant	β=–0.532 (p=0.057) → significant (negative)	Formalized PMP supports MNCs weakly but hurts performance in start-ups due to rigidity.
H2: PMS → org performance	β=0.178 (p=0.016) → significant	β=0.179 (p=0.028) → significant	Strategic alignment of PMS is a universal driver of performance in both contexts.
H3: Leadership style → org performance	β=0.148 (p=0.05) → significant	β=0.058 (p=0.503) → insignificant	Leadership style matters more in structured MNCs; less relevant in fluid start-ups.
H4: org culture → org performance	β=0.361 (p < 0.001) → significant	β=0.444 (p < 0.001) → significant	Organizational culture is the strongest universal predictor across both groups.
H5: Top mgmt support → org Performance	β=–0.082 (p= 0.259) → insignificant	β =–0.116 (p= 0.138) → insignificant	Direct top management support is not a significant driver in either context.
H6: Digital maturity → org performance	β =–0.385 (p= 0.194) → insignificant	β=0.414 (p=0.154) → insignificant	Digital maturity has no direct effect on performance, though direction differs (negative in MNCs, positive in start-ups).
H7: Explained variance (R^2)	0.34	0.25	MNC models explain more variance in performance compared to start-ups.

As a whole, the findings highlight that, while culture and PMS alignment are predictors in all MNCs and start-ups, the influence of several other factors like leadership and PMP is greatly different. MNCs depend more on structured hierarchy and leadership; start-ups operate on relaxed culture with little rigidity. The comprehensive results are presented in Table 6.

5. Discussion on Results

This research offers some valuable lessons on how management practices are related to organizational performance especially in the case of MNCs and start-up firms in the Indian IT industry. In line with the previous literature, the findings show that the most robust and consistent predictors of organizational performance in both types of organizations are organizational culture and strategic alignment of PMS. This is consistent with previous empirical evidence which proposes that alignment between culture and strategy can act as initial processes in which companies generate long-term performance results (Martinez *et al.,* 2015; Heriansyah *et al.,* 2025). Theoretically, the findings support the resource-based view, which highlights the importance of intangible organizational resources like the culture and alignment in the generation of competitive advantage.

The findings also show that leadership style has great and positive impact on organizational performance in MNCs and not in start-ups. This result is marked by previous studies that have indicated that transformational leadership as well as structured leadership styles is better suited in large, formalized organizations where coordination, control, and strategic direction play critical roles (Pizzolitto *et al.,* 2023; Hilton *et al.,* 2023). Alternatively, the non-significant impact in start-ups could be due to the informal and decentralized character of such organizations, where leadership is less rigid and hierarchical. This implies that its effectiveness in leadership is

contextual and mediated by organization structure and culture, agreeing with contingency and situational theories of leadership (Cai, 2023). One of the most interesting results is the adverse impact of PMP on the organizational performance of start-up organizations. Although previous research mostly indicates a positive correlation between PMP and performance, this finding indicates a crucial contextual deviation. The first reason is that formalized PMP systems create administrative overheads and decrease flexibility in start-ups, which are usually in a very dynamic and resource-constrained setting (Khan *et al.,* 2020). Moreover, the implementation of stringent evaluation and control systems can also create resistance among the employees used to informal and entrepreneurship work ethics. The result adds to the literature by showing that PMP can be effective or not depending on the maturity of the organization, its structure and degree of flexibility requirement.

Another finding of the study is that top management support and digital maturity do not have significant direct impacts on the performance of the organization. This finding does not always argue with previous studies, but rather indicates that there are indirect or mediated relationships. As an example, existing literature suggests that top management support can be effective in improving performance through the organization of organizational culture, reinforcing strategic alignment, and providing successful leadership practices (Kurtessis *et al.,* 2017; Mwesigwa *et al.,* 2020). Equally, performance has been found to be affected by digital maturity via intermediate variables, including innovation capability, process efficiency, and employee digital competence (Tanko *et al.,* 2023; Eremina *et al.,* 2019). As such, these null direct effects in the present study could be an indication of the lack of mediating processes and therefore more complex models should be adopted that could capture the indirect routes. Specifically, the role of digital maturity is to be interpreted in the context of a larger organizational system. Organizations that are digitally mature have a higher chance of endorsing the use of data to drive decision-making, promote agile leadership practices, and cultivate collaborative and innovative cultures. Digital maturity, therefore, has a close interaction with leadership, organizational culture, and PMS in the sense that it improves their performance as opposed to influencing performance outcomes on its own. This understanding aligns with the new studies of digital transformation, which views digital maturity as a capacity enabler, inherent in the processes of an organization, as opposed to a direct performance driver.

The multi-group SEM findings also offer valuable insights into the difference between the contextual factors in MNCs and start-ups. The better explanation of MNCs by the model ($R^2 = 0.34$) than start-ups ($R^2 = 0.25$) indicates that in larger companies, management practices are more predictable and organized. This is explained by formalized systems, standardized processes and hierarchical structures that are prevalent in MNCs and contribute to the effectiveness of leadership, PMS, and cultural alignment. Conversely, the reduced explanatory power in start-ups is due to the increased variability and uncertainty of such organizations, in which informal practices and quick changes can undermine the stability of the management-performance relationships. Contextually, the results provide valuable insights about structural and operational disparities between MNCs and start-ups in the Indian IT industry. MNCs are more likely to have well-structured systems of governance, reporting and formalized performance management structures, which facilitate efficiency and scalability. Conversely, start-ups are typified by loose structures, entrepreneurial focus and scarce resources and demand adaptive and less formalized methods of management. These variations have a wide impact on the way the management practices are practiced and how they impact on the performance of the organization.

Practically, the results indicate that MNCs ought to focus on leadership development, enhance the alignment of PMS with strategic goals, and the organization culture to maintain high performance. Start-ups, on the other hand, are not supposed to over-formalize their performance management practices and instead concentrate more on flexibility, in the culture of adaptation and keeping PMS in line with strategic changes in priorities. Moreover, organizational types may be able to capitalize on the indirect advantages of digital maturity and the support of the top management by integrating them into the leadership practices, culture building, and strategy. On the whole, this paper highlights the fact that though some of the factors like organizational culture and PMS alignment are universal sources of performance, the effectiveness of other managerial practices is very context specific. Subsequent studies should thus include mediating and moderating factors like organizational culture, innovation capability, and digital readiness to reflect the complexity of such relationships. Moreover, longitudinal research designs and cross-industry or cross-regional comparisons would help to increase the generalizability and the causal interpretation of the results.

6. Study Implications

This study demonstrates that strategically aligned PMS and organizational culture in driving performance, supporting cultural theory and PMS literature plays a significant role in organizational and management theory. The nuance of the leadership theory can be gained by demonstrating that leadership styles are influential in MNCs, but not in start-ups, reflecting the leadership effectiveness. Start-ups face unexpected negative effects from PMP, which leads to discussions on the merits of rigidity versus flexibility in management systems, while using multi-group SEM, it is demonstrated that organizational type moderates these relationships. Thereby, these findings underscore the significance of context-specific frameworks over generalized one. This research has a number of implications, both general and context-specific, to managers who work in MNCs and start-up companies in the IT industry. On the whole, organizational culture and the strategic alignment of PMS are the most prevailing factors in organizational performance in both contexts. This implies that managers, irrespective of the type of organization, must focus on the cultivation of adaptive, collaborative, and performance oriented cultures, and make sure that PMS is well aligned to the strategic goals. Instead of using either hard and fast approaches of performance management or investing in technology, organizations should be keen on combining both culture and strategy to ensure sustainable performance results. The implication of same however is very different between MNCs and start-ups.

To managers of MNCs, the findings indicate that formalized structures and leadership efficiency is important. Leadership style is very critical in influencing performance meaning that organizations should invest in leadership development programs that enhance transformational and participative leadership practices. In addition, MNCs ought to improve the integration of PMS and strategic objectives through the exploitation of systematic performance appraisal systems, explicit accountability procedures, as well as standard procedures. It is also important to reinstate organizational culture by sustaining a shared value system and communication to ensure coordination and performance in operations that are complex and geographically spread. Conversely, flexibility and adaptability in management practices are indicated by the findings in case of start-up managers. The adverse effect of too formalized PMP means that strict systems can inhibit innovation, nimbleness, and responsiveness. Thus, start-ups must embrace more adaptable, informal, and context-oriented performance management that can be used to make quick decisions and experiment. In particular, it is important to focus on an adaptive organizational culture that encourages creativity, collaboration, and risk-taking within such dynamic environments. Start-ups PMS should be also strategically oriented but in a simplified and less bureaucratic way to prevent the unnecessary administrative overhead. The employee is able to appreciate the fact that a conducive organizational climate is critical. In both MNCs and start-ups, employees enjoy good cultural values and clear PMS, which promotes clarity, motivation, and engagement. The mechanisms are however different: in MNCs, employees are reacting well to a structured leadership and clearly defined performance expectations, in start-ups, employees tend to perform better in less restraining environments that encourage autonomy, creativity, and innovation. Hence, these results indicate that although some management practices like culture and PMS alignment are universally applicable, they should be applied with great care to the organizational environment. Managers are thus required to be contingent and change leadership styles, performance systems, and cultural initiatives in line with the structural and operational realities of their organization.

7. Conclusions

This research provides empirical data indicating that the presence of the strategic alignment of organizational culture and PMS is one of the major vectors of improved organizational performance in both MNCs and locally-based IT start-ups, with leadership style having a more significant impact on the former, and PMP having a more adverse effect on the latter because of the necessity to be flexible and adaptable. Top management support and digital maturity had relatively low direct effects, which indicates that there may be indirect or context-specific impacts of the digital maturity and top management support via other variables, including culture, leadership, or strategic alignment. Although this research made some contributions, there are a number of methodological and contextual constraints that must be considered. To start with, the research used a purposive selection method that can be vulnerable in selection bias and restrict the sample representativeness. Consequently, the results might not be entirely applicable to the rest of the population of organizations in and outside the Indian IT industry. Second, the research is founded on self-reported survey information, which can be subject to response bias, such as social desirability bias and inaccurate perception. Furthermore, a cross-sectional research design limits the possibility to

make causal inferences as the correlations between the variables are measured at one point in time and not during a long period. Third, the research does not have a wide sectoral and contextual scope since it considers only two types of organizations in the Indian IT industry MNCs and start-up firms. Although it enables relevant comparative analysis, it limits the generalizability of results to other industries like manufacturing, healthcare or public sector organizations. Fourth, despite the administration of existing measurement scales, there were selected constructs that contained high factor loadings that are clustered around particular dimensions, which could result in measurement redundancy and constrain construct variability. Moreover, the possibility of common method bias cannot be completely excluded because of the employment of a single-source method of data collection. Lastly, the study is analytically constrained to the SEM-based direct and multi-group analysis with no consideration of possible longitudinal effects and advanced causal modeling methods. This restricts the capability of capturing dynamic relationships between variables with time. Developing further on these findings, future studies might take up longitudinal SEM designs to establish the causal relationships over time, mediation and moderation process, including digital maturity, employee engagement, innovation capacity, or digital leadership, comparative study across industries and geographic settings, context-specific factors, including organizational size or developmental stage, and multi-source or objective performance data to increase robustness. Therefore, the research contributes to the research of the interactions between PMS, leadership, organizational culture, and digital maturity to facilitate performance and offer a practical recommendation of how the performance management strategies can be adjusted in specific organizational settings and provide future research opportunities with rigor.

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Author Contribution Statement

Sonthoshimayura Sabitha Nandigama: Conceptualization, Methodology, Investigation, Data Collection, Writing-Original Draft. K.S. Venkateswara Kumar: Methodology, Formal Analysis, Validation, Data Collection, Project Administration, Writing-Original Draft. Jhansi.K.S. Nandini Bommisetti: Formal analysis,

Writing-original draft, Data collection. All the authors have read and agreed to the published version of the manuscript.

Does this article screen for similarity?

Yes

Conflict of Interest

The authors have no conflicts of interest to declare. There is also no financial interest to report. The author certifies that the submission is original work and is not under review at any other publication.

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Sonthoshimayura Sabitha Nandigama, K.S. Venkateswara Kumar, Jhansi.K.S. Nandini Bommisetti, Performance Management Systems, Leadership, and Digital Maturity on Organizational Performance: A Multi-group SEM Approach, Asian Journal of Interdisciplinary Research, 9(2), (2026) 217-234. https://doi.org/10.54392/ajir26212