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Developing a Mediated Framework of Construction Corruption and Project Performance: A Validation Roadmap for the Malaysian Construction Industry

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Abstract

Corruption remains a persistent governance challenge in the Malaysian construction industry, where complex procurement arrangements, fragmented supply chains, and discretionary decision-making create structural opportunities for misconduct. Prior studies associate construction corruption to cost escalation, schedule delays, compromised quality, and declining stakeholder trust. Despite growing attention to either corruption determinants or anti-corruption interventions, research remains fragmented and provides limited explanation of how governance mechanisms translate (or disrupt) the effects of corruption drivers on project performance. This paper develops a theoretically grounded mediated framework that integrates Construction Corruption Causes (CCC), Corruption Countermeasures (CCM), and

Construction Project Performance (CPP) within a balanced 4–4–4 higher-order construct structure. CCC is conceptualised across industry structure, management, regulation, and personal factors; CCM comprises management, regulatory, probing/enforcement, and promotional/integrity-building mechanisms; and CPP is captured through cost, time, quality, and trust/institutional outcomes. Anchored in an institutional perspective, the framework conceptualises CCM as a mediating governance mechanism hypothesised to weaken the transmission of systemic corruption vulnerabilities into performance deterioration. To support future empirical testing, the paper proposes a transparent validation roadmap using Partial Least Squares Structural Equation Modelling (PLS-SEM), including hierarchical construct modelling, measurement validation, structural path testing, and bootstrapped mediation analysis. The framework offers an integrated platform for advancing corruption-governance scholarship and informing governance strengthening in Malaysia's construction sector.

Keywords: Construction Corruption Causes, Corruption Countermeasures, Construction Project Performance, Institutional Theory

1. Introduction

The construction industry occupies a pivotal position in Malaysia's socio-economic development, supporting infrastructure expansion, urban transformation, and national competitiveness. As a capital-intensive and project-based sector, construction activities are characterised by complex procurement systems, multi-tiered stakeholder networks, and substantial financial transactions. Although these structural features are integral to large-scale development, they simultaneously increase exposure to governance vulnerabilities. Both international and Malaysian evidence consistently identify construction as one of the sectors most susceptible to corruption due to fragmented supply chains, opaque contractual arrangements, regulatory complexity, and high levels of discretionary authority in decision-making (Yap et al., 2020; Yap et al., 2022; Nordin et al., 2023).

Corruption in construction projects extends beyond ethical misconduct; it produces tangible performance consequences. Empirical studies associate corrupt practices with cost overruns, schedule delays, compromised technical quality, inefficient resource allocation, and erosion of stakeholder trust. Moreover, corruption weakens institutional legitimacy and undermines public confidence in infrastructure governance. Despite Malaysia's ongoing anti-corruption reforms and regulatory initiatives, structural and organisational vulnerabilities remain embedded in procurement systems, oversight mechanisms, and institutional cultures (Yap et al., 2020; Yap et al., 2022; Nordin et al., 2023).

Within the academic literature, research on construction corruption has largely evolved along two parallel streams. The first concentrates on identifying determinants of corruption, emphasising structural industry characteristics, governance deficiencies, regulatory gaps, and behavioural drivers. The second evaluates anti-corruption interventions, including regulatory reforms, enforcement strategies, and integrity-enhancing mechanisms. While these strands have generated valuable insights, they often remain analytically disconnected. As a result, limited attention has been devoted to understanding how corruption causes and governance responses interact within a unified performance framework (Yap et al., 2020; Yap et al., 2022; Nordin et al., 2023).

More specifically, determinant-oriented studies explain how procurement complexity, supply-chain fragmentation, inadequate documentation, limited oversight, and behavioural incentives collectively create conditions conducive to corrupt conduct. Conversely, countermeasure-focused research assesses regulatory, managerial, enforcement, and integrity-building initiatives designed to deter misconduct and strengthen accountability. However, comparatively few studies integrate these domains within a coherent governance–performance mechanism capable of explaining how countermeasures transmit, attenuate, or reshape the effects of corruption drivers on multidimensional project outcomes. This theoretical fragmentation restricts the development of comprehensive models that clarify not only whether corruption affects performance, but also how institutional mechanisms transform that relationship.

Addressing this gap, the present study develops a mediated conceptual framework linking Construction Corruption Causes (CCC) to Construction Project Performance (CPP), with

Corruption Countermeasures (CCM) conceptualised as an intervening institutional mechanism. Drawing on Institutional Theory, the framework reconceptualises corruption as a dynamic institutional process rather than a linear cause–effect relationship. In this view, governance interventions reshape coercive, normative, and behavioural pressures, thereby influencing how corruption vulnerabilities translate into project performance outcomes (Brown & Loosemore, 2015; Nordin et al., 2013). By modelling CCC, CCM, and CPP as higher-order multidimensional constructs within a unified structural architecture, the study advances a theoretically grounded and empirically testable governance–performance model tailored to the Malaysian construction context.

Accordingly, this research makes several contributions. First, it integrates corruption determinants and governance interventions within a single performance-oriented framework. Second, it introduces mediation logic into construction corruption research, thereby clarifying the institutional pathways through which governance reforms influence project outcomes. Third, it extends Institutional Theory to explain corruption–performance dynamics in project-based environments. Finally, it provides a structured roadmap for empirical validation using Partial Least Squares Structural Equation Modelling (PLS-SEM), offering both theoretical refinement and practical guidance for improving governance effectiveness in the construction sector (Owusu et al., 2019b).

2. Theoretical Foundation: An Institutional Perspective on Construction Corruption

Institutional Theory offers a robust analytical framework for examining corruption within construction governance systems, as it explains how organisational practices are shaped, legitimised, and sustained within broader regulatory and socio-cultural environments. Rather than attributing corruption solely to individual moral failure, the theory conceptualises it as behaviour embedded in institutional structures that may normalise, tolerate, or even indirectly incentivise misconduct (Brown & Loosemore, 2015; Nordin et al., 2013). In this sense, corruption is understood not as an isolated deviation, but as a systemic outcome of institutional configurations.

Institutional scholars identify three interrelated forms of pressure that shape organisational behaviour: coercive, normative, and cultural-cognitive forces. Coercive pressures stem from formal regulations, legal mandates, and enforcement mechanisms imposed by the state or other authoritative bodies. In the construction sector, these include procurement legislation, compliance frameworks, audit procedures, and anti-corruption statutes. However, when enforcement is weak, inconsistent, or selectively applied, the deterrent effect of coercive pressure diminishes, thereby creating space for corrupt practices to persist (Yap et al., 2020; Yap et al., 2022; Nordin et al., 2023).

Normative pressures arise from professional standards, industry norms, and shared expectations within occupational communities. Construction projects typically involve multiple professional actors such as engineers, contractors, consultants, and regulators, whose behaviour is influenced by prevailing industry conventions. Where informal norms tolerate practices such as facilitation payments, collusive bidding, or documentation manipulation, corruption may become professionally rationalised rather than explicitly condemned. Over

time, such norms can embed misconduct within accepted patterns of practice (Brown & Loosemore, 2015; Nordin et al., 2013).

Cultural-cognitive pressures refer to deeply embedded beliefs, shared mental models, and taken-for-granted assumptions that guide organisational conduct. In environments where corrupt exchanges become routine, actors may perceive them as normal, inevitable, or even necessary for project delivery. Repeated exposure to such practices gradually institutionalises corruption, transforming it from deviant behaviour into a standard operational expectation (Brown & Loosemore, 2015; Nordin et al., 2013).

Within the Malaysian construction industry, fragmented governance structures, procurement complexity, and entrenched behavioural norms interact to reinforce, rather than disrupt, corruption risks. Consequently, corruption emerges not merely from isolated ethical lapses, but from the alignment of institutional weaknesses across regulatory, professional, and cultural domains (Yap et al., 2020; Yap et al., 2022; Nordin et al., 2023). This institutional alignment helps explain the persistence of corruption despite formal regulatory reforms.

From this perspective, corruption countermeasures cannot be understood solely as technical compliance instruments. Instead, they represent institutional reform mechanisms that seek to reshape coercive, normative, and cultural-cognitive pressures. Enhanced enforcement and sanctioning mechanisms strengthen coercive discipline; governance reforms and professional codes recalibrate normative expectations; and ethics training, transparency initiatives, and integrity-building programmes challenge entrenched cultural-cognitive assumptions about acceptable conduct (Brown & Loosemore, 2015; Nordin et al., 2013). Effective countermeasures therefore operate across multiple institutional dimensions simultaneously.

This theoretical reasoning underpins the modelling of Corruption Countermeasures (CCM) as a mediating construct. If Construction Corruption Causes (CCC) represent institutional vulnerabilities embedded within structural and behavioural systems, then CCM embodies institutional interventions designed to modify those systems. The mediating role of CCM thus captures the transformation process through which governance reforms attenuate the adverse performance consequences of systemic corruption drivers (Brown & Loosemore, 2015; Nordin et al., 2013).

By grounding the proposed framework in Institutional Theory, the study moves beyond a linear cause–effect interpretation of corruption. Instead, it conceptualises corruption, governance mechanisms, and project performance as components of a dynamic institutional system in which structural pressures, reform interventions, and performance outcomes are mutually interconnected (Zarghami, 2024).

3. Development of the Mediated Framework

The proposed framework (Figure 1) conceptualises corruption in the Malaysian construction industry as an integrated governance–performance system. It comprises three higher-order constructs: Construction Corruption Causes (CCC), Corruption Countermeasures (CCM), and Construction Project Performance (CPP). Each construct is modelled as multidimensional, reflecting the systemic character of corruption risks and institutional responses within

complex construction environments.

Rather than examining corruption determinants and governance mechanisms in isolation, the framework embeds them within a mediation structure. In this configuration, institutional interventions reshape the transmission of corruption vulnerabilities into performance outcomes. Such a higher-order modelling strategy recognises that corruption in construction is not episodic or individualistic, but structurally embedded across regulatory, organisational, and behavioural layers (Brown & Loosemore, 2015; Nordin et al., 2013).

3.1 Construction Corruption Causes (CCC)

Construction Corruption Causes (CCC) represent systemic vulnerabilities embedded within the governance architecture of construction projects. The construct comprises four interrelated dimensions: the structural nature of the construction industry, managerial governance weaknesses, regulatory deficiencies, and personal behavioural drivers (Brown & Loosemore, 2015; Nordin et al., 2013).

The nature of the construction industry refers to structural characteristics such as project complexity, fragmented supply chains, capital intensity, and competitive procurement arrangements. These features frequently generate informational asymmetries and coordination gaps, thereby heightening exposure to corrupt practices (Yap et al., 2020; Yap et al., 2022; Nordin et al., 2023).

Managerial aspects capture organisational governance deficiencies, including inadequate supervision, poor documentation practices, weak internal controls, and political interference. Such weaknesses reduce transparency and accountability in project execution, creating conditions conducive to misconduct.

Regulatory aspects encompass enforcement gaps, procurement loopholes, bureaucratic inefficiencies, and inconsistent sanctioning mechanisms. When regulatory oversight lacks coherence or strength, coercive pressures weaken, allowing corrupt behaviours to persist within institutional routines (Yap et al., 2020; Yap et al., 2022; Nordin et al., 2023).

Personal factors reflect behavioural drivers such as opportunism, conflicts of interest, moral disengagement, and abuse of authority. Although these operate at the individual level, they interact with structural and regulatory weaknesses to reinforce systemic corruption risks (Brown & Loosemore, 2015; Nordin et al., 2013).

Collectively, these four dimensions illustrate that corruption in construction emerges from cumulative institutional vulnerabilities rather than isolated unethical acts (Amoah & Steyn, 2023).

3.2 Corruption Countermeasures (CCM)

Corruption Countermeasures (CCM) are conceptualised as institutional intervention mechanisms designed to disrupt corruption pathways and strengthen governance integrity. The construct encompasses four complementary clusters: management mechanisms, regulatory mechanisms, probing and enforcement mechanisms, and promotional or

integrity-building mechanisms.

Management mechanisms include transparency initiatives, corporate governance reforms, integrity pacts, and strengthened internal control systems. By enhancing accountability and oversight within project organisations, these measures directly address governance deficiencies.

Regulatory mechanisms reinforce coercive institutional pressures through strengthened legal enforcement, compliance systems, disciplinary procedures, and procurement regulations (Yap et al., 2020; Yap et al., 2022; Nordin et al., 2023). Through consistent application, such measures increase deterrence and institutional discipline.

Probing and enforcement mechanisms involve auditing systems, monitoring procedures, investigative processes, and whistleblowing channels aimed at detecting and deterring misconduct. These mechanisms improve oversight capacity and reduce opportunities for concealed corrupt exchanges.

Promotional and integrity-building mechanisms focus on ethics training, awareness campaigns, leadership commitment, and organisational culture reforms. By reshaping normative and cultural-cognitive pressures, these initiatives address the underlying belief systems that normalise corrupt practices (Arewa & Farrell, 2015).

Taken together, these clusters form a layered institutional defence system operating across coercive, normative, and cultural-cognitive domains. Modelling CCM as a mediating construct captures the transformation process through which governance reforms mitigate corruption risks and, consequently, influence project performance outcomes (Zarghami, 2024; Ebekozien et al., 2022).

3.3 Construction Project Performance (CPP)

Construction Project Performance (CPP) is conceptualised as a multidimensional outcome construct extending beyond conventional operational efficiency indicators. It comprises cost performance, time performance, quality performance, and trust-based institutional outcomes (Locatelli et al., 2017).

While cost, time, and quality represent the traditional “iron triangle” of project management, the inclusion of trust and institutional outcomes reflects the broader governance implications of corruption. In environments where corruption risks are salient, project success cannot be assessed solely through operational metrics; institutional legitimacy, stakeholder confidence, and reputational credibility become equally significant dimensions of performance (Locatelli et al., 2017).

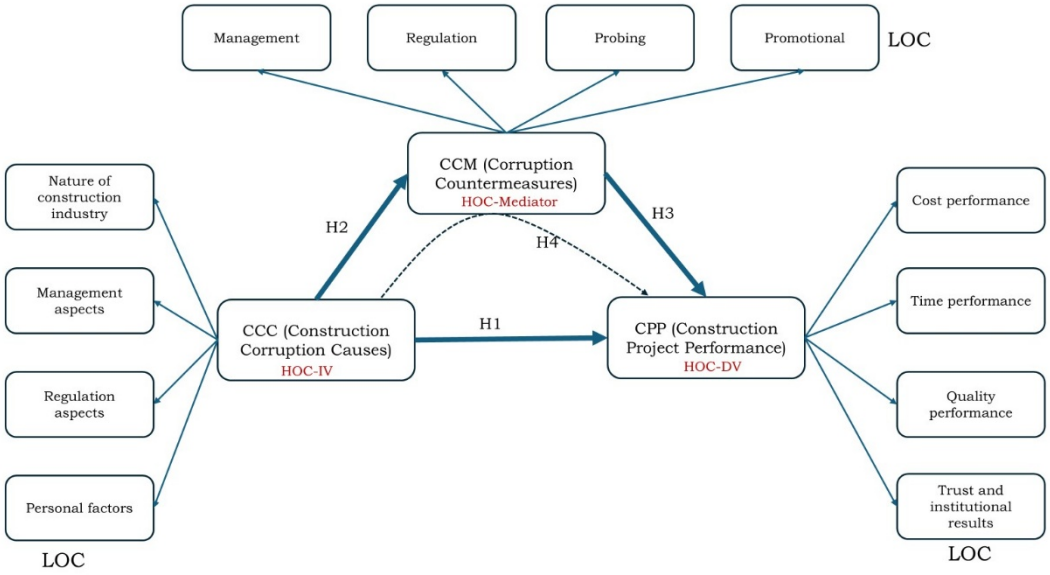

Figure 1. Proposed framework

Figure 1 illustrates the proposed mediated structural framework linking Construction Corruption Causes (CCC), Corruption Countermeasures (CCM), and Construction Project Performance (CPP). CCC functions as the higher-order independent variable (HOC-IV), CCM as the higher-order mediator (HOC-Mediator), and CPP as the higher-order dependent variable (HOC-DV).

CCC is operationalised through four lower-order components (LOCs): nature of the construction industry, management aspects, regulation aspects, and personal factors. CCM is similarly modelled as a higher-order construct comprising management, regulation, probing, and promotional dimensions. CPP is measured through four performance-related LOCs: cost performance, time performance, quality performance, and trust and institutional results. This 4–4–4 hierarchical structure ensures conceptual symmetry and measurement consistency across constructs.

The framework specifies four hypotheses. First (H1), CCC is hypothesised to exert a direct negative effect on CPP. Second (H2), CCC is expected to significantly influence CCM, reflecting the institutional response to corruption vulnerabilities. Third (H3), CCM is proposed to positively affect CPP by improving governance capacity and project oversight. Finally (H4), CCM mediates the relationship between CCC and CPP, indicating that the impact of corruption causes on performance is partially transmitted through governance interventions.

Overall, the model conceptualises corruption governance as a corrective institutional mechanism. Rather than assuming a simple linear cause–effect relationship, the framework captures a dynamic process in which institutional countermeasures reshape managerial, regulatory, and behavioural pressures, thereby mitigating the adverse performance

consequences of corruption risks.

4. Hypothesis Development

The proposed hypotheses are derived from the institutional logic underpinning the framework and from prior empirical research on corruption and governance in construction contexts. Consistent with Institutional Theory, corruption is conceptualised not as an isolated behavioural deviation, but as a systemic phenomenon embedded within structural, organisational, and regulatory arrangements (Brown & Loosemore, 2015; Nordin et al., 2013). Accordingly, the hypotheses reflect both direct institutional effects and mediated governance processes.

4.1 Corruption Causes and Project Performance

Construction Corruption Causes (CCC) represent structural and behavioural vulnerabilities embedded within project governance systems. Institutional Theory posits that when coercive enforcement weakens, normative standards erode, and cultural-cognitive tolerance of misconduct persists, corrupt practices become normalised within organisational routines. Under such conditions, governance inefficiencies are likely to translate into operational inefficiencies (Arewa & Farrell, 2015).

Empirical evidence consistently demonstrates that corruption distorts procurement decisions, inflates costs, delays project schedules, compromises technical standards, and undermines stakeholder trust. Structural features such as fragmented supply chains and opaque bidding procedures create opportunities for rent-seeking behaviour. Simultaneously, managerial deficiencies weaken oversight, regulatory loopholes diminish deterrence, and personal opportunism reinforces systemic vulnerabilities (Yap et al., 2020; Yap et al., 2022; Nordin et al., 2023).

Given that corruption directly affects resource allocation, monitoring intensity, and contractual enforcement, elevated levels of corruption causes are expected to deteriorate performance across financial, temporal, quality, and trust-based dimensions (Locatelli et al., 2017).

Accordingly: **H1:** Construction Corruption Causes (CCC) negatively influence Construction Project Performance (CPP).

4.2 Corruption Causes and Countermeasures

Institutional environments are inherently dynamic. When corruption vulnerabilities intensify, institutional actors such as regulators, professional bodies, and project organisations that often respond by strengthening governance mechanisms to restore legitimacy and control. From an institutional perspective, escalating corruption pressures stimulate corrective reforms.

Within the Malaysian construction sector, increased exposure to corruption risks has historically prompted regulatory tightening, enhanced auditing systems, governance reforms, and integrity-building initiatives. Thus, corruption causes do not solely generate adverse

outcomes; they may also trigger institutional responses aimed at mitigation. This relationship reflects a reactive institutional mechanism in which systemic vulnerabilities prompt the adoption or reinforcement of countermeasures.

Therefore: **H2:** Construction Corruption Causes (CCC) positively influence the implementation of Corruption Countermeasures (CCM).

4.3 Countermeasures and Project Performance

Corruption Countermeasures (CCM) represent institutional interventions that reshape coercive, normative, and cultural-cognitive pressures within construction governance systems. Measures such as strengthened auditing, procurement transparency, regulatory enforcement, and integrity training enhance accountability and reduce opportunistic conduct (Yap et al., 2020; Yap et al., 2022; Nordin et al., 2023).

Institutional Theory suggests that when governance reforms reinforce enforcement and recalibrate behavioural norms, organisational practices align more closely with regulatory and ethical expectations. This alignment enhances transparency, improves coordination efficiency, and reduces resource leakage (Brown & Loosemore, 2015; Nordin et al., 2013). As governance integrity strengthens, projects are more likely to achieve cost control, schedule compliance, quality assurance, and sustained stakeholder confidence.

Accordingly: **H3:** Corruption Countermeasures (CCM) positively influence Construction Project Performance (CPP).

4.4 The Mediating Role of Countermeasures

The principal theoretical contribution of this study lies in its mediation logic. Rather than assuming a purely direct relationship between corruption causes and project performance, the framework proposes that institutional interventions transform this relationship (Zarghami, 2024; Ebekozien et al., 2022).

If CCC represents systemic institutional vulnerabilities and CCM embodies governance correction mechanisms, then CCM functions as a transmission channel through which corruption risks are reshaped. In institutional terms, countermeasures strengthen coercive enforcement, recalibrate normative standards, and challenge entrenched cultural expectations. This transformation attenuates the extent to which corruption drivers translate into performance deterioration.

Mediation therefore captures an adaptive institutional process: governance mechanisms are not passive coexisting structures, but active agents capable of moderating and potentially reversing the adverse effects of corruption causes (Zarghami, 2024; Ebekozien et al., 2022).

Thus: **H4:** Corruption Countermeasures (CCM) mediate the relationship between Construction Corruption Causes (CCC) and Construction Project Performance (CPP).

Collectively, these hypotheses depict a dynamic governance–performance system in which CCC represents institutional vulnerabilities, CCM represents reform mechanisms, and CPP reflects performance outcomes. The mediated structure recognises that corruption effects are

contingent upon the strength and effectiveness of institutional interventions rather than mechanically deterministic.

5. Roadmap for Empirical Validation

Although the study advances a conceptual framework, its theoretical contribution depends on rigorous empirical verification. To ensure methodological robustness, replicability, and analytical transparency, this section outlines a structured validation roadmap for testing the proposed mediated model within the Malaysian construction context.

Given the multidimensional and hierarchical structure of Construction Corruption Causes (CCC), Corruption Countermeasures (CCM), and Construction Project Performance (CPP), Partial Least Squares Structural Equation Modelling (PLS-SEM) is recommended as the primary analytical technique. PLS-SEM is particularly suitable for complex mediation models involving higher-order constructs, prediction-oriented objectives, and data that may not satisfy multivariate normality assumptions. Its flexibility in modelling hierarchical component structures aligns with the systemic architecture of the proposed framework (Owusu et al., 2019b).

5.1 Research Design

Empirical validation should employ a quantitative, survey-based research design targeting professionals directly involved in construction project governance and delivery. Relevant respondents include project managers, contractors, consultants, regulatory officers, and senior engineers within Malaysia's construction industry.

A stratified sampling strategy is recommended to ensure representation across firm sizes, project types (public and private), and professional roles. Such stratification enhances generalisability and reduces sampling bias within the national context.

Data collection should utilise structured questionnaires with Likert-scale measures capturing perceptions of corruption causes, governance mechanisms, and multidimensional performance outcomes. Procedural remedies such as ensuring respondent anonymity and separating predictor and criterion constructs that should be implemented to mitigate common method bias.

Sample size determination should be conducted a priori. Statistical power analysis is recommended to ensure adequate power to detect meaningful effect sizes at acceptable significance levels. While heuristic guidelines such as the "10-times rule" may serve as lower-bound references, power-based justification provides a more rigorous foundation for sample adequacy.

5.2 PLS-SEM Validation Procedure

Validation of the proposed framework proceeds in three analytical stages: measurement model assessment, structural model assessment, and mediation analysis (Zarghami, 2024; Ebekozien et al., 2022).

5.2.1 Measurement Model Assessment

The first stage evaluates the reliability and validity of the measurement model. Indicator reliability should be examined through outer loadings, with values exceeding 0.70 indicating acceptable item consistency. Internal consistency reliability should be assessed using composite reliability, with thresholds above 0.70 demonstrating adequate construct reliability.

Convergent validity should be established via Average Variance Extracted (AVE), with values above 0.50 confirming that constructs explain more than half of the variance in their indicators (Ferwerda et al., 2017).

Discriminant validity should be assessed using the Heterotrait–Monotrait (HTMT) ratio to ensure empirical distinctiveness among constructs.

Given the higher-order modelling structure, hierarchical component modelling approaches - either the repeated indicator approach or the two-stage approach - may be employed to estimate the relationships between lower-order and higher-order constructs. This step is essential to accurately represent the multidimensional structure of CCC, CCM, and CPP.

5.2.2 Structural Model Assessment

Once measurement validity is established, the structural model should be evaluated to test the hypothesised relationships.

Path coefficients (β) will indicate the strength and direction of the proposed relationships. Statistical significance should be assessed using bootstrapping procedures with enough resamples such as 5,000 to ensure robust confidence interval estimation.

The coefficient of determination (R^2) will assess the explanatory power of endogenous constructs, while effect sizes (f^2) will evaluate the substantive impact of each predictor variable.

Predictive relevance (Q^2), obtained through blindfolding procedures, should be examined to assess the model's out-of-sample predictive capability. Although PLS-SEM is primarily prediction-oriented, overall model adequacy may be evaluated using the Standardised Root Mean Square Residual (SRMR) as an approximate model fit index (Owusu et al., 2019b).

5.2.3 Mediation Analysis

The core empirical objective lies in testing the mediating role of Corruption Countermeasures (CCM). Mediation analysis should be conducted using bootstrapped indirect effect estimation to determine statistical significance (Zarghami, 2024; Ebekozien et al., 2022).

The magnitude of mediation may be assessed using the Variance Accounted For (VAF) metric to distinguish between partial and full mediation effects. Partial mediation would indicate that countermeasures attenuate but do not fully eliminate the negative influence of corruption causes on project performance. Full mediation would suggest that governance mechanisms largely transmit the effect of corruption causes on performance outcomes (Zarghami, 2024; Ebekozien et al., 2022).

Testing mediation is critical to validating the institutional transformation logic underlying the framework, as it empirically evaluates whether governance interventions meaningfully alter the relationship between systemic corruption drivers and performance consequences (Zarghami, 2024; Ebekozien et al., 2022).

5.2.4 Summary

This validation roadmap provides a coherent and replicable pathway for translating the conceptual model into a testable empirical framework. By integrating hierarchical construct modelling, structural path analysis, mediation testing, and predictive assessment within a PLS-SEM approach, the study ensures methodological rigor and analytical transparency (Owusu et al., 2019b). Systematic empirical validation will strengthen the explanatory power of the framework and contribute robust evidence to corruption governance and construction performance scholarship in Malaysia.

6. Theoretical Contributions

This study advances scholarship on construction governance and corruption in several significant respects.

First, it develops an integrated governance–performance framework that addresses a persistent fragmentation in corruption research. Existing studies have generally examined corruption determinants and anti-corruption interventions as separate analytical domains. By explicitly linking Construction Corruption Causes (CCC), Corruption Countermeasures (CCM), and Construction Project Performance (CPP) within a unified structural model, the present study reconceptualises corruption as a systemic and relational process rather than a collection of isolated causal variables. In doing so, it demonstrates how institutional vulnerabilities and governance interventions interact dynamically to shape project performance outcomes (MACC, 2021; Kamaruddin et al., 2025).

Second, the study introduces a mediation perspective into construction corruption research. Much of the extant literature assumes a direct and largely deterministic relationship between corruption and project underperformance. In contrast, this framework proposes that governance mechanisms operate as institutional transmission channels capable of transforming, attenuating, or potentially reversing the adverse performance effects of corruption causes. By modelling CCM as a mediating construct, the study moves beyond linear cause–effect reasoning and advances a process-oriented interpretation of corruption governance (Zarghami, 2024; Ebekozien et al., 2022).

Third, the research extends Institutional Theory into the domain of corruption–performance dynamics within project-based environments. Although Institutional Theory has been widely applied to explain organisational conformity and regulatory compliance, its application to corruption management in construction remains comparatively underexplored. By conceptualising corruption causes as institutional vulnerabilities and countermeasures as reform mechanisms operating through coercive, normative, and cultural-cognitive pressures, the study deepens theoretical understanding of how institutional change processes influence operational performance.

Fourth, the study reconceptualises governance mechanisms as performance-transforming agents rather than merely compliance-oriented instruments. Traditional governance research often frames anti-corruption initiatives as reactive regulatory controls. In contrast, this framework positions governance mechanisms as proactive institutional levers capable of enhancing cost efficiency, delivery reliability, quality standards, and stakeholder trust. This shift reframes anti-corruption efforts from risk-containment tools to strategic performance enablers (MACC, 2021; Kamaruddin et al., 2025).

Finally, by operationalising CCC, CCM, and CPP as higher-order multidimensional constructs within a hierarchical modelling structure, the study contributes methodologically to construction corruption research. The proposed architecture enables the modelling of systemic interdependencies rather than fragmented variable associations, thereby offering a more comprehensive representation of governance–performance dynamics (Yap et al., 2020; Yap et al., 2022; Nordin et al., 2023).

Collectively, these contributions strengthen the theoretical foundations of corruption governance research in project-based industries and provide a structured basis for future empirical investigations, particularly within emerging economy contexts.

7. Practical Implications

In addition to its theoretical contributions, the proposed framework offers substantive practical implications for policymakers, industry practitioners, and researchers seeking to strengthen governance integrity and project performance within the Malaysian construction industry.

For policymakers and regulatory authorities, the framework provides a structured lens for identifying systemic intervention points across multiple institutional layers. By disaggregating corruption causes into structural, managerial, regulatory, and behavioural dimensions, the model enables reform efforts to target root vulnerabilities rather than isolated symptoms. For instance, strengthening procurement transparency and enforcement capacity directly addresses regulatory deficiencies, while professional standard reforms and integrity-building initiatives target normative and cultural-cognitive drivers. Importantly, the mediation logic underscores that anti-corruption strategies should not be designed solely as compliance mechanisms; instead, they should function as performance-enhancing governance instruments capable of improving cost control, delivery reliability, and institutional trust (Yap et al., 2020; Yap et al., 2022; Nordin et al., 2023).

For industry practitioners including contractors, consultants, and project managers, the framework offers a structured roadmap for governance enhancement. The classification of countermeasures into management, regulatory, probing, and promotional clusters encourages the development of layered internal control systems rather than reliance on isolated corrective actions. Organisations can employ the framework as a diagnostic tool to assess corruption risk exposure within specific project environments and to align governance interventions with identified performance vulnerabilities. Through this alignment, governance reforms may be repositioned from administrative obligations to strategic investments that strengthen project

outcomes and reputational credibility.

For firms operating in high-risk environments, the model highlights the necessity of integrating formal enforcement mechanisms with informal integrity-building initiatives. Compliance systems, while essential, may be insufficient if not complemented by organisational culture reforms that reshape behavioural norms and expectations. This layered governance approach reinforces the importance of pursuing both structural and behavioural transformation to achieve sustained integrity improvements (Arewa & Farrell, 2015).

For researchers, the framework offers a theoretically grounded and empirically testable higher-order mediation model that advances corruption governance research within project-based industries. By operationalising corruption causes, countermeasures, and performance outcomes as multidimensional constructs, the model facilitates rigorous examination of systemic interdependencies rather than isolated variable effects. Moreover, it provides a foundation for comparative analyses across sectors, regions, and institutional contexts, thereby enhancing cross-contextual understanding of corruption–performance dynamics (Zarghami, 2024; Ebekozien et al., 2022).

Collectively, these practical implications emphasise that effective corruption management in construction requires coordinated institutional reform, strengthened organisational governance, and sustained behavioural transformation. By translating Institutional Theory into actionable governance insights, the framework bridges conceptual development and industry application (Brown & Loosemore, 2015; Nordin et al., 2013).

8. Conclusion

This study develops a theoretically grounded mediated framework linking Construction Corruption Causes (CCC), Corruption Countermeasures (CCM), and Construction Project Performance (CPP) in the Malaysian construction industry. By integrating corruption determinants and governance interventions within a single structural architecture, the framework is intended to address fragmentation in prior work that has typically examined causes or countermeasures in isolation. Conceptually, the model reframes corruption as a systemic institutional phenomenon and positions CCM as an institutional intervention mechanism that is expected to attenuate the adverse performance consequences of corruption vulnerabilities. Methodologically, the framework is organised as a balanced 4–4–4 hierarchical component model, enabling future studies to operationalise CCC, CCM, and CPP as higher-order constructs and test both direct and indirect pathways. The proposed validation roadmap outlines a rigorous and replicable approach for empirical testing using PLS-SEM, incorporating measurement model assessment, structural model evaluation, and bootstrapped mediation analysis. This roadmap supports transparency in model estimation and strengthens the framework's suitability for prediction-oriented governance–performance research. Practically, the framework highlights that improving project outcomes requires coordinated intervention across managerial controls, regulatory enforcement, probing and detection mechanisms, and integrity-building initiatives. Future research can empirically validate the model across different project types and stakeholder groups in Malaysia and extend comparative testing across institutional settings to strengthen generalisability and identify

boundary conditions.

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