

A Digital 7S Model of Organizational Effectiveness in Small Private Vocational Institutions: Evidence from Thailand

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Abstract

This study develops and empirically tests a Digital 7S model to explain organizational effectiveness in small private vocational institutions in Thailand. In response to increasing technological disruption, demographic decline, and labor market uncertainty, the study extends the traditional McKinsey 7S framework by integrating digital transformation perspectives into its seven organizational dimensions. A two-phase quantitative design was employed. In Phase 1, a preliminary needs assessment using the Priority Needs Index (PNI_{Modified}) identified critical areas for management development. In Phase 2, a cross-sectional survey was conducted with 220 administrators from small private vocational institutions across Thailand using stratified purposive sampling.

Data were analyzed using confirmatory factor analysis (CFA) and structural equation modeling (SEM). The measurement model demonstrated good fit and construct validity (CFI=.957, TLI=.949, RMSEA=.046, SRMR = .041). The structural model explained 72% of the variance in organizational effectiveness. Shared values ($\beta = .41$, $p < .001$), systems ($\beta = .34$, $p < .01$), skills ($\beta = .28$, $p < .01$), strategy ($\beta = .19$, $p < .05$), and staff ($\beta = .16$, $p < .05$) exerted significant positive direct effects, whereas structure and style were not statistically significant. The findings highlight that organizational effectiveness in small vocational institutions depends more on cultural alignment, digitally enabled systems, and workforce capability than on formal structural arrangements.

This study contributes to the literature by reconceptualizing the 7S framework for the digital era and by integrating needs assessment with structural equation modeling in a resource-constrained educational context. The proposed model provides both theoretical insight and practical guidance for educational leaders and policymakers seeking to enhance institutional performance under conditions of digital transformation.

Keywords: digital transformation, organizational effectiveness, McKinsey 7S, vocational education, Thailand, SEM

1. Introduction

1.1 Introduce the Problem

Educational institutions worldwide are operating in an increasingly volatile environment shaped by technological disruption, demographic change, intensified competition, and growing demands for accountability. These forces have transformed not only how education is delivered, but also how institutions are managed, evaluated, and sustained over time. Digital technologies now influence administrative processes, stakeholder communication, strategic planning, resource allocation, and evidence-based decision-making. As a result, educational leaders are under increasing pressure to modernize internal management systems while maintaining quality, efficiency, and institutional resilience (Selwyn, 2016; Vial, 2019).

These pressures are particularly acute in vocational education. Unlike many general academic institutions, vocational providers are expected to respond directly to changing labor market needs and industrial transformation. Advances in automation, artificial intelligence, and platform-based work have altered employer expectations, increasing demand for technical competence, adaptability, problem-solving ability, and lifelong learning capacity (World Economic Forum [WEF], 2023). Consequently, vocational institutions must continuously update curricula, industry partnerships,

and student support systems. However, responsiveness to external change also depends on the effectiveness of internal organizational management.

Thailand provides a highly relevant context for examining these issues. Over the past decade, the country has experienced declining birth rates, shrinking student cohorts, intensified competition among public and private institutions, and increasing pressure to improve graduate employability. These trends have created substantial challenges for small private vocational institutions, many of which operate with limited financial reserves, constrained administrative capacity, and uneven technological infrastructure (Office of the Education Council [OEC], 2020). Despite these limitations, such institutions play an important role in widening educational access, supporting local economies, and producing middle-level skilled labor.

At the same time, Thailand has promoted national modernization strategies under the Thailand 4.0 agenda, emphasizing innovation, digital transformation, smart industry development, and human capital upgrading. Educational institutions are therefore expected to align with broader national economic priorities by adopting digital technologies, strengthening workforce readiness, and improving management effectiveness (Digital Economy Promotion Agency [depa], 2022).

Yet digital adoption alone does not necessarily improve performance. Many organizations invest in technology without achieving meaningful outcomes because successful transformation also requires leadership commitment, staff capability, cultural readiness, strategic clarity, and system integration (Bond et al., 2020; Ifenthaler & Yau, 2020). This suggests that the central challenge facing many educational institutions is not technology itself, but organizational alignment. Institutions are complex systems in which strategy, structure, people, leadership, processes, and values interact continuously. Improvements in one area may produce limited results when other dimensions remain underdeveloped. For example, investment in management information systems may fail to generate value if staff lack digital competence, leadership support is inconsistent, or organizational culture resists change.

The McKinsey 7S framework offers a useful lens for understanding this complexity. Developed by Waterman et al. (1980), the model proposes that organizational effectiveness depends on alignment among seven interdependent dimensions: strategy, structure, systems, style, staff, skills, and shared values. Unlike narrower management approaches that focus on isolated variables, the 7S framework emphasizes the interaction between formal organizational arrangements and softer human factors such as culture, leadership, and competencies. This makes the model particularly relevant to educational institutions, where administrative coordination and professional collaboration are equally important (Daft, 2016; Hoy & Miskel, 2013).

However, an important limitation remains. The traditional 7S framework was developed prior to the emergence of contemporary digital ecosystems, cloud-based operations, analytics-driven governance, and AI-supported decision systems. It does not explicitly address organizational capabilities now considered essential for digital transformation, such as data-informed leadership, integrated digital infrastructure, agile work processes, and workforce technological readiness (Vial, 2019). While recent studies have explored digital leadership, educational technology adoption, and institutional innovation, relatively few have reconceptualized established organizational models for the digital era.

A second research gap concerns context. Much of the literature on digital transformation and organizational change has focused on large corporations, public agencies, or well-resourced universities in advanced economies. Comparatively limited attention has been given to small private vocational institutions in emerging economies, despite their vulnerability to demographic decline, market competition, and technological disruption (UNESCO, 2022). These institutions often face the strongest need for management innovation while possessing the fewest resources for experimentation.

To address these gaps, this study develops a Digital 7S model that extends the traditional framework by embedding digital transformation principles into each of the seven dimensions. The model assumes that institutional effectiveness can be enhanced when strategic direction, organizational design, systems, leadership style, workforce capability, professional skills, and shared values are aligned within a digitally enabled environment.

2. Research Purposes

1. To develop and validate measurement constructs for a Digital 7S model within vocational education.
2. To examine the effects of the seven organizational dimensions on organizational effectiveness.
3. To provide evidence-based managerial and policy recommendations for strengthening small private vocational institutions.

3. Methodology

3.1 Research Design

This study employed a sequential multi-phase quantitative design consisting of two complementary stages. In Phase 1, a preliminary needs assessment was conducted to identify priority areas for management development in small private vocational institutions in Thailand using the Priority Needs Index (PNI_{Modified}). In Phase 2, the findings from the needs assessment were integrated with relevant theoretical foundations to develop and empirically validate the proposed Digital 7S model using structural equation modeling (SEM).

This design was appropriate because the study sought not only to test hypothesized relationships among organizational factors, but also to ensure that the conceptual framework reflected practical institutional needs. By combining exploratory diagnostic evidence with confirmatory model testing, the study enhanced both contextual relevance and analytical rigor (Creswell & Creswell, 2018; Hair et al., 2022).

3.2 Phase 1: Preliminary Needs Assessment

Participants and Procedures

The first phase focused on identifying management gaps across the seven dimensions of the McKinsey 7S framework. Administrators from small private vocational institutions were invited to evaluate both the current state (D) and desired state (I) of institutional management practices. Participants in this phase were selected using purposive sampling based on the following criteria:

Holding an administrative position in a private vocational institution.

Having at least 1 year of managerial experience.

Being directly involved in planning, supervision, or institutional management.

Analytical Procedure

Priority needs were assessed using the modified Priority Needs Index (PNI_{Modified}), calculated as follows:

$$PNI_{Modified} = (I - D) / D$$

Where:

I = Desired state (Importance)

D = Current state (Degree of success/development)

Higher values indicated greater developmental priority.

Application to Framework Development

The needs assessment results indicated that Shared Values, Systems, and Skills showed the highest priority needs, while Style showed the lowest developmental priority. These findings were used to refine the conceptual framework by emphasizing three critical domains:

1. Digital organizational culture and shared values.
2. Integrated systems and data-driven management.
3. Workforce capability development.

Accordingly, the final Digital 7S model was derived through the integration of theoretical literature and empirical needs assessment evidence.

3.3 Phase 2: Population and Sample

The target population in Phase 2 consisted of administrators working in small private vocational institutions in Thailand. For the purpose of this study, small institutions were defined as those with no more than 1,000 enrolled students.

A stratified purposive sampling strategy was employed. Institutions were grouped by geographical region (Bangkok Metropolitan, Central, Northern, Northeastern, and Southern Thailand) to improve representativeness. Eligible administrators were then invited through professional networks, institutional coordination channels, and educational development programs. Participants were required to meet the following criteria:

Hold an administrative position (e.g., director, deputy director, academic administrator, department head, or equivalent);

Currently work in a small private vocational institution in Thailand;

Have at least 1 year of administrative experience; and

Voluntarily consent to participate.

A total of 260 questionnaires were distributed to eligible administrators. Of these, 228 were returned, yielding an initial response rate of 87.7%. After screening for incomplete responses, inconsistent response patterns, and missing data, 220 questionnaires were deemed usable and retained for final analysis, representing a final usable response rate of 84.6%. The final sample size exceeded the commonly recommended minimum of 200 cases for covariance-based SEM, indicating adequate statistical power for model estimation (Hair et al., 2022; Kline, 2016).

3.4 Instrument Development

The research instrument was a structured questionnaire developed from three sources:

1. The McKinsey 7S framework and organizational theory;
2. Literature on digital transformation and educational management; and
3. Empirical findings from the Phase 1 needs assessment.

The questionnaire consisted of two main sections:

Section A: Respondent Profile: This section collected demographic data, including gender, age, position, institutional location, and administrative experience.

Section B: Latent Constructs: This section measured eight constructs: Strategy (STR), Structure (STC), Systems (SYS), Style (STY), Staff (STA), Skills (SKL), Shared Values (SV), and Organizational Effectiveness (OE). All substantive items were measured using a five-point Likert scale ranging from 1=strongly disagree to 5=strongly agree.

3.5 Content Validity and Pilot Testing

To establish content validity, the draft questionnaire was reviewed by five experts in educational administration, organizational management, vocational education, quantitative methods, and digital transformation. Experts evaluated each item for relevance, clarity, and construct congruence. Item Objective Congruence (IOC) values ranged from .67 to 1.00, indicating acceptable content validity (Rovinelli & Hambleton, 1977). Minor wording revisions were made based on expert feedback.

A pilot study was subsequently conducted with 30 administrators who were not included in the final sample. Internal consistency reliability was assessed using Cronbach's alpha coefficients. Alpha values ranged from .83 to .92 across constructs, while the overall instrument reliability was .94, indicating strong internal consistency (Nunnally & Bernstein, 1994).

3.6 Data Collection Procedures

Data were collected between January and March 2026 using both online and paper-based questionnaires, depending on institutional accessibility and respondent preference. Participants received an information sheet explaining the study purpose, confidentiality protection, voluntary participation, and the right to withdraw at any time. No personally identifiable information was collected.

Completed questionnaires were screened prior to analysis to ensure completeness and response quality. To assess potential non-response bias, early and late respondents were compared using independent samples t-tests. No statistically significant differences were found across key study variables, suggesting that non-response bias was unlikely to threaten the findings.

3.7 Ethical Considerations

This study followed accepted ethical standards for social science research. Participation was voluntary, informed consent was obtained from all respondents, and all responses were analyzed in aggregate form for academic purposes only. Data were securely stored and accessible only to the research team.

3.8 Data Analysis

Phase 1 data were analyzed using descriptive statistics and $PNI_{Modified}$ values to determine priority needs. Phase 2 data were analyzed using SPSS and AMOS in four stages:

Stage 1: Preliminary Analysis: Descriptive statistics were used to summarize respondent characteristics and construct distributions. Means, standard deviations, skewness, kurtosis, and Pearson correlation coefficients were examined. Skewness and kurtosis values within ± 2.0 were considered acceptable.

Stage 2: Reliability and Validity Assessment: Confirmatory factor analysis (CFA) was conducted to evaluate the measurement model using standard fit criteria: Construct Reliability (CR > .70) and Average Variance Extracted (AVE > .50).

Stage 3: Structural Equation Modeling (SEM): Maximum likelihood estimation was utilized to test the hypothesized paths. Goodness-of-fit was assessed using standard indices $X^2/df < 3.0$, CFI > .90, TLI > .90, RMSEA < .08, SRMR < .08).

Stage 4: Explanatory Power Analysis: The coefficient of determination (R^2) was used to assess predictive power. Multicollinearity was assessed using Variance Inflation Factor (VIF) values. All VIF values were below 5.00, indicating no serious multicollinearity concerns (Hair et al., 2022).

3.9 Common Method Bias

Because all variables were collected using self-report questionnaires, common method bias was assessed using two procedures. First, Harman's single-factor test indicated that the first unrotated factor explained less than 50% of the total variance. Second, full collinearity VIF values were below the recommended threshold of 3.30. These results suggest that common method bias was unlikely to pose a serious concern (Podsakoff et al., 2003).

3.10 Analytical Structural Mode

The structural model tested the direct effects of seven exogenous latent variables on organizational effectiveness:

$$OE (\beta_1 STR + \beta_2 STC + \beta_3 SYS + \beta_4 STY + \beta_5 STA + \beta_6 SKL + (\beta_7 SV + \epsilon))$$

Where:

OE = Organizational Effectiveness

STR = Strategy

STC = Structure

SYS = Systems

STY = Style

STA = Staff

SKL = Skills

SV = Shared Values

ϵ = Residual Error

4. Literature Review

4.1 Organizational Effectiveness in Educational Institutions

Organizational effectiveness is a multidimensional concept commonly associated with an institution's ability to achieve intended goals, utilize resources efficiently, adapt to environmental change, and sustain long-term performance (Cameron, 1986; Daft, 2016). In educational settings, effectiveness extends beyond financial outcomes to include academic quality, stakeholder satisfaction, operational efficiency, staff commitment, innovation capability, and student success (Hoy & Miskel, 2013). Because educational institutions pursue multiple and sometimes competing objectives, organizational effectiveness is often viewed as a composite construct rather than a single measurable outcome.

For vocational education institutions, effectiveness is particularly important because these organizations are expected to respond rapidly to labor market demand while maintaining educational quality. Their success depends not only on curriculum relevance, but also on managerial agility, partnership capacity, technological readiness, and internal coordination. In small private institutions, where resources are often limited, organizational effectiveness may depend heavily on the alignment of internal management systems and workforce capabilities.

4.2 The McKinsey 7S Framework and Digital Transformation

The McKinsey 7S framework was introduced by Waterman et al. (1980) as a holistic model of organizational alignment. The framework proposes that successful organizations maintain consistency across seven interdependent elements: strategy, structure, systems, style, staff, skills, and shared values. These elements are commonly categorized into "hard" factors (strategy, structure, systems) and "soft" factors (style, staff, skills, shared values), emphasizing that

formal arrangements alone are insufficient for sustained effectiveness. The model has been widely applied in organizational diagnosis, strategic change, leadership studies, and performance improvement (Ravanfar, 2015). In educational contexts, the framework is relevant because institutions require both formal administrative systems and collaborative professional cultures. However, the original model emerged prior to the digital era and therefore does not explicitly address technological readiness, data-driven governance, or digitally enabled work systems.

Digital transformation refers to the integration of digital technologies into organizational processes, structures, and strategic models in ways that fundamentally improve performance and create value (Vial, 2019). Importantly, digital transformation is not merely technological adoption; it also involves changes in leadership, organizational culture, skills, and decision systems (Kane et al., 2015). This suggests that the 7S framework remains useful when reinterpreted through a digital lens. Accordingly, the present study develops a Digital 7S model in which each traditional dimension incorporates digital readiness and transformation capability.

5. Hypotheses Development

H1: Strategy has a positive effect on organizational effectiveness.

Rationale: In the digital era, strategic effectiveness increasingly depends on the integration of innovation priorities, technological planning, and environmental scanning. Clear digital strategies allow efficient resource allocation and improve institutional competitiveness (Bryson, 2018).

H2: Structure has a positive effect on organizational effectiveness.

Rationale: Structure refers to the formal arrangement of roles and authority. Flatter and more agile structures in digitally oriented institutions may enhance responsiveness and cross-functional collaboration (Donaldson, 2001).

H3: Systems have a positive effect on organizational effectiveness.

Rationale: Effective systems (workflow automation, analytics platforms, integrated tools) enhance planning accuracy, service delivery, transparency, and evidence-based decision-making (Ifenthaler & Yau, 2020).

H4: Style has a positive effect on organizational effectiveness.

Rationale: Style refers to leadership behavior and managerial norms. Participative and transformational leadership practices shape readiness for innovation and improve institutional outcomes (Hallinger, 2011; Leithwood et al., 2020).

H5: Staff has a positive effect on organizational effectiveness.

Rationale: Well-managed human resources contribute to organizational productivity, retention, service quality, and institutional adaptability (Becker, 1993). In small institutions, optimal staff deployment is vital due to multitasking roles.

H6: Skills have a positive effect on organizational effectiveness.

Rationale: Collective competencies, including digital literacy, data interpretation, and continuous learning readiness, enable institutions to implement change successfully and solve operational problems (OECD, 2021).

H7: Shared values have a positive effect on organizational effectiveness.

Rationale: Shared values occupy a central role within the 7S framework because they shape behavior across all other dimensions. Strong organizational cultures enhance coordination, trust, commitment, and change readiness (Chatman & O'Reilly, 2016).

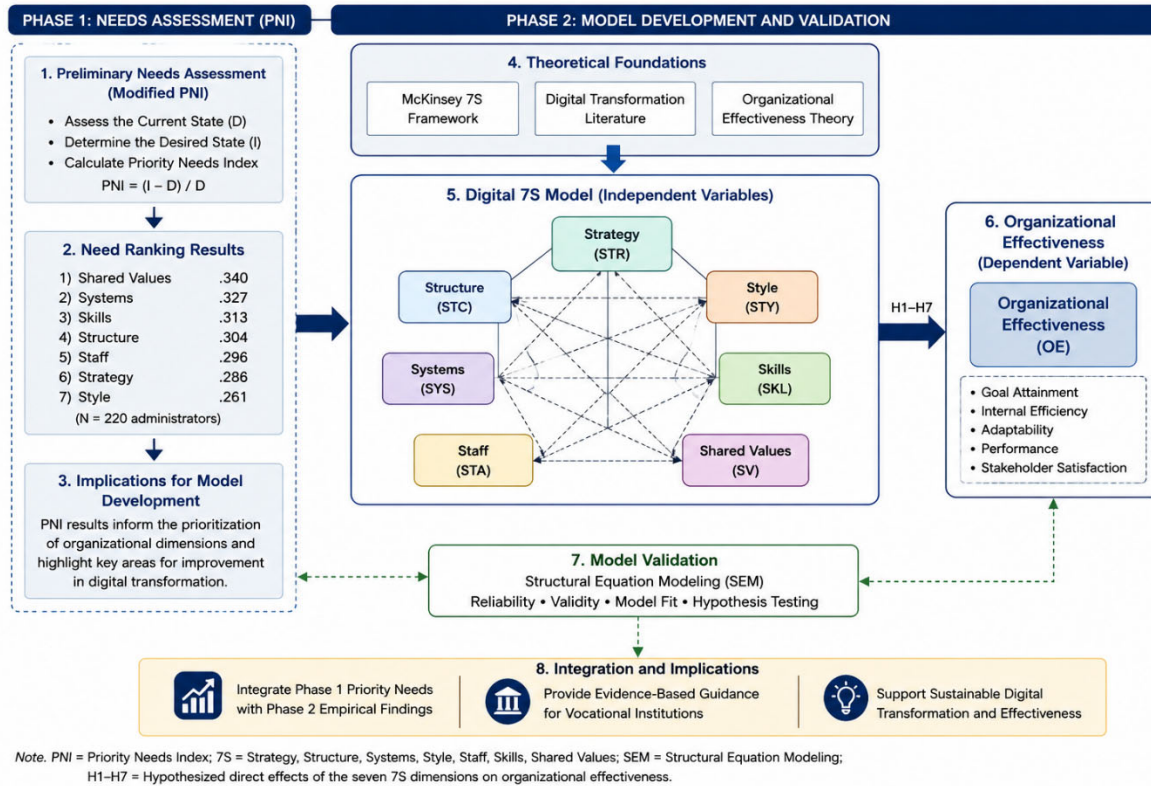


Figure 1. Conceptual Framework

6. Empirical Results

6.1 Respondent Profile

A total of 220 valid responses were included in the final analysis. Table 1 summarizes the demographic characteristics of the sample.

Table 1. Respondent Characteristics (N = 220)

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	103	46.8
	Female	117	53.2
Age	Below 35 years	32	14.5
	35–44 years	71	32.3
	45–54 years	82	37.3
	55 years and above	35	15.9
Position	Director / Deputy Director	94	42.7
	Academic Administrator	68	30.9
	Department Head	58	26.4
Experience	Below 5 years	39	17.7
	5–10 years	54	24.5
	More than 10 years	127	57.7

The respondent profile indicates that the sample was composed largely of experienced administrators, with more than half reporting over 10 years of managerial experience. This ensures high credibility in evaluating institutional management practices.

6.2 Descriptive Statistics and Correlation Analysis

Table 2 presents means, standard deviations, and Pearson correlation coefficients among the study constructs.

Table 2. Descriptive Statistics and Inter-Construct Correlations

Construct	Mean	SD	1	2	3	4	5	6	7	8
1. Strategy (STR)	3.71	0.61	1.00							
2. Structure (STC)	3.58	0.64	.51	1.00						
3. Systems (SYS)	3.49	0.66	.56	.54	1.00					
4. Style (STY)	3.76	0.59	.39	.45	.41	1.00				
5. Staff (STA)	3.62	0.63	.46	.36	.48	.37	1.00			
6. Skills (SKL)	3.55	0.65	.53	.41	.57	.44	.50	1.00		
7. Shared Values (SV)	3.44	0.70	.48	.39	.58	.42	.52	.57	1.00	
8. Organizational Effectiveness (OE)	3.68	0.60	.52	.44	.63	.38	.49	.59	.66	1.00

Note: All correlation coefficients are statistically significant at $p < .01$.

All constructs were positively correlated. The strongest association with organizational effectiveness was observed for Shared Values ($r = .66$), followed by Systems ($r = .63$) and Skills ($r = .59$). Correlation coefficients were below commonly accepted multicollinearity thresholds ($r < .85$), suggesting acceptable construct distinctiveness.

6.3 Preliminary Data Screening

Prior to model estimation, assumptions of normality were examined. Skewness values for all items ranged from 0.62 to +0.45, and kurtosis values ranged from -0.78 to +0.82. Because these values were well within the acceptable range of ± 2.0 , the dataset satisfied univariate normality and was considered suitable for covariance-based SEM analysis using Maximum Likelihood estimation.

6.4 Measurement Model Assessment (CFA)

Confirmatory factor analysis (CFA) was conducted to evaluate the adequacy of the eight-factor measurement model. The initial measurement model demonstrated satisfactory goodness-of-fit:

The results of the confirmatory factor analysis and the finalized structural model are presented in Figure 2

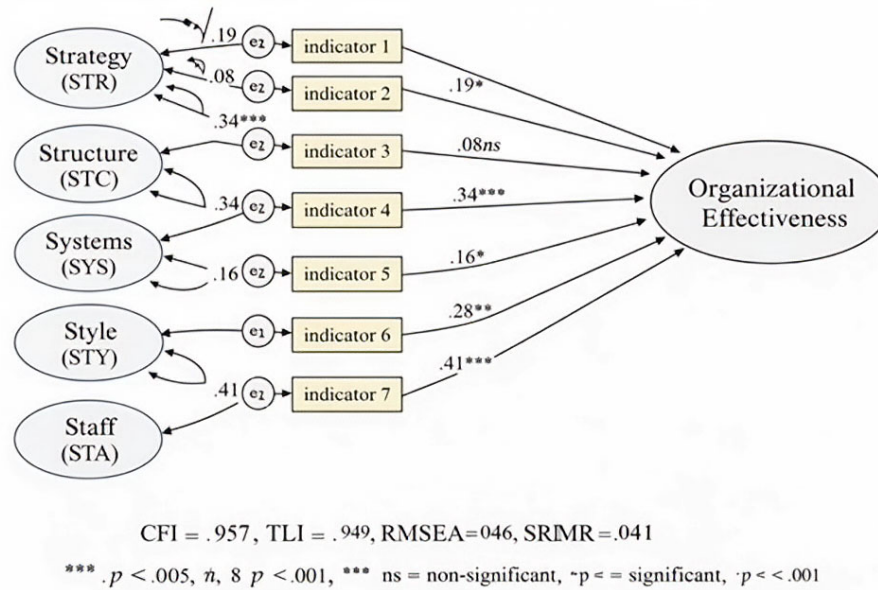


Figure 2. Measurement Model (Confirmatory Factor Analysis) of the Digital 7S Framework

$\chi^2=684.27$, $df=353$, $\chi^2/df=1.94$

CFI = .957; TLI=.949; RMSEA= .046 [90% CI: .039, .053]; SRMR=.041

These indices indicate that the measurement model fitted the observed data exceptionally well, supporting the conceptual assignment of items to their respective latent variables.

6.5 Reliability and Convergent Validity

Table 3 presents standardized factor loadings, composite reliability (CR), and average variance extracted (AVE) for the latent constructs.

Table 3. Measurement Model Reliability and Validity Metrics

Construct	Items	Loading Range	Cronbach's α	CR	AVE
Strategy (STR)	4	0.69 – 0.75	0.85	0.88	0.59
Structure (STC)	4	0.71 – 0.77	0.83	0.83	0.55
Systems (SYS)	4	0.72 – 0.78	0.89	0.90	0.65
Style (STY)	4	0.66 – 0.70	0.81	0.81	0.52
Staff (STA)	4	0.69 – 0.75	0.84	0.83	0.55
Skills (SKL)	4	0.72 – 0.77	0.90	0.91	0.66
Shared Values (SV)	4	0.76 – 0.82	0.91	0.92	0.69
Organizational Effectiveness (OE)	5	0.69 – 0.75	0.90	0.87	0.63

All standardized factor loadings exceeded the minimum threshold of .60. Composite reliability (CR) values were well above the recommended threshold of .70, while AVE values exceeded .50. These findings collectively support strong internal consistency and convergent validity across all constructs.

6.6 Discriminant Validity

Discriminant validity was assessed using the Fornell-Larcker criterion. As shown in Table 4, the square root of each construct's AVE (diagonal entries) is consistently greater than its correlations with other constructs. Furthermore, all Heterotrait-Monotrait (HTMT) ratios were below .85, confirming satisfactory discriminant validity.

Table 4. Fornell-Larcker Discriminant Validity Matrix

Construct	STR	STC	SYS	STY	STA	SKL	SV	OE
STR	0.75							
STC	0.42	0.74						
SYS	0.51	0.38	0.77					
STY	0.39	0.45	0.41	0.72				
STA	0.46	0.36	0.48	0.37	0.74			
SKL	0.53	0.41	0.55	0.44	0.50	0.78		
SV	0.48	0.39	0.58	0.42	0.52	0.57	0.81	
OE	0.52	0.34	0.63	0.38	0.49	0.59	0.66	0.75

Note: Bold diagonal values represent the square root of the AVE.

6.7 Structural Model Assessment and Hypothesis Testing

Structural equation modeling was conducted to test the hypothesized relationships between the seven Digital 7S dimensions and organizational effectiveness. The structural model demonstrated good fit indices:

$$\chi^2/df = 1.94 \text{ CFI} = .955 \text{ TLI} = .947 \text{ RMSEA} = .046 \text{ SRMR} = .043$$

Table 5 summarizes the standardized path coefficients, t-values (critical ratios), and hypothesis testing results.

Table 5. Structural Path Analysis and Hypothesis Testing Results

Hypothesis	Path Structure		Std. Beta	S.E.	t-value (C.R.)	p-value	Result
H1	Strategy Effectiveness	Organizational	0.19	0.06	2.34	$p < .05$	Supported
H2	Structure Effectiveness	Organizational	0.08	0.05	1.21	$p = .731$	Not Supported
H3	Systems Effectiveness	Organizational	0.34	0.07	4.87	$p < .001$	Supported
H4	Style Organizational Effectiveness		0.06	0.06	0.98	$p = .632$	Not Supported
H5	Staff Organizational Effectiveness		0.16	0.05	2.09	$p < .05$	Supported
H6	Skills Organizational Effectiveness		0.28	0.07	3.76	$p < .01$	Supported
H7	Shared Values Effectiveness	Organizational	0.41	0.08	5.62	$p < .001$	Supported

Five of the seven hypothesized relationships were statistically significant. Shared Values exerted the strongest positive direct effect on organizational effectiveness ($\beta = .41$, $p < .001$), followed by Systems ($\beta = .34$, $p < .001$) and Skills ($\beta = .28$, $p < .01$). Strategy ($\beta = .19$, $p < .05$) and Staff ($\beta = .16$, $p < .05$) also showed smaller but significant positive effects. In contrast, Structure and Style did not demonstrate statistically significant direct effects within the model.

The results of the confirmatory factor analysis and the finalized structural model are presented in Figure 3

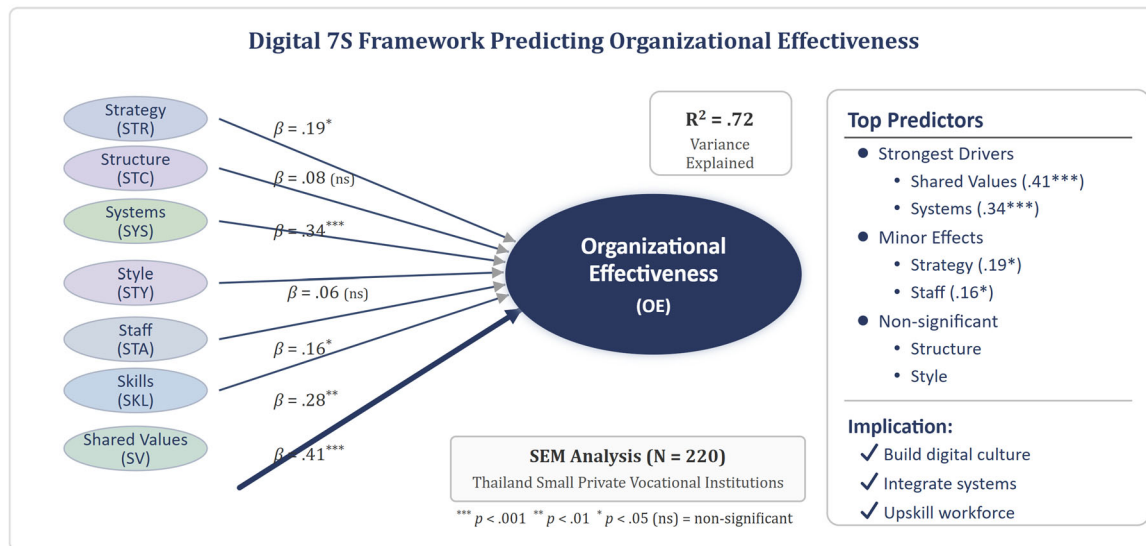


Figure 3. Final Structural Equation Model with Standardized Path Coefficients

6.8 Explained Variance (R^2)

The seven predictor variables jointly explained 72% of the variance in organizational effectiveness ($R^2 = 0.72$). This indicates substantial explanatory power and suggests that the Digital 7S model provides a robust account of organizational effectiveness in small private vocational institutions.

7. Discussion

This study developed and empirically validated a Digital 7S Model of Organizational Effectiveness for small private vocational institutions in Thailand by integrating a needs assessment with structural equation modeling. Unlike previous studies that relied solely on theoretical assumptions, the present research employed a sequential multi-phase design in which the conceptual model was first informed by institutional development priorities (Phase 1) and subsequently validated using empirical structural analysis (Phase 2). Consequently, the discussion not only interprets the SEM findings but also explains how the Phase 1 needs assessment supports and strengthens the final model.

7.1 Re-Centering Organizational Effectiveness Around Shared Values

The most salient finding of this study is the dominant role of shared values. Unlike traditional organizational models that often prioritize formal structure or strategy, the present findings indicate that cultural alignment functions as the central integrating mechanism across organizational elements. This supports the original proposition of the 7S framework that shared values occupy a pivotal position, but extends it by demonstrating that, in digitally transforming environments, culture becomes even more consequential.

The findings indicate that Shared Values exerted the strongest positive influence on organizational effectiveness ($\beta = .41, p < .001$). This finding is highly consistent with the Digital Business Global Executive Study conducted by Kane et al. (2018), which reported that digitally mature organizations are distinguished primarily by a shared organizational mindset that values continuous learning, experimentation, collaboration, and innovation rather than technology adoption alone. The report argues that successful digital transformation begins with transforming organizational culture and employee mindsets before implementing digital technologies. This perspective supports the present findings, suggesting that a shared digital culture serves as the organizational foundation upon which all other digital transformation initiatives are built.

One plausible explanation is that shared values reduce coordination costs in environments characterized by uncertainty and limited formalization. In small institutions, where bureaucratic controls are minimal and roles are often fluid, shared norms and collective commitment may substitute for formal governance mechanisms. This interpretation aligns with organizational culture theory, which posits that shared assumptions guide behavior in situations where formal rules are insufficient (Denison et al., 2014; Chatman & O'Reilly, 2016). Moreover, digital transformation amplifies the

importance of culture because technological adoption requires behavioral change, learning orientation, and openness to innovation. Without a supportive value system, investments in digital infrastructure may fail to translate into improved performance. Thus, shared values should not be viewed as a background variable, but as a primary driver of digital organizational effectiveness.

7.2 Systems as the Operational Core of Digital Alignment

The strong effect of systems ($\beta = .34, p < .01$) underscores the centrality of digitally enabled processes in contemporary organizational effectiveness. While prior research has emphasized the importance of management information systems, the present findings suggest that systems operate not merely as support tools, but as the operational backbone through which strategy is enacted and organizational coordination is achieved.

From a socio-technical systems perspective, effectiveness emerges from the joint optimization of social and technical subsystems. In this study, systems appear to function as the mechanism that translates abstract strategic intentions into actionable routines and data-informed decisions. This is particularly critical in small institutions, where efficiency gains from digitalization can compensate for limited human and financial resources. The findings also suggest that the impact of systems may be partly indirect, reinforcing other organizational dimensions such as skills and shared values. For example, the availability of reliable data systems may enhance transparency, accountability, and trust, thereby strengthening organizational culture. This highlights the need to conceptualize systems not as isolated technological artifacts, but as embedded components of organizational alignment.

7.3 Skills as a Dynamic Capability in the Digital Era

The significant effect of Skills ($\beta = .28, p < .01$) is also consistent with Kane et al. (2018), who emphasized that digitally mature organizations invest continuously in employee learning, capability development, and leadership preparation. Rather than relying solely on technological infrastructure, successful organizations cultivate digital competencies through continuous professional learning and organizational learning mechanisms. Similarly, the present findings demonstrate that workforce capability remains a critical organizational resource enabling institutions to translate digital technologies into improved organizational performance.

In the context of vocational education institutions, skills are particularly critical because they influence both internal management processes and external educational outcomes. Administrators and staff must simultaneously manage institutional operations and respond to evolving labor market demands. This dual role increases the importance of digital literacy, problem-solving ability, and continuous learning orientation. The results also suggest complementarity between skills and systems. Digital systems create potential value, but this value can only be realized when organizational members possess the competencies required to use them effectively. This interdependence highlights the importance of aligning investments in technology with investments in human capital development.

7.4 Interpreting the Modest Effects of Strategy and Staff

Although strategy ($\beta = .19, p < .05$) and staff ($\beta = .16, p < .05$) were statistically significant, their effects were comparatively modest. This finding challenges conventional assumptions that strategic planning is the primary driver of organizational performance. Instead, the results suggest that strategy may exert its influence indirectly, through its alignment with systems, skills, and shared values. This interpretation is consistent with emergent strategy perspectives, which argue that realized strategy is shaped more by patterns of action and organizational learning than by formal planning documents (Mintzberg et al., 2009). In resource-constrained environments, the effectiveness of strategy may depend less on its formulation and more on its operationalization through systems and its internalization through shared values.

Similarly, the relatively weaker effect of staff suggests that workforce quantity or structural allocation alone is insufficient to drive effectiveness. Instead, what appears to matter more is the quality, capability, and alignment of personnel—factors that are more directly captured by the skills and shared values constructs.

7.5 Why Structure and Style Did Not Exhibit Direct Effects

The non-significant effects of structure and style provide an important theoretical insight. Rather than indicating irrelevance, these findings suggest that their influence may be indirect or contingent upon other organizational elements. In small institutions, structural variation is often limited, reducing its explanatory power.

Additionally, leadership style may exert its effects through mediating mechanisms such as culture formation, staff motivation, and capability development. This interpretation is consistent with contingency theory and recent leadership research, which emphasize indirect pathways of influence. Leadership may shape organizational outcomes not through direct effects, but by creating conditions that enable other factors such as systems and skills to function

effectively. Future research could explicitly test these mediating relationships to further clarify causal mechanisms.

7.6 Theoretical Implications

This study contributes to the literature in three key ways:

1. It demonstrates that the McKinsey 7S framework remains theoretically relevant, but requires reinterpretation to account for digital transformation.
2. It provides empirical evidence that soft elements—particularly shared values and skills—may exert stronger effects than traditional hard elements in small, resource-constrained institutions.
3. It advances an integrative perspective by showing that organizational effectiveness emerges from the alignment between culture, capability, and digitally enabled systems.

Together, these contributions suggest that digital transformation should be conceptualized not as a technological upgrade, but as an organizational alignment process. This perspective extends existing research by positioning digital readiness as a system-wide property rather than a discrete capability.

8. Conclusion

This study developed and validated a Digital 7S model for explaining organizational effectiveness in small private vocational institutions in Thailand. Extending the traditional McKinsey 7S framework, the study incorporated digital transformation perspectives into seven interrelated organizational dimensions: strategy, structure, systems, style, staff, skills, and shared values. Using data collected from 220 administrators and analyzed through structural equation modeling, the findings demonstrated that the proposed model provided a strong explanation of institutional effectiveness, accounting for 72% of the variance.

The empirical results revealed that shared values, systems, and skills were the most influential predictors of organizational effectiveness. Strategy and staff also had significant positive effects, whereas structure and style did not show statistically significant direct effects. These findings suggest that, in small private vocational institutions, cultural alignment, digitally enabled operational systems, and workforce capability are more critical than formal hierarchy or leadership style alone. Institutions operating under resource constraints may therefore achieve stronger performance through internal alignment and capability development rather than structural expansion.

8.1 Practical Implications

For Administrators: Leaders should prioritize the development of shared organizational values that support collaboration, accountability, innovation, and student-centered performance. Investment in integrated digital management systems should be emphasized to improve planning, communication, and evidence-based decision-making. In addition, continuous professional development in digital, managerial, and analytical competencies must be embedded in institutional strategy.

For Policymakers: Targeted support for digital infrastructure and management capacity building may strengthen the sustainability of small private vocational institutions facing demographic and competitive pressures.

8.2 Limitations and Future Directions

Despite these contributions, several limitations should be acknowledged. First, the cross-sectional design limits causal inference because relationships were examined at one point in time. Second, the study relied on self-reported perceptions from administrators, which may be subject to common method bias or social desirability effects. Third, the research focused exclusively on small private vocational institutions in Thailand, which may limit the generalizability of findings to public institutions, larger organizations, or other national contexts. Fourth, the model examined direct effects only and did not test potential mediating or moderating relationships among variables.

Future research may extend this study in several directions. Longitudinal research could examine how Digital 7S dimensions influence institutional effectiveness over time. Comparative studies across public and private institutions, or across countries, would strengthen contextual understanding. Future models may also test mediating variables such as innovation climate, organizational learning, or digital readiness, as well as moderating effects related to institutional size or environmental turbulence. Finally, qualitative or mixed-methods studies could provide deeper insight into how organizational alignment is enacted in practice during digital transformation.

In conclusion, the Digital 7S model offers a timely and practical framework for understanding how vocational institutions can improve effectiveness in an era of technological disruption and increasing competition. For small

educational institutions seeking sustainable performance, success appears to depend less on formal structure alone and more on the alignment of culture, capability, and digitally supported management systems.

References

- Alshaher, A. A. F. (2013). The McKinsey 7S model framework for e-learning system readiness assessment. *International Journal of Advances in Engineering & Technology*, 6(1), 1948-1966.
- Becker, G. S. (1993). *Human capital: A theoretical and empirical analysis, with special reference to education* (3rd ed.). University of Chicago Press.
- Bond, M., Bedenlier, S., Marín, V. I., & Händel, M. (2020). Emergency remote teaching in higher education: Mapping the first global online semester. *International Journal of Educational Technology in Higher Education*, 17(1), 1-24. <https://doi.org/10.1186/s41239-020-00223-1>
- Bryson, J. M. (2018). *Strategic planning for public and nonprofit organizations* (5th ed.). Jossey-Bass.
- Cameron, K. S. (1986). Effectiveness as paradox: Consensus and conflict in conceptions of organizational effectiveness. *Management Science*, 32(5), 539-553. <https://doi.org/10.1287/mnsc.32.5.539>
- Chatman, J. A., & O'Reilly, C. A. (2016). Paradigm lost: Reinvigorating the study of organizational culture. *Research in Organizational Behavior*, 36, 199-224. <https://doi.org/10.1016/j.riob.2016.11.004>
- Daft, R. L. (2016). *Organization theory and design* (12th ed.). Cengage Learning.
- Denison, D. R., Nieminen, L., & Kotrba, L. (2014). Diagnosing organizational cultures: A conceptual and empirical review of culture effectiveness surveys. *European Journal of Work and Organizational Psychology*, 23(1), 145-161. <https://doi.org/10.1080/1359432X.2012.713173>
- Digital Economy Promotion Agency [depa]. (2022). *Thailand digital economy promotion report*. Digital Economy Promotion Agency.
- Donaldson, L. (2001). *The contingency theory of organizations*. Sage.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2022). *Multivariate data analysis* (8th ed.). Cengage Learning.
- Hallinger, P. (2011). Leadership for learning: Lessons from 40 years of empirical research. *Journal of Educational Administration*, 49(2), 125-142. <https://doi.org/10.1108/09578231111116699>
- Hoy, W. K., & Miskel, C. G. (2013). *Educational administration: Theory, research, and practice* (9th ed.). McGraw-Hill.
- Ifenthaler, D., & Yau, J. Y.-K. (2020). Utilising learning analytics for study success: Reflections on current empirical findings. *Research and Practice in Technology Enhanced Learning*, 15(1), 1-17. <https://doi.org/10.1186/s41039-020-00135-4>
- Kane, G. C., Palmer, D., Phillips, A. N., Kiron, D., & Buckley, N. (2015). Strategy, not technology, drives digital transformation. *MIT Sloan Management Review*, 14, 1-25.
- Kane, G. C., Palmer, D., Phillips, A. N., Kiron, D., & Buckley, N. (2018). *Coming of age digitally: Learning, leadership, and legacies*. MIT Sloan Management Review and Deloitte Insights.
- Kline, R. B. (2016). *Principles and practice of structural equation modeling* (4th ed.). Guilford Press.
- Kwatubana, S., & Meyiwa, T. (2022). Leadership practices in promoting the use of digital technologies in schools. *International Journal of Learning, Teaching and Educational Research*, 21(1), 182-198.
- Leithwood, K., Harris, A., & Hopkins, D. (2020). Seven strong claims about successful school leadership revisited. *School Leadership & Management*, 40(1), 5-22. <https://doi.org/10.1080/13632434.2019.1596077>
- Mintzberg, H., Ahlstrand, B., & Lampel, J. (2009). *Strategy safari: Your complete guide through the wilds of strategic management* (2nd ed.). FT Prentice Hall.
- OECD. (2021). *21st-century readers: Developing literacy skills in a digital world*. OECD Publishing. <https://doi.org/10.1787/a83d84cb-en>
- Office of the Education Council [OEC]. (2020). *A research report on effective school management models in Thailand*. Office of the Education Council.

- Phutdee, S., Siritarungsri, P., & Somprach, K. (2022). Digital leadership of vocational school administrators in Thailand. *Journal of Educational Administration and History*, 54(3), 289-305.
- Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method bias in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879-903. <https://doi.org/10.1037/0021-9010.88.5.879>
- Ravanfar, M. M. (2015). Analyzing organizational structure based on 7S model of McKinsey. *Global Journal of Management and Business Research*, 15(10), 6-12.
- Rovinelli, R. J., & Hambleton, R. K. (1977). On the use of content specialists in the assessment of criterion-referenced test item validity. *Journal of Educational Measurement*, 14(1), 49-60.
- Sangiamjit, P., Somvadee, C., & Tuamsuk, K. (2024). Digital transformation readiness of vocational education institutions in Thailand: A multidimensional analysis. *Education and Information Technologies*, 29(1), 455-478.
- Selwyn, N. (2016). *Education and technology: Key issues and debates* (2nd ed.). Bloomsbury Academic.
- UNESCO. (2022). *Global Education Monitoring Report 2022: Gender report, deepening the debate on those left behind*. UNESCO Publishing.
- Vial, G. (2019). Understanding digital transformation: A review and research agenda. *The Journal of Strategic Information Systems*, 28(2), 118-144. <https://doi.org/10.1016/j.jsis.2019.01.003>
- Waterman, R. H., Peters, T. J., & Phillips, J. R. (1980). Structure is not organization. *Business Horizons*, 23(3), 14-26. [https://doi.org/10.1016/0007-6813\(80\)90027-0](https://doi.org/10.1016/0007-6813(80)90027-0)
- World Economic Forum [WEF]. (2023). *The future of jobs report 2023*. World Economic Forum.

Appendices

Appendix A: Phase 1 Needs Assessment Data

Table A1: Preliminary Needs Assessment Results of the Digital 7S Dimensions

Dimension	Current State (D)	Desired State (I)	PNIModified	Priority Rank
Shared Values	3.44	4.61	.340	1
Systems	3.49	4.63	.327	2
Skills	3.55	4.66	.313	3
Structure	3.58	4.67	.304	4
Staff	3.62	4.69	.296	5
Strategy	3.71	4.77	.286	6
Style	3.76	4.74	.261	7

Note: $PNI_{Modified} = (I - D) / D$

Appendix B: Latent Constructs Operational Matrix

Scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree

Construct	Code	Measurement Item	Theoretical Source Basis
Strategy	STR1	Our institution has a clear digital strategy aligned with long-term goals.	McKinsey 7S / Strategic Management
	STR2	Strategic plans are regularly updated based on environmental changes and market demands.	Strategic Planning
	STR3	Data are used to support strategic planning and decision-making.	Data-driven Management
	STR4	Institutional strategies emphasize innovation and competitiveness.	Digital Transformation
Structure	STC1	The organizational structure supports efficient communication across departments.	McKinsey 7S
	STC2	Roles and responsibilities are clearly defined in this institution.	Organizational Design
	STC3	Decision-making authority is appropriately delegated.	Governance
	STC4	The structure is flexible enough to respond to changing conditions.	Agile Organization
Systems	SYS1	The institution uses integrated digital systems for administrative management.	Information Systems
	SYS2	Information systems provide accurate and timely data for decision-making.	MIS / Analytics
	SYS3	Work processes are supported by efficient operational procedures.	Operations Management
	SYS4	Performance monitoring systems are regularly used to improve outcomes.	Performance Management
Style	STY1	Leaders encourage teamwork and collaboration.	Leadership Style
	STY2	Administrators communicate openly with staff members.	Participative Leadership
	STY3	Leaders support innovation and constructive change.	Change Leadership
	STY4	Leadership practices promote trust and fairness.	Ethical Leadership
Staff	STA1	The institution has sufficient staff to achieve its objectives.	Human Resource Management
	STA2	Staff members are assigned according to their expertise.	Workforce Allocation
	STA3	Recruitment and retention practices are effective.	HR Systems
	STA4	Staff members demonstrate commitment to institutional goals.	Employee Commitment
Skills	SKL1	Staff members possess adequate digital competencies for their work.	Digital Skills
	SKL2	Administrators demonstrate effective managerial and leadership skills.	Managerial Capability
	SKL3	Employees are capable of solving problems and adapting to change.	Adaptive Capability
	SKL4	The institution provides opportunities for continuous professional development.	Capacity Building
Shared Values	SV1	Staff members share a common commitment to student success.	Organizational Culture
	SV2	Organizational values emphasize integrity and accountability.	Governance Values
	SV3	Collaboration and mutual respect are strongly valued.	Collective Culture
	SV4	Innovation and continuous improvement are widely encouraged.	Learning Culture
Organizational Effectiveness	OE1	The institution achieves its strategic and operational goals effectively.	Goal Attainment
	OE2	Administrative processes are efficient and well-coordinated.	Internal Efficiency
	OE3	The institution adapts successfully to environmental changes.	Adaptability
	OE4	Overall organizational performance is satisfactory.	Performance Perspective
	OE5	Stakeholders are satisfied with the institution's performance.	Stakeholder Satisfaction

Appendix C: Item-Level Measurement Descriptive Statistics

Table C1: Item Statistics and Factor Loadings Matrix

Code	Mean	Std. Deviation	Standardized Factor Loading (λ)
STR1	3.74	0.62	0.71
STR2	3.69	0.60	0.73
STR3	3.72	0.63	0.69
STR4	3.68	0.59	0.75
STC1	3.55	0.66	0.74
STC2	3.61	0.62	0.71
STC3	3.52	0.67	0.77
STC4	3.64	0.61	0.72
SYS1	3.46	0.68	0.78
SYS2	3.52	0.65	0.74
SYS3	3.48	0.67	0.76
SYS4	3.50	0.64	0.72
STY1	3.79	0.58	0.67
STY2	3.73	0.60	0.70
STY3	3.77	0.59	0.66
STY4	3.75	0.59	0.68
STA1	3.58	0.65	0.75
STA2	3.64	0.61	0.71
STA3	3.59	0.64	0.73
STA4	3.67	0.62	0.69
SKL1	3.51	0.67	0.77
SKL2	3.56	0.64	0.74
SKL3	3.54	0.66	0.76
SKL4	3.60	0.63	0.72
SV1	3.42	0.72	0.80
SV2	3.47	0.69	0.77
SV3	3.39	0.73	0.82
SV4	3.48	0.66	0.76
OE1	3.70	0.61	0.71
OE2	3.66	0.62	0.73
OE3	3.64	0.63	0.75
OE4	3.69	0.59	0.70
OE5	3.71	0.57	0.69

Table C2: Collinearity Diagnostics (VIF)

Predictor Variable	Variance Inflation Factor (VIF)
Strategy (STR)	2.11
Structure (STC)	1.94
Systems (SYS)	2.46
Style (STY)	1.88
Staff (STA)	2.07
Skills (SKL)	2.53
Shared Values (SV)	2.71

Author Statements

Author(s) declared the statement below:

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