

ORIGINAL ARTICLE



ENHANCING PUBLIC SECTOR PROJECT DELIVERY THROUGH STRATEGIC HUMAN RESOURCE CAPABILITY: THE MEDIATING ROLE OF PERFORMANCE MONITORING IN POST-AWARD CONTRACT MANAGEMENT

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Abstract

Effective post-award contract management is essential for ensuring successful public sector project delivery, yet many government projects continue to experience delays, cost overruns, and implementation inefficiencies. While Strategic Human Resource Capability (SHRC) is widely recognised as a key organisational resource, limited empirical evidence explains how workforce capability is transformed into improved project outcomes within public sector organisations. Guided by Open Systems Theory (OST), this study examines the mediating role of Performance Monitoring in the relationship between Strategic Human Resource Capability and Project Delivery Quality in Malaysian public sector post-award contract management. A quantitative cross-sectional survey was conducted among 462 public officers responsible for post-award contract management across 28 Federal Ministries in Malaysia. Data were analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM) using SmartPLS 4. The findings reveal that Strategic Human Resource Capability has a significant positive effect on Performance Monitoring, which subsequently improves Project Delivery Quality. Performance Monitoring also significantly mediates the relationship between Strategic Human Resource Capability and Project Delivery Quality, demonstrating that organisational capabilities create value through effective internal governance processes. This study contributes to the Strategic Human Resource Management and public governance literature by providing empirical evidence that Performance Monitoring functions as a critical organisational mechanism linking workforce capability with project success. The findings further extend the application of Open Systems Theory in the context of post-award contract management and offer practical implications for strengthening human resource capability,

organisational monitoring practices, and governance to improve public sector project performance in Malaysia

Keywords: Strategic Human Resource Capability, Performance Monitoring, Project Delivery Quality, Open Systems Theory, Post-Award Contract Management, Malaysian Public Sector.

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Introduction

Delivering high-quality public sector projects is fundamental to achieving sustainable national development, strengthening public trust, and ensuring effective public service delivery. However, governments worldwide continue to face persistent challenges in completing public projects within the expected scope, budget, and timeframe. While governance reforms and regulatory frameworks have received considerable attention, increasing evidence suggests that successful project implementation also depends on the strategic capability of human resources to execute, coordinate, monitor, and sustain project performance throughout the post-award contract management phase.

Strategic Human Resource Capability (SHRC) has emerged as a critical organizational capability that enables public organizations to respond effectively to complex operational environments, resource constraints, and increasing stakeholder expectations. Within the Strategic Human Resource Management (SHRM) literature, workforce capability extends beyond technical competence to encompass employees' ability to integrate knowledge, skills, experience, and organizational commitment in achieving strategic objectives. In the context of public sector projects, capable human resources play a pivotal role in coordinating project implementation, monitoring contractual performance, managing emerging risks, and ensuring accountability throughout project execution.

Despite continuous investments in human capital development and public sector governance reforms, project implementation challenges remain widespread. In Malaysia, the National Audit Department (Laporan Ketua Audit Negara, LKAN) has consistently reported recurring issues involving project delays, cost overruns, quality deficiencies, weak contract administration, and ineffective implementation oversight. These recurring weaknesses indicate that governance frameworks alone are insufficient to guarantee successful project delivery unless they are supported by competent human resources and effective organizational processes capable of translating strategic capability into operational performance.

Among these organizational processes, Performance Monitoring represents a critical mechanism through which workforce capability can be transformed into improved project outcomes. Effective performance monitoring enables organizations to evaluate implementation progress, detect operational deviations, facilitate timely corrective actions, and strengthen transparency and accountability during project execution. Conversely, ineffective monitoring limits organizational responsiveness and constrains the ability of capable employees to convert

their expertise into successful project delivery. Although previous studies have independently recognized the importance of workforce capability and performance management, relatively little empirical research has examined how performance monitoring explains the relationship between Strategic Human Resource Capability and Project Delivery Quality.

This research gap is particularly evident within the public sector project management literature. Existing studies have largely concentrated on procurement governance, contract compliance, financial accountability, and project control mechanisms, whereas Strategic Human Resource Management research has predominantly examined workforce capability in relation to employee performance, leadership effectiveness, and organizational performance. Consequently, limited empirical evidence explains the organizational process through which Strategic Human Resource Capability contributes to superior Project Delivery Quality, particularly during the post-award contract management phase of public sector projects.

To address this gap, this study adopts Open Systems Theory (OST) as the primary theoretical framework. OST conceptualizes organizations as dynamic systems in which organizational inputs are transformed through internal processes to generate desired outputs. In this study, Strategic Human Resource Capability represents the organizational input, Performance Monitoring functions as the transformation process, and Project Delivery Quality constitutes the organizational output. To complement this perspective, Transaction Cost Economics (TCE) is incorporated to explain the governance mechanisms that support effective contract implementation and organizational coordination. The integration of OST and TCE provides a more comprehensive explanation of how strategic workforce capability contributes to successful public sector project delivery.

This study employs a quantitative cross-sectional survey involving 462 public officers responsible for post-award contract management across 28 Federal Ministries in Malaysia. The proposed relationships among Strategic Human Resource Capability, Performance Monitoring, and Project Delivery Quality are examined using Partial Least Squares Structural Equation Modelling (PLS-SEM) with SmartPLS 4.

This study makes three important contributions. First, it extends Open Systems Theory by empirically demonstrating that Performance Monitoring functions as the organizational transformation mechanism linking Strategic Human Resource Capability with Project Delivery Quality. Second, it enriches the Strategic Human Resource Management and public governance literature by providing empirical evidence from the Malaysian public sector, an important yet underexplored institutional context. Third, the findings offer practical implications for policymakers and public sector organizations by highlighting the importance of strengthening workforce capability and organizational performance monitoring to enhance project implementation effectiveness, governance quality, and public sector performance.

The remainder of this paper is organized as follows. Section 2 reviews the relevant literature and develops the research hypotheses. Section 3 describes the research methodology. Section 4 presents the empirical findings. Section 5 discusses the theoretical and practical implications, and Section 6 concludes the study.

Literature Review and Theory Development

Strategic human resource capability has emerged as a critical organizational capability for enhancing organizational effectiveness, workforce performance, and sustainable organizational outcomes across both private and public sector organizations (Barney, 1991; Wright & McMahan, 2011; Jiang & Messersmith, 2018). Despite increasing scholarly attention to Strategic Human Resource Management (SHRM), existing studies have predominantly examined strategic human resource capability, performance monitoring, and organizational performance as independent streams of research, providing only fragmented explanations of the organizational mechanisms through which workforce capability is translated into superior project delivery outcomes (Collings et al., 2021; Cooke et al., 2022). Addressing this limitation requires a robust theoretical perspective capable of explaining how organizational capabilities are transformed into measurable organizational outcomes. Accordingly, this section critically synthesizes the literature on strategic human resource capability, performance monitoring, and project delivery quality through the lens of Open Systems Theory (OST) (Katz & Kahn, 1978; Scott & Davis, 2015), with Transaction Cost Economics (TCE) providing complementary insights into governance mechanisms supporting project implementation (Williamson, 1985; Ketokivi & Mahoney, 2020). This theoretical synthesis establishes the conceptual foundation for the research model and hypotheses developed in this study.

Strategic Human Resource Capability

Strategic Human Resource Management (SHRM) views human resources as a strategic organizational asset that enhances organizational effectiveness by aligning workforce capabilities with organizational objectives (Wright & McMahan, 2011; Jiang & Messersmith, 2018). Within this perspective, Strategic Human Resource Capability (SHRC) extends beyond employees' technical competencies to encompass the collective knowledge, skills, experience, and capabilities that enable organizations to adapt to changing environments, improve operational performance, and achieve sustainable organizational outcomes (Cooke et al., 2021). Consequently, SHRC is increasingly recognized as a critical organizational capability that strengthens organizational resilience and long-term performance across both private and public sector organizations.

Extensive empirical research demonstrates that strategic human resource capability contributes positively to organizational performance by enhancing decision-making quality, organizational learning, innovation, employee effectiveness, and operational efficiency (Jiang & Messersmith, 2018; Collings et al., 2021). Organizations with capable human resources are better positioned to coordinate complex activities, respond to operational uncertainty, and achieve superior organizational outcomes. Nevertheless, existing studies have predominantly examined the influence of workforce capability on broad organizational outcomes, including employee performance, organizational commitment, and competitive advantage, while comparatively limited attention has been given to its contribution to project delivery quality, particularly within public sector project implementation (Cooke et al., 2021).

The strategic importance of workforce capability is particularly evident in the public sector, where successful project implementation depends on competent personnel capable of coordinating multiple stakeholders, managing implementation challenges, and maintaining accountability throughout the project lifecycle. Although public sector organizations continue to invest in workforce development, research explaining how strategic human resource capability is translated

into superior project delivery through internal organizational mechanisms remains limited. This gap is especially apparent within post-award contract management, where capable personnel alone may be insufficient without effective organizational processes that support implementation and continuous performance improvement.

Accordingly, this study conceptualizes Strategic Human Resource Capability as the overarching organizational capability that is operationalized through Human Resource Capacity, reflecting the knowledge, competencies, skills, and experience of public officers responsible for post-award contract management. Drawing on Open Systems Theory, the study proposes that this organizational capability contributes to project delivery quality through the organizational mechanism of performance monitoring. The evolution of Strategic Human Resource Management (SHRM) has consistently positioned workforce capability as a strategic organizational resource that enhances organizational performance and long-term sustainability. Table 1 summarizes representative studies highlighting the development of strategic human resource capability and its relevance to the present study.

Table 1
Representative Perspectives on Strategic Human Resource Capability

Authors	Main Perspective	Contribution to This Study
Wright & McMahan (2011)	Strategic HRM	Provides the foundational view that human resources are a strategic organisational capability, forming the basis for sustained competitive advantage.
Jiang & Messersmith (2018)	SHRM	Demonstrates that workforce capability enhances organisational effectiveness when embedded within integrated human resource systems and practices.
Cooke et al. (2021)	Strategic HRM	Emphasises the need for a deeper understanding of capability development across diverse organisational and institutional contexts.
Collings et al. (2021)	Human Capital	Highlights that workforce capability contributes to organisational resilience, adaptability, and long-term performance outcomes.
Present Study	Malaysian Public Sector	Extends SHRM by examining how Strategic Human Resource Capability enhances project delivery quality through effective performance monitoring in the Malaysian public sector procurement context.

As shown in Table 1, previous studies consistently recognize strategic human resource capability as a critical organizational asset that enhances organizational performance. However, limited empirical evidence explains how this capability is translated into superior project delivery quality through internal organizational mechanisms, particularly within public sector project implementation. This gap provides the theoretical justification for the present study.

Performance Monitoring

Performance monitoring is widely recognized as a critical organizational process that enables organizations to evaluate progress, measure performance, and implement timely corrective actions to achieve organizational objectives. Within the Strategic Human Resource Management (SHRM) literature, performance monitoring extends beyond operational control to become a continuous organizational mechanism that supports employee accountability, organizational learning, and evidence-based decision-making (Aguinis, 2019; DeNisi & Murphy, 2017). By providing timely

performance information, organizations are better positioned to coordinate activities, optimize resource utilization, and improve overall organizational effectiveness.

Previous studies consistently demonstrate that effective performance monitoring contributes positively to organizational performance by strengthening implementation control, improving managerial decision-making, facilitating continuous feedback, and enhancing organizational responsiveness (DeNisi & Smith, 2014; Aguinis, 2019). Rather than functioning solely as an evaluation tool, performance monitoring enables organizations to identify implementation gaps, respond proactively to emerging challenges, and continuously improve operational performance. Consequently, organizations with effective monitoring systems are more likely to achieve higher levels of implementation effectiveness and organizational performance.

Within the public sector, performance monitoring is particularly important because project implementation involves multiple stakeholders, complex governance arrangements, and increasing demand for accountability and service quality. Effective monitoring supports public managers in evaluating implementation progress, ensuring compliance with organizational objectives, and facilitating timely interventions throughout project execution. However, existing research has primarily examined performance monitoring as an independent management practice or governance mechanism, providing limited understanding of its role as the organizational process through which strategic human resource capability is translated into superior project delivery quality. This limitation is particularly evident in public sector project implementation, where workforce capability alone may not be sufficient to achieve successful project outcomes without effective monitoring processes.

Drawing on Open Systems Theory, this study conceptualizes Performance Monitoring as the organizational transformation process that converts Strategic Human Resource Capability, operationalized through Human Resource Capacity, into improved Project Delivery Quality. Accordingly, performance monitoring is expected to function as the mediating organizational mechanism linking workforce capability with successful project implementation in the Malaysian public sector. Performance monitoring has evolved from a traditional performance evaluation function into a strategic organizational process that supports continuous improvement and organizational effectiveness. Table 2 summarizes representative perspectives on performance monitoring and their relevance to the present study.

Table 2
Representative Perspectives on Performance Monitoring

Authors	Main Perspective	Contribution to This Study
Aguinis (2019)	Performance Management	Performance monitoring supports continuous performance improvement through systematic feedback and evaluation.
DeNisi & Murphy (2017)	Performance Management	Performance monitoring strengthens employee accountability and organisational effectiveness.
DeNisi & Smith (2014)	Organisational Performance	Continuous monitoring improves managerial decision-making and organisational responsiveness.
OECD (2023)	Public Sector Performance	Monitoring strengthens implementation oversight, accountability, and service delivery in public organisations.
Present Study	Malaysian Public Sector	Examines performance monitoring as the organisational mechanism linking Strategic Human Resource Capability with Project Delivery Quality.

Table 2 indicates that previous studies consistently associate performance monitoring with improved organizational performance, accountability, and decision-making. Nevertheless, limited attention has been given to its role as the organizational mechanism through which strategic human resource capability contributes to project delivery quality, particularly in public sector project implementation. This study addresses this gap by positioning performance monitoring as the mediating construct within the proposed research model.

Project Delivery Quality

Project delivery quality reflects the extent to which projects achieve their intended objectives while meeting stakeholder expectations, implementation standards, and organizational goals (PMI, 2021; Serrador & Turner, 2015). Contemporary project management literature recognises that successful project delivery extends beyond the traditional measures of time, cost, and scope to include implementation effectiveness, service quality, stakeholder satisfaction, and long-term organizational value (Zwikael & Meredith, 2021). From a Strategic Human Resource Management perspective, project delivery quality represents an organizational outcome that reflects the capability of organizations to transform workforce competencies and organizational processes into successful project implementation.

Previous studies consistently report that project delivery quality is influenced by organizational capability, effective governance, managerial competence, and continuous performance management (Serrador & Turner, 2015; PMI, 2021). These findings suggest that successful project outcomes depend not only on technical project management practices but also on organizational processes that facilitate coordination, accountability, and continuous improvement. Nevertheless, existing studies have primarily examined project delivery quality from project management and governance perspectives, while comparatively limited attention has been given to the contribution of strategic human resource capability and organizational performance monitoring in improving project delivery, particularly within public sector

organizations. Representative studies examining project delivery quality are synthesized in Table 3.

Table 3
Representative Perspectives on Project Delivery Quality

Authors	Main Perspective	Contribution to This Study
PMI (2021)	Project Performance	Successful projects achieve quality, stakeholder value, and organisational objectives.
Serrador & Turner (2015)	Project Success	Project success extends beyond the traditional time–cost–scope criteria.
Zwikael & Meredith (2021)	Project Governance	Effective organisational practices improve project implementation and outcomes.
OECD (2023)	Public Sector Performance	High-quality project delivery enhances public value and service effectiveness.
Present Study	Malaysian Public Sector	Positions project delivery quality as the organisational outcome of Strategic Human Resource Capability through Performance Monitoring.

As summarized in Table 3, project delivery quality is increasingly recognized as a multidimensional organizational outcome rather than solely a project management performance indicator. However, limited empirical evidence explains how strategic human resource capability contributes to superior project delivery quality through performance monitoring in public sector project implementation. Accordingly, this study conceptualizes Project Delivery Quality as the organizational outcome resulting from the effective transformation of strategic human resource capability through performance monitoring, consistent with the propositions of Open Systems Theory.

Open Systems Theory as the Theoretical Foundation

Open Systems Theory (OST) conceptualizes organizations as adaptive systems that transform organizational inputs into desired outputs through internal organizational processes while continuously responding to environmental demands (Katz & Kahn, 1978; Scott & Davis, 2015). Rather than viewing organizational performance as a direct consequence of organizational resources, OST explains that superior outcomes depend on the effectiveness of the transformation processes through which organizational capabilities are converted into performance outcomes. This perspective has been widely applied to explain organizational effectiveness because it integrates organizational resources, internal processes, and performance within a unified theoretical framework.

The input–transformation–output logic of OST provides the theoretical foundation for the present study. Strategic Human Resource Capability, operationalized through Human Resource Capacity, represents the organizational input, while Performance Monitoring functions as the transformation process that converts workforce capability into improved organizational performance. The resulting output is reflected in Project Delivery Quality, representing the

successful achievement of project objectives and organizational outcomes. Accordingly, OST explains not only whether strategic human resource capability influences project delivery quality but also how this relationship occurs through the organizational mechanism of performance monitoring.

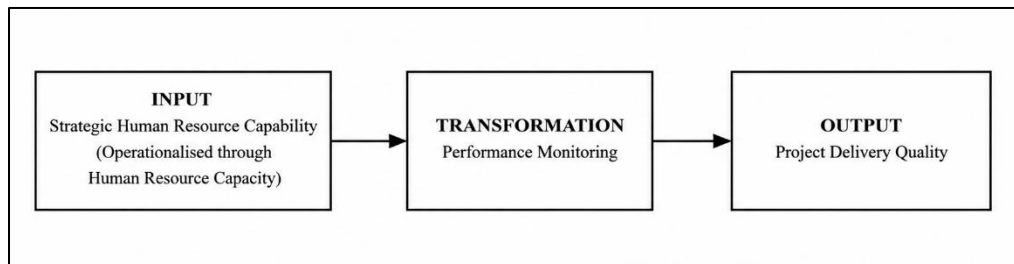


Figure 1. Open Systems Theory Framework Underpinning the Proposed Research Model

As illustrated in Figure 1, OST provides a coherent theoretical explanation for the proposed model by demonstrating that superior project delivery depends on the effective transformation of workforce capability through performance monitoring. This theoretical perspective therefore underpins the hypothesized relationships examined in the present study.

Transaction Cost Economics as a Complementary Perspective

While Open Systems Theory provides the principal explanation for how organizational capabilities are transformed into project outcomes, Transaction Cost Economics (TCE) offers complementary insights into the governance mechanisms that support effective contract implementation (Williamson, 1985; Ketokivi & Mahoney, 2020). TCE posits that organizations minimize transaction costs arising from uncertainty, opportunism, and contractual complexity by establishing appropriate governance mechanisms that enhance coordination, monitoring, and contractual compliance. Consequently, effective governance structures reduce implementation risks and improve organizational performance.

Within the context of post-award contract management, TCE complements OST by explaining why governance mechanisms such as performance monitoring are essential for managing contractual relationships and reducing implementation uncertainty. Rather than serving as the primary theoretical foundation, TCE strengthens the governance context of this study by supporting the role of performance monitoring in facilitating effective contract implementation. Accordingly, OST remains the principal theoretical lens, while TCE provides complementary theoretical support for understanding governance practices within public sector project implementation.

Hypothesis Development

Strategic Human Resource Management argues that organizational capability enhances organizational processes by equipping employees with the knowledge, competencies, and experience required to support effective implementation (Wright & McMahan, 2011; Jiang & Messersmith, 2018). Organizations possessing stronger strategic human resource capability are therefore better positioned to establish systematic performance monitoring that strengthens

accountability, implementation control, and continuous improvement. Therefore, the following hypothesis is proposed:

H1: Strategic Human Resource Capability positively influences Performance Monitoring.

Performance monitoring enables organizations to evaluate implementation progress, identify deviations, and implement timely corrective actions, thereby improving project implementation and organizational performance (Aguinis, 2019; DeNisi & Murphy, 2017). Effective monitoring also strengthens accountability and supports evidence-based managerial decision-making, contributing to higher project delivery quality. Within the proposed theoretical framework, effective organizational processes facilitate the transformation of organizational capability into desired organizational outcomes. Therefore, the following hypothesis is proposed:

H2: Performance Monitoring positively influences Project Delivery Quality.

Building upon Open Systems Theory, strategic human resource capability is expected to enhance project delivery quality by strengthening performance monitoring during project implementation. This perspective suggests that performance monitoring functions as the organizational mechanism through which workforce capability is translated into superior project outcomes. Accordingly, the following hypothesis is proposed:

Research Methodology

This study employed a quantitative, cross-sectional research design to examine the relationships among Strategic Human Resource Capability, Performance Monitoring, and Project Delivery Quality within the Malaysian public sector. Data were collected from public officers responsible for post-award contract management across 28 Federal Ministries and analyzed using Partial Least Squares Structural Equation Modelling (PLS-SEM). The following sections describe the research design, sampling procedure, measurement of constructs, data collection process, and analytical approach adopted in this study.

Research Design

This study employed a quantitative cross-sectional research design to examine the relationships among Strategic Human Resource Capability, Performance Monitoring, and Project Delivery Quality within the Malaysian public sector. A quantitative approach was considered appropriate because the study sought to empirically test the proposed hypotheses and examine the structural relationships among the study constructs using statistical analysis (Creswell & Creswell, 2018; Hair et al., 2022). As the study focused on theory testing and prediction rather than causal experimentation, Partial Least Squares Structural Equation Modelling (PLS-SEM) was adopted to analyse the proposed research model. PLS-SEM is particularly suitable for examining complex relationships among latent constructs and assessing both measurement and structural models simultaneously (Hair et al., 2022).

Research Context and Sample

The study was conducted within the Malaysian public sector, focusing on Federal Ministries responsible for implementing public development projects. The target population comprised public officers directly involved in post-award contract management, including project implementation, contract administration, performance monitoring, and project supervision. These

officers were selected because they possess the practical knowledge and experience required to evaluate the organizational capabilities and implementation practices examined in this study.

A stratified random sampling technique was employed to ensure adequate representation across the 28 Federal Ministries. Data were collected from 462 valid respondents, exceeding the minimum sample size recommended for PLS-SEM analysis and providing sufficient statistical power to evaluate the proposed research model (Hair et al., 2022). The diversity of respondents across ministries enhances the representativeness of the sample and supports the generalizability of the findings within the Malaysian public sector.

Measurement of Constructs

Three reflective latent constructs were examined in this study: Strategic Human Resource Capability (SHRC), Performance Monitoring (PM), and Project Delivery Quality (PDQ). All measurement items were adapted from validated scales reported in the literature and contextualised to the post-award contract management setting in the Malaysian public sector. Each construct was operationalised using six reflective indicators measured on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Table 4 summarises the operationalisation of the study constructs.

Table 4
Operationalization of Study Constructs

Construct	Operationalisation	Indicators
Strategic Human Resource Capability (operationalised through Human Resource Capacity)	Knowledge, competencies, skills, and experience supporting post-award contract management.	6
Performance Monitoring	Monitoring, evaluation, and implementation control throughout project execution.	6
Project Delivery Quality	Achievement of project quality, implementation objectives, and organisational outcomes.	6

As shown in Table 4, all constructs were operationalized using reflective indicators adapted from established measurement scales and contextualized to the post-award contract management environment. This approach ensured conceptual consistency between the theoretical framework and the empirical measurement model.

Data Collection Procedure

Data were collected using a structured self-administered questionnaire distributed to public officers involved in post-award contract management across 28 Federal Ministries in Malaysia. Prior to the main survey, the questionnaire was reviewed by subject matter experts to ensure content validity and contextual relevance. The final survey was administered through official

organizational channels, and participation was voluntary. Respondents were informed of the purpose of the study and assured that their responses would remain anonymous and confidential. A total of 462 valid questionnaires were returned and retained for subsequent analysis.

Data Analysis

The data were analyzed using IBM SPSS Statistics 29 and SmartPLS 4. SPSS was used to generate descriptive statistics for the respondents' demographic characteristics, whereas SmartPLS 4 was employed to evaluate the proposed research model using Partial Least Squares Structural Equation Modelling (PLS-SEM). Consistent with the recommendations of Hair et al. (2022), the analysis was conducted in two stages. The first stage assessed the measurement model, including indicator reliability, internal consistency reliability, convergent validity, and discriminant validity. The second stage evaluated the structural model by examining collinearity, coefficient of determination (R^2), effect size (f^2), and hypothesis testing using the bootstrapping procedure with 5,000 resamples. This analytical procedure ensured the reliability and validity of the measurement model before evaluating the hypothesized relationships among the study constructs.

Results

The empirical findings are presented in four stages. The analysis begins with the respondents' profile, followed by the assessment of the measurement model and structural model. The section concludes with hypothesis testing to evaluate the proposed relationships among the study constructs.

Respondent Profile

A total of 462 valid responses were obtained from public officers involved in post-award contract management across 28 Federal Ministries in Malaysia. The respondents represented diverse organizational roles associated with contract administration, project implementation, financial management, and governance oversight. Their demographic characteristics are summarized in Table 5.

Table 5
Demographic Profile of Respondents (N = 462)

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	245	53.0
	Female	217	47.0
Age	Below 30 years	182	39.4
	31–40 years	20	4.3
	41–50 years	80	17.3
	51–60 years	180	39.0
Highest Educational Qualification	SPM / Diploma	110	23.8
	Bachelor's Degree	135	29.2
	Master's Degree	123	26.6
	Doctorate	94	20.3
Position	Top Management	82	17.7
	Senior Management	110	23.8
	Middle Management	160	34.6
	Executive / Officer	110	23.8
Ministry Coverage	28 Federal Ministries	462	100.0

As presented in Table 5, the respondents represented a balanced demographic profile across gender, age, educational attainment, organizational position, and years of service. The participation of officers from multiple managerial levels and functional responsibilities provides a broad representation of personnel directly involved in post-award contract management within the Malaysian public sector. This diversity enhances the credibility of the empirical findings and supports the representativeness of the study sample.

Measurement Model Assessment

The measurement model was evaluated to assess the reliability and validity of the study constructs prior to testing the structural relationships. The assessment included indicator reliability, internal consistency reliability, convergent validity, and discriminant validity. The results are presented in Tables 6–8.

Table 6
Measurement Model Assessment

Construct	Cronbach's Alpha	Composite Reliability	AVE
Strategic Human Resource Capability (SHRC)	0.666	0.799	0.498
Performance Monitoring (PM)	0.684	0.806	0.510
Project Delivery Quality (PDQ)	0.842	0.883	0.559

As presented in Table 6, all constructs demonstrated satisfactory internal consistency reliability and convergent validity. Composite Reliability values ranged from 0.799 to 0.883, while the Average Variance Extracted (AVE) values ranged from 0.498 to 0.559. Although the AVE for Strategic Human Resource Capability was 0.498, which is marginally below the recommended threshold of 0.50, the construct was retained because its Composite Reliability (CR = 0.799) exceeded the recommended threshold of 0.70 and all retained indicators demonstrated acceptable outer loadings. Previous methodological studies suggest that convergent validity remains acceptable when Composite Reliability is satisfactory despite a marginally lower AVE (Fornell & Larcker, 1981; Hair et al., 2022). Therefore, the construct was considered suitable for subsequent structural analysis.

Table 7
Indicator Reliability (Outer Loadings)

Construct	Retained Indicators	Loading Range
Strategic Human Resource Capability (SHRC)	SHRC2–SHRC5	0.677–0.737
Performance Monitoring (PM)	PM1, PM4–PM6	0.671–0.753
Project Delivery Quality (PDQ)	PDQ1–PDQ6	0.650–0.806

Table 7 shows that all retained indicators exhibited acceptable outer loadings, ranging from 0.650 to 0.806 across the three constructs. Although several indicators recorded loadings slightly below the preferred threshold, they were retained because the overall reliability and validity of the measurement model remained satisfactory and the indicators contributed to the theoretical representation of their respective constructs.

Table 8
Discriminant Validity Assessment (HTMT)

Construct	SHRC	PM	PDQ
Strategic Human Resource Capability (SHRC)	–		
Performance Monitoring (PM)	0.503	–	
Project Delivery Quality (PDQ)	0.837	0.639	–

As shown in Table 8, all HTMT values were below the recommended threshold of 0.90, confirming satisfactory discriminant validity among the study constructs. These findings indicate that Strategic Human Resource Capability, Performance Monitoring, and Project Delivery Quality represent empirically distinct constructs, supporting the adequacy of the measurement model for structural model evaluation.

Structural Model Assessment

The structural model was evaluated to examine the predictive relationships among the study constructs after establishing the adequacy of the measurement model. The assessment comprised collinearity, explanatory power, and effect size. The results are presented in Tables 9–11.

Collinearity Assessment

Table 9

Collinearity Assessment (Inner VIF Values)

Predictor Relationship	VIF
Strategic Human Resource Capability (SHRC) → Performance Monitoring (PM)	1.000
Performance Monitoring (PM) → Project Delivery Quality (PDQ)	1.000

As presented in Table 9, all predictor constructs recorded Variance Inflation Factor (VIF) values of 1.000, indicating that multicollinearity was not a concern in the structural model. The predictor constructs were therefore considered sufficiently independent for subsequent structural analysis.

Coefficient of Determination (R^2)

Table 10

Coefficient of Determination (R^2)

Endogenous Construct	R^2	Adjusted R^2
Performance Monitoring	0.127	0.125
Project Delivery Quality	0.259	0.257

Table 10 shows that Strategic Human Resource Capability explained 12.7% of the variance in Performance Monitoring ($R^2 = 0.127$), while Performance Monitoring explained 25.9% of the

variance in Project Delivery Quality ($R^2 = 0.259$). The corresponding adjusted R^2 values were 0.125 and 0.257, respectively, indicating minimal shrinkage between the estimated and adjusted models. These findings demonstrate that the proposed research model provides acceptable explanatory power for predicting the endogenous constructs.

Effect Size (f^2)

Table 11
Effect Size (f^2)

Relationship	f^2	Effect Size
Strategic Human Resource Capability (SHRC) → Performance Monitoring (PM)	0.145	Small-to-Moderate
Performance Monitoring (PM) → Project Delivery Quality (PDQ)	0.349	Moderate-to-Large

As shown in Table 11, Strategic Human Resource Capability exerted a small-to-moderate effect on Performance Monitoring ($f^2 = 0.145$), whereas Performance Monitoring demonstrated a moderate-to-large effect on Project Delivery Quality ($f^2 = 0.349$). These findings indicate that Performance Monitoring represents the stronger explanatory construct within the proposed research model.

Hypothesis Testing

The proposed hypotheses were evaluated using the bootstrapping procedure with 5,000 resamples. The significance of each structural relationship was assessed based on the standardised path coefficient (β), t-value, and p-value. The results are presented in Table 12.

Table 12
Hypothesis Testing Results

Hypothesis	Structural Relationship	β	t-value	p-value	Decision
H1	Strategic Human Resource Capability (SHRC) → Performance Monitoring (PM)	0.356	8.107	< 0.001	Supported
H2	Performance Monitoring (PM) → Project Delivery Quality (PDQ)	0.509	10.331	< 0.001	Supported
H3	Strategic Human Resource Capability (SHRC) → Performance Monitoring (PM) → Project Delivery Quality (PDQ) (Indirect Effect)	0.181	5.068	< 0.001	Supported

As presented in Table 12, Strategic Human Resource Capability had a positive and significant effect on Performance Monitoring ($\beta = 0.356$, $t = 8.107$, $p < 0.001$), supporting H1. Likewise, Performance Monitoring exerted a positive and significant effect on Project Delivery Quality ($\beta = 0.509$, $t = 10.331$, $p < 0.001$), supporting H2. The mediation analysis further revealed a significant indirect effect of Strategic Human Resource Capability on Project Delivery Quality through Performance Monitoring ($\beta = 0.181$, $t = 5.068$, $p < 0.001$), thereby supporting H3. Collectively, these findings provide empirical support for all proposed hypotheses and the proposed research model.

To determine the type of mediation, the direct relationship between Strategic Human Resource Capability and Project Delivery Quality was also examined. The results indicate that the direct effect remained positive and statistically significant ($\beta = 0.474$, $t = 8.019$, $p < 0.001$). Together with the significant indirect effect through Performance Monitoring ($\beta = 0.135$, $t = 4.864$, $p < 0.001$), these findings indicate that Performance Monitoring partially mediates the relationship between Strategic Human Resource Capability and Project Delivery Quality.

Discussion

The discussion interprets the empirical findings in relation to Open Systems Theory (OST) and the existing Strategic Human Resource Management literature. The findings are discussed according to the proposed relationships, followed by their theoretical and practical implications, research limitations, and directions for future research.

Strategic Human Resource Capability and Performance Monitoring

The findings indicate that Strategic Human Resource Capability significantly enhances Performance Monitoring, suggesting that organizations with capable human resources are better equipped to implement effective monitoring throughout project execution. This finding highlights the importance of workforce capability in strengthening implementation oversight, facilitating

timely corrective actions, and supporting consistent project execution during the post-award contract management phase.

From the perspective of Open Systems Theory (OST), organizational capability represents a critical input that is transformed into organizational performance through effective internal processes (Katz & Kahn, 1978; Scott & Davis, 2015). In the context of this study, capable public officers possess the knowledge, competencies, and experience necessary to monitor project progress, identify implementation issues, and coordinate appropriate interventions. Consequently, workforce capability enhances organizational performance by strengthening the effectiveness of performance monitoring rather than influencing project outcomes directly.

The present finding is consistent with Strategic Human Resource Management research, which recognizes human resource capability as a strategic organizational resource that improves internal processes and organizational effectiveness (Wright & McMahan, 2011; Jiang & Messersmith, 2018). It also supports contemporary evidence that capable employees strengthen organizational monitoring, coordination, and implementation performance, particularly in complex organizational environments (Collings et al., 2021).

This finding extends the application of Open Systems Theory to post-award contract management by demonstrating that strategic human resource capability contributes to project implementation through organizational monitoring processes. Accordingly, workforce capability should be viewed not only as a human resource asset but also as a strategic governance capability that enhances project implementation and organizational performance in the Malaysian public sector.

Performance Monitoring and Project Delivery Quality

The findings demonstrate that Performance Monitoring significantly improves Project Delivery Quality, indicating that systematic monitoring enables public sector organizations to maintain implementation quality, detect operational deviations, and undertake timely corrective actions throughout project execution. This finding suggests that effective monitoring is not merely a control mechanism but a strategic organizational process that enhances the successful delivery of public projects.

From the perspective of Open Systems Theory (OST), performance monitoring represents the organizational transformation process through which strategic capability is converted into tangible organizational outcomes (Katz & Kahn, 1978; Scott & Davis, 2015). Continuous monitoring facilitates information flow, organizational learning, and adaptive decision-making, enabling project teams to respond effectively to implementation challenges while maintaining alignment with project objectives. Consequently, organizations with stronger monitoring practices are better positioned to achieve higher levels of project delivery quality.

This finding is consistent with previous research highlighting the importance of performance monitoring in improving project execution, organizational accountability, and project success (Aguinis, 2019; Project Management Institute [PMI], 2021). It also reinforces the view that continuous monitoring enhances managerial responsiveness and supports evidence-based decision-making, particularly within complex public sector environments where effective governance is critical to successful project implementation.

Theoretically, this finding extends Open Systems Theory by demonstrating that organizational processes play a pivotal role in translating strategic capability into superior organizational outcomes. Practically, it highlights that strengthening performance monitoring should be regarded as a strategic organizational capability that improves project delivery quality and reinforces governance effectiveness within the Malaysian public sector.

The Mediating Role of Performance Monitoring

The findings demonstrate that Performance Monitoring significantly mediates the relationship between Strategic Human Resource Capability and Project Delivery Quality, indicating that workforce capability contributes to superior project outcomes through systematic Performance Monitoring. This finding suggests that investments in human resource capability generate greater organizational value when supported by systematic monitoring practices that facilitate implementation control, organizational learning, and timely corrective actions throughout project execution. The significant direct effect indicates that Strategic Human Resource Capability influences Project Delivery Quality both directly and indirectly through Performance Monitoring. This pattern suggests partial mediation, indicating that while Performance Monitoring serves as an important organisational mechanism, Strategic Human Resource Capability also contributes directly to project delivery outcomes.

This mediating relationship provides empirical support for the central proposition of Open Systems Theory (OST) that organizational capability creates value through transformation processes linking strategic inputs to organizational outcomes (Katz & Kahn, 1978; Scott & Davis, 2015). Within the proposed framework, Strategic Human Resource Capability represents the organizational input, whereas Performance Monitoring functions as the transformation mechanism through which workforce capability is translated into improved Project Delivery Quality. The significant indirect effect therefore demonstrates that organizational performance depends not only on the availability of capable human resources but also on the effectiveness of the organizational processes that mobilize those capabilities during project implementation.

The finding is consistent with Strategic Human Resource Management research, which argues that organizational resources achieve superior performance only when embedded within effective organizational systems and managerial practices (Wright & McMahan, 2011; Jiang & Messersmith, 2018). However, this study advances the literature by identifying Performance Monitoring as the organizational mechanism that links workforce capability with project delivery outcomes within the context of post-award contract management. This contribution broadens the application of Strategic Human Resource Management beyond conventional employee performance by demonstrating its strategic relevance to public sector project governance.

Collectively, these findings strengthen the explanatory power of Open Systems Theory by demonstrating that workforce capability alone does not guarantee superior project outcomes. Rather, its value is realized through effective organizational monitoring processes that transform strategic human resources into successful project delivery. Accordingly, strengthening performance monitoring should be regarded as a strategic governance priority for maximizing the benefits of workforce capability in the Malaysian public sector.

Theoretical Implications

The findings provide important theoretical insights into the application of Open Systems Theory (OST) within Strategic Human Resource Management and public sector project governance. By demonstrating that Strategic Human Resource Capability improves Project Delivery Quality through Performance Monitoring, the study empirically validates the input–transformation–output logic proposed by OST. Specifically, workforce capability functions as a strategic organizational input, while performance monitoring serves as the transformation process through which organizational resources are converted into improved project outcomes (Katz & Kahn, 1978; Scott & Davis, 2015).

The study also advances Strategic Human Resource Management by explaining the organizational mechanism through which workforce capability generates organizational value. Although previous research has consistently recognized human resource capability as a source of organizational performance (Wright & McMahan, 2011; Jiang & Messersmith, 2018), the present findings demonstrate that its contribution is realised through effective organizational processes rather than through direct organizational effects. This process-oriented perspective extends existing understanding by highlighting Performance Monitoring as the organizational capability that translates strategic human resource investments into improved project delivery within the public sector.

Beyond its contribution to Strategic Human Resource Management, the study broadens the application of OST to post-award contract management, an area that has received comparatively limited theoretical attention. By integrating strategic human resource capability, organizational processes, and project delivery outcomes within a single explanatory framework, the study offers a theoretically grounded perspective for understanding how workforce capability supports effective governance during project implementation. This extension reinforces the relevance of OST as a useful theoretical lens for explaining organizational effectiveness in complex public sector project environments.

Practical Implications

The findings provide several practical implications for strengthening public sector project implementation through a Strategic Human Resource Management perspective. First, public sector organizations should recognize Strategic Human Resource Capability as a strategic organizational resource rather than solely as an administrative human resource function. Strengthening workforce competencies through targeted recruitment, continuous professional development, and competency-based training can enhance the capability of officers responsible for post-award contract management, consistent with Strategic Human Resource Management principles that emphasize workforce capability as a source of organizational performance (Wright & McMahan, 2011).

Second, the findings highlight the importance of institutionalizing Performance Monitoring as an integral component of project governance. Public organizations should establish systematic monitoring mechanisms supported by clear performance indicators, regular progress reviews, and timely corrective actions throughout project implementation. Such practices are consistent with established project governance principles that promote continuous monitoring and evidence-based decision-making to improve project performance (Project Management Institute [PMI], 2021).

Finally, policymakers should align strategic human resource development with project governance initiatives rather than treating them as separate organizational functions. Integrating workforce capability with robust organizational monitoring systems can strengthen implementation capability, improve project delivery quality, and enhance accountability in managing public development projects. Collectively, these findings suggest that sustainable improvements in public project delivery depend not only on technical project management practices but also on strategic investments in workforce capability supported by effective organizational monitoring systems.

Limitations and Future Research

Several limitations should be acknowledged when interpreting the findings of this study. First, the study adopted a cross-sectional research design, which limits the ability to infer causal relationships among the study constructs over time. Future studies may employ longitudinal designs to examine how strategic human resource capability and performance monitoring evolve throughout different phases of project implementation.

Second, the study was conducted within the Malaysian public sector, focusing exclusively on officers involved in post-award contract management across Federal Ministries. While this context provides valuable insights into public sector governance, the generalizability of the findings to other organizational settings, such as state agencies, government-linked companies, or the private sector, should be interpreted with caution.

Finally, the study examined Performance Monitoring as the underlying organizational mechanism linking Strategic Human Resource Capability and Project Delivery Quality. Future research may extend the proposed framework by incorporating additional organizational processes, such as leadership capability, digital governance, organizational learning, or knowledge management, to further explain how strategic human resource capability contributes to organizational performance across different institutional contexts.

Conclusion

This study examined the relationships among Strategic Human Resource Capability, Performance Monitoring, and Project Delivery Quality within the context of post-award contract management in the Malaysian public sector. Guided by Open Systems Theory (OST), the study developed and empirically validated a framework explaining how strategic workforce capability is transformed into improved project delivery through organizational performance monitoring. The mediation analysis further demonstrates that Performance Monitoring partially mediates the relationship between Strategic Human Resource Capability and Project Delivery Quality, indicating that workforce capability enhances project delivery both directly and through organisational monitoring processes.

The findings reveal that Strategic Human Resource Capability significantly enhances Performance Monitoring, which subsequently improves Project Delivery Quality. Furthermore, Performance Monitoring exerts a significant mediating effect, demonstrating that workforce capability creates organisational value through effective internal monitoring processes. These findings provide strong empirical support for the input-transformation-output logic of Open

Systems Theory and reinforce the importance of organizational processes in converting strategic resources into desirable organizational outcomes.

This study makes important theoretical contributions by extending the application of Open Systems Theory to the context of post-award contract management and by identifying Performance Monitoring as the key organizational mechanism linking Strategic Human Resource Capability with Project Delivery Quality. In doing so, the study enriches the Strategic Human Resource Management and public governance literature by providing empirical evidence from the Malaysian public sector, an institutional context that remains relatively underexplored.

From a practical perspective, the findings suggest that improving public sector project delivery requires more than investments in workforce capability alone. Public organizations should complement human resource development initiatives with robust performance monitoring systems that promote accountability, timely corrective actions, continuous learning, and effective governance throughout project implementation. Such an integrated approach can strengthen organizational effectiveness and enhance the successful delivery of public sector projects.

Overall, this study demonstrates that sustainable improvements in public sector project delivery depend not only on competent human resources but also on the organisational capability to transform workforce capability into superior project outcomes through systematic Performance Monitoring. Unlike previous studies that examined workforce capability and project performance independently, this study demonstrates how Strategic Human Resource Capability contributes to Project Delivery Quality through an organisational transformation process grounded in Open Systems Theory. By integrating Strategic Human Resource Capability, Performance Monitoring, and Project Delivery Quality within a unified theoretical framework, the study advances the understanding of governance and organisational effectiveness in post-award contract management and provides a foundation for future research on public sector project governance.

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