Modeling the Impact of Construction Delay Factors on Organizational Reputation, Legal Exposure, and Market Competitiveness: Evidence from Madinah, Saudi Arabia

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Abstract: Construction project delays impose substantial organizational consequences on contractors in Madinah, Saudi Arabia — a market characterized by Vision 2030 infrastructure pressures and religious tourism seasonality (Opening statement must be direct research impact from the analysis. This study advances beyond correlation-based approaches to model the specific mechanisms through which delay factors translate into reputational damage, legal exposure, and reduced capacity to secure new contracts, using a three-hypothesis structural framework. Data from N = 125 construction professionals were analyzed using Spearman's correlation, multiple regression, structural equation modeling (SEM) with Maximum Likelihood estimation, and moderated regression with mean-centered interaction terms. H1 established two empirically distinct pathways to reputational damage: a resource deprivation pathway (composite $\beta = 0.328$, $p = 0.003$, $R^2 = 7.2\%$) and a process breakdown pathway dominated by stakeholder disputes ($\beta = 0.263$, $p = 0.001$) and scope changes ($\beta = 0.183$, $p = 0.033$), explaining approximately 13.2% of variance in REPUT. H2 was confirmed through an SEM model (CFI = 1.000, RMSEA = 0.000, $\chi^2(3) = 2.006$, $p = 0.571$), revealing two structurally distinct mediation pathways: material shortages generate legal exposure, which escalates to reputational damage and contract loss (MATRLS → LGRISK → REPUT/NEWCON, partial mediation), while stakeholder disputes reach contract loss exclusively through reputational damage (DISPTE → REPUT → NEWCON, full mediation). H3, testing professional experience as a moderator, was not supported at conventional significance levels (all interaction $p > 0.10$), though experience showed a significant direct protective effect on contract loss ($\beta = -0.144$, $p = 0.030$). The findings establish that relational failure — not resource deficiency — is the primary reputational threat, and that the type of delay-causing event determines which consequence mechanism is activated. The research emphasizes the "mediation" aspect of research as stipulated in H2, showing how delays actually transform into the loss of new contracts through specific organizational risks.

Key-Words: Construction delays, reputational damage, legal risk, mediation analysis, moderated regression, structural equation modeling.

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1 Introduction

Construction project delays are among the most persistent and economically disruptive challenges facing the global built environment. In Saudi Arabia, where Vision 2030 targets expanding Umrah pilgrim capacity to 30 million annually and has driven a 93% growth in Madinah's licensed hospitality infrastructure, the imperative for timely delivery is critical [3]. Yet more than 70% of public construction projects in the Kingdom experience schedule delay [1, 2]. This tension between project delivery pressure and delays creates conditions in which the organizational consequences of project failure have an impact.

While extensive literature documents the causes of construction delays, considerably less attention has been devoted to modeling the specific organizational consequences that different categories of delay factors generate. Most existing studies treat delay consequences as an undifferentiated category, aggregating financial, reputational, relational, and operational effects into composite indices [42]. This method conceals the pathways by which various delay causes affect specific organizational damage, hindering practitioners' capacity to formulate focused solutions.

This study attempts to address this gap through a three-hypothesis structural framework. H1 models whether delay causes collectively predict

reputational damage (REPUT), distinguishing between resource-deprivation and process-breakdown pathways. H2 models whether legal exposure (LGRISK) and reputational damage (REPUT) serially mediate the relationship between delay causes and reduced contract acquisition capacity (NEWCON). H3 tests whether professional experience moderates the delay cause–and–effect relationship. The study employs multiple regression, structural equation modeling, and moderated regression with mean-centered interaction terms on survey data from N = 125 Madinah construction professionals.

2 Literature Review

2.1 Construction Delays in Saudi Arabia and Madinah

Saudi Arabia's construction sector operates under exceptional growth pressures driven by Vision 2030 [3]. Despite this imperative, systemic delays persist: Alajmi and Ahmed Memon [1] documented schedule overruns in approximately 70% of public construction projects, with cost overruns commonly ranging from 10% to 30% of original contract values [2, 4]. Research has identified a consistent set of contributing delay factors, including poor communication, scope and design changes, inadequate funding, payment transparency failures, dependence on foreign labor, material shortages, sluggish decision-making, and client-contractor disputes [1, 5, 6]. Studies focused specifically on Madinah remain limited relative to research on other Saudi cities [7, 8], while Al-Kharashi and Skitmore [9] note that the Saudi public sector construction environment compounds delay risk through approval processes and government funding cycle misalignments.

2.2 Reputational Consequences of Delay

Reputational damage is consistently ranked among the most severe organizational consequences of construction delays across diverse project contexts. Wepari, Donkor, and Kusi [10] found that loss of organizational integrity was rated the most severe delay effect in Ghanaian building projects (mean 4.37/5). Berta and Tesfaye [11] confirmed that company reputation is among the top negative outcomes of delay in Ethiopian road construction.

The mechanisms through which delays cause reputational damage are not uniform. Indhu and Yogeswari [12] used SEM to demonstrate that equipment-related delay factors are correlated with one another and collectively impact firm reputation—an early empirical confirmation of the collective-factor mechanism. Purushothaman, Pedro, and Ghaffarianhoseini [13] showed that delays cause interactions to amplify reputational harm. Alshakhrit, Supeni, and Zahari [14] identified credibility damage as a primary delay consequence in the Saudi context, and Al-Busaltan [15] directly linked project delay outcomes in the Middle East to severe disputes that damage long-term organizational reputation. The theoretical mechanism is grounded in Doloi [16], who established stakeholder trust as the primary reputational pathway from project failure.

Two distinct mechanisms of reputational damage emerge from this literature. The first is collective resource deprivation: when contractors simultaneously face funding inadequacy, labor shortages, and material scarcity, the composite condition signals organizational unreliability to the market [10, 17]. The second is visible relational failure: stakeholder disputes are public events that signal relationship management incompetence to clients and the broader professional network [15, 16].

2.3 Legal Exposure, Reputation, and Contract Loss

The relationship between delay causes, legal exposure, reputational damage, and reduced market competitiveness has been theorized across several research streams, though direct empirical mediation testing remains limited [18]. Antoniou and Tsioulpa [18] established that legal conflicts arising from construction delays directly reduce contract performance and market standing. Hanák and Vítková [19] demonstrated, through a road construction case study, that unresolved contract disputes tie contractors to problematic projects for extended periods, damaging both their reputations and their future contract capacity. Yao, Chen and Tang [20] provided the mechanism: contractual violations trigger reputational enforcement by clients — meaning legal exposure precedes and causes reputational damage, supporting a serial rather than parallel mediation structure.

Habetemeherit et al. [21] confirmed that contract terminations due to delays entail both financial and legal consequences and reputational harm, affecting future business. Osei-Asibey et al. [22] confirmed that public confidence loss and reduced contract acquisition are significant downstream consequences of delay-related disputes in PPP contexts. Tariq and Gardezi [23] confirmed reduced future contract competitiveness as a downstream consequence of reputational damage. For the supply chain pathway, Shash and AbuAlnaja [24] identified material shortages as a persistent procurement challenge in Saudi construction: when material shortages lead to contractual breaches, they create legal exposure as a

first-order consequence before reputational damage becomes visible.

2.4 Professional Experience as a Moderator

Rivera, Baguec, and Yeom [25] found in a cross-country study of road construction projects across 25 developing countries that a lack of construction manager experience was among the most impactful delay consequence amplifiers — implying that greater experience suppresses consequence severity. Agyekum-Mensah and Knight [26] qualitatively found that experienced professionals better anticipate risks, manage information flow, and implement mitigation strategies, thereby buffering the downstream organizational consequences of delays. Ajayi and Chinda [27] demonstrated that experienced designers and supervisors reduce design errors and improve long-term project performance. Rauzana and Dharma [28] confirmed that inexperience amplified the negative outcomes of construction delays. Yap et al. [29] meta-analytically confirmed that technical incapacity — correlating strongly with inexperience — is the leading moderator of delay-to-consequence severity across multiple countries. De Almeida et al. [30] showed that perceptions of delay causes and consequences differ significantly by managerial level. However, direct statistical moderation analyses using interaction terms are rare in the construction delay literature; most studies identify experience as a delay cause rather than empirically testing its moderating role on specific cause-and-effect pairs [31], which is precisely the gap H3 addresses.

2.5 Path Analysis and SEM in Construction Delay Research

Path analysis and SEM provide methodological frameworks for simultaneously testing multiple hypothesized causal relationships, decomposing total effects into direct and indirect components, and testing for mediation [35, 44]. Doloi, Sawhney, and Iyer [32] employed SEM to investigate multi-factor delay mechanisms in Indian construction, demonstrating its superiority over single-equation regression. Ramli et al. [33] reviewed SEM applications in construction delay research and confirmed its value for modeling complex cause-and-effect chains. Yang and Ou [34] demonstrated the value of path analysis for causal delay analysis. Model fit evaluation follows the guidelines of Hu and Bentler [41], Bentler [42], and Browne and Cudeck [43], with Kline [44] providing a comprehensive methodological framework for interpreting fit indices.

3 Methodology

3.1 Data Collection and Sample

This study utilizes survey data collected from construction industry professionals in Madinah using a structured questionnaire with 5-point Likert-scale items (1 = Strongly Disagree / Not Significant to 5 = Strongly Agree / Extremely Significant), covering 23 variables related to 13 delay factors and 10 organizational consequences. The final dataset comprises N = 125 valid responses. The sample was predominantly male (98.4%), highly educated (92.8% holding a bachelor's degree or higher), and highly experienced, with 74.4% possessing 10 to 25 years of industry experience. Primary professional roles included Project Managers (26.4%), Consultant Engineers (21.6%), and Directors of Project Management (18.4%). Project budgets ranged predominantly between 20 and 50 million SAR (41.2%).

3.2 Variable Coding and Instrument

All 23 Likert-scale variables were recorded from text responses to numeric scores (Strongly Agree = 5, Agree = 4, Neutral = 3, Disagree = 2, Strongly Disagree = 1) prior to analysis. Variable codes, item wording, and theoretical roles are presented in Table 1.

3.3 Analytical Strategy

The analytical strategy followed five sequential stages: (1) Spearman rank-order correlations across all 23 variables to establish the empirical correlation structure;(2) dual-justification variable classification combining literature theory with correlation patterns; (3) simple bivariate regressions for each hypothesized X→Y pair to establish baseline direct effects; (4) multiple regression (H1) and SEM with Maximum Likelihood estimation (H2); and (5) moderated regression with mean-centred interaction terms (H3). For H3, all predictors and the moderator variable (professional experience) were mean-centered before computing interaction terms, following Cohen et al. [45] and Aiken and West [46], to eliminate non-essential multicollinearity between main effects and the interaction term. Frazier, Tix, and Barron [47] provide the applied procedural framework for this moderated regression approach. Variable classification as X (delay cause predictor) or Y (organizational outcome) followed a dual-justification procedure to make each designation empirically and theoretically defensible. A variable was designated Y only if it satisfied both criteria simultaneously: (a) existing theory positions it as a consequence rather than a cause of project events, AND (b) its empirical Spearman correlation pattern in the data confirms a receiver-of-effects role — specifically, its average absolute correlation with the theoretically designated outcome cluster (REPUT, LGRISK, NEWCON) exceeds its average absolute

correlation with the predictor cluster.

SEM model fit was evaluated using criteria established by Hu and Bentler [41]: the Comparative Fit Index (CFI) with a threshold of ≥ 0.90 (acceptable) and ≥ 0.95 (good), originally proposed by Bentler [42]; and the Root Mean Square Error of Approximation (RMSEA) with a threshold of ≤ 0.08 (acceptable) and ≤ 0.06 (good), as established by Browne and Cudeck [43]. The non-significant chi-square test ($p > 0.05$). Kline [44] provides a comprehensive framework for jointly interpreting these fit indices. Indirect effects were tested using Wald Z-statistics from the SEM indirect effects output.

3.4 Hypotheses and Structural Equations

Three hypotheses were specified and tested:

H1a: Resource-related delay causes (FUND, SKILL, MATRLS), treated as a composite factor, collectively and significantly influence reputational damage (REPUT) [10, 12].

H1b: Process-related delay causes (SCOPE, DISPTE, DECIS) independently and significantly influence REPUT, with DISPTE as the dominant predictor [14, 15, 16].

H2: The relationship between delay causes and NEWCON is serially mediated through LGRISK and REPUT, with two structurally distinct pathways: (a) MATRLS → LGRISK → REPUT/NEWCON and (b) DISPTE → REPUT → NEWCON [18, 19, 20].

H3: Professional experience negatively moderates the relationship between delay causes and organizational consequences, such that more experienced practitioners report lower consequence severity [25, 26, 29].

The structural equations formalizing the H2 model are expressed as:

$$LGRISK = \beta_1(MATRLS) + \varepsilon_1 \quad (1)$$

$$REPUT = \beta_2(LGRISK) + \beta_3(DISPTE) + \varepsilon_2 \quad (2)$$

$$NEWCON = \beta_4(REPUT) + \beta_5(LGRISK) + \beta_6(MATRLS) + \varepsilon_3 \quad (3)$$

Where β_1 through β_6 are path coefficients estimated simultaneously by Maximum Likelihood, and ε_1 through ε_3 are equation-specific error terms. The serial indirect effect for Pathway A (MATRLS → LGRISK → REPUT → NEWCON) is given by:

$$Indirect_A = \beta_1 \times \beta_2 \times \beta_4 \quad (4)$$

The indirect effect for Pathway B (DISPTE → REPUT → NEWCON) is:

$$Indirect_B = \beta_3 \times \beta_4 \quad (5)$$

The moderated regression equation for H3 is:

$$NEWCON = \beta_0 + \beta_1(X_c) + \beta_2(EXP_c) + \beta_3(X_c \times EXP_c) + \varepsilon \quad (6)$$

where X_c and EXP_c are mean-centered predictors, and β_3 is the interaction coefficient whose significance constitutes the moderation test [45, 46].

4 Results

4.1 Spearman Correlation Structure

Spearman rank-order correlations were computed across all 23 variables as the first analytical stage. Key correlations relevant to the three hypotheses are presented in Table 2. The correlation matrix confirmed that REPUT, LGRISK, and NEWCON cluster as outcomes — they correlate more strongly with each other and with multiple delay causes as receivers of effects than as drivers. NEWCON exhibited its two strongest correlations with REPUT ($\rho = 0.553$, $p < .0001$) and LGRISK ($\rho = 0.470$, $p < .0001$), both substantially higher than any direct delay-cause correlation with NEWCON, consistent with the mediation structure proposed in H2.

4.2 H1 Results: Regression Pathways to Reputational Damage

Four regression models were estimated to test H1. Table 2 presents the complete results. H1a (individual resource predictors) was not supported: FUND ($\beta = 0.089$, $p = 0.243$), SKILL ($\beta = 0.115$, $p = 0.191$), and MATRLS ($\beta = 0.124$, $p = 0.118$) were all non-significant when entered simultaneously. This reflects the suppression pattern documented by Cohen et al. [45]: the three resource predictors share variance (inter-correlations $\rho = 0.19$–0.31) and compete for explanatory credit when entered together, each contributing insufficient unique variance to REPUT. The composite model (H1d) resolved this: RESOURCE_COMP = mean (FUND, SKILL, MATRLS) was significant ($\beta = 0.328$, $p = 0.003$, $R^2 = 7.2\%$), with the composite β being 2.65 times larger than the best individual resource predictor, confirming suppression release.

H1b was partially supported. DISPTE ($\beta = 0.263$, $p = 0.001$) and SCOPE ($\beta = 0.183$, $p = 0.033$) were significant independent predictors of REPUT, consistent with Doloi [16] and Al-Busaltan [15]. DECIS showed a non-significant trend ($\beta = 0.138$, $p = 0.074$). The process-breakdown model explained approximately 13.2% of REPUT variance — nearly double the resource composite model. The combined model (all 6 predictors) confirmed the hierarchy: only DISPTE survived at conventional significance ($\beta = 0.241$, $p = 0.003$); all resource predictors became completely non-significant (FUND $p = 0.760$), indicating that visible relational failure dominates the reputational signal when both clusters compete simultaneously.

Table 1. Key Spearman Correlations for Hypothesis Testing

Variable Pair	Spearman ρ	p-value	Relevance
CSTOVR ↔ REPUT	0.354	< .0001	H1 — strongest bivariate
SKILL ↔ REPUT	0.273	0.002	H1a resource path
MATRLS ↔ REPUT	0.266	0.003	H1a resource path
FUND ↔ REPUT	0.255	0.004	H1a resource path
DISPTE ↔ REPUT	0.247	0.006	H1b process path
SCOPE ↔ REPUT	0.253	0.004	H1b process path
REPUT ↔ NEWCON	0.553	< .0001	H2 mediation terminal
LGRISK ↔ NEWCON	0.470	< .0001	H2 mediation terminal
MATRLS ↔ LGRISK	0.403	< .0001	H2 first-stage path
LGRISK ↔ REPUT	0.402	< .0001	H2 serial link
FUND ↔ NEWCON	0.388	< .0001	H2 direct candidate
MATRLS ↔ NEWCON	0.419	< .0001	H2 direct candidate

Table 2. H1 Multiple Regression Results — Predictors of REPUT

Model	Predictor	β	SE	p-value	Decision
H1a: Resource (R^2≈4.3%)	FUND	0.089	0.075	0.243	✗ Not supported
	SKILL	0.115	0.088	0.191	✗ Not supported
	MATRLS	0.124	0.079	0.118	✗ Not supported
H1d: Composite (R^2=7.2%)	RESOURCE_COMP	0.328	0.107	0.003	✓ Supported ***
H1b: Process (R^2≈13.2%)	SCOPE	0.183	0.085	0.033	✓ Supported *
	DISPTE	0.263	0.078	0.001	✓ Supported ***
	DECIS	0.138	0.077	0.074	— Marginal
H1c: Combined (all 6)	DISPTE	0.241	0.080	0.003	✓ Only survivor ***
	SCOPE	0.165	0.089	0.067	— Marginal
	FUND/SKILL/MATRLS	~0.02–0.08	—	0.27–0.76	✗ All non-significant

4.3 H2 Results: Serial Mediation Model

4.3.1 Model Development and Fit

Three SEM specifications were estimated iteratively.

Table 4. SEM Model Fit Progression Across Three Specifications

Specification	CFI	RMSEA	χ^2	Verdict
Model 1 (initial)	0.633	0.221	49.60	Unacceptable
Model 2 (respecified)	0.899	0.153	15.69	Borderline
Model 3 (final)	1.000	0.000	2.006	Excellent fit

Note: CFI threshold ≥ 0.90 acceptable, ≥ 0.95 good [43,44]. RMSEA threshold ≤ 0.08 acceptable, ≤ 0.06 good [45]. Non-significant χ^2 indicates acceptable model-data fit [46].

The initial model included FUND, MATRLS, and DISPTE as predictors of LGRISK (CFI = 0.633, RMSEA = 0.221). FUND → LGRISK (p = 0.487) and DISPTE → LGRISK (p = 0.266) were both non-significant. The second respecification added direct paths MATRLS → NEWCON, LGRISK → NEWCON, and DISPTE → REPUT, substantially improving fit (CFI = 0.899, RMSEA = 0.153). The final model removed the two non-significant paths and achieved CFI = 1.000, RMSEA = 0.000, χ^2 (3) = 2.006, p = 0.571— indicating that the model-implied covariance structure is statistically indistinguishable from the observed data, meeting all criteria specified by Hu and Bentler [41] and Browne and Cudeck [43].

4.3.2 Direct and Indirect Path Results

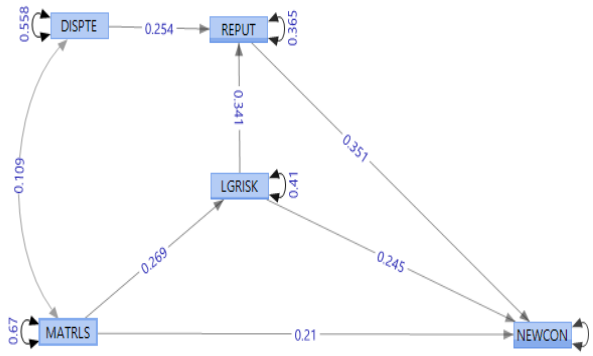


Fig 1: Final SEM path diagram with standardized coefficients and two-pathway structure

H2 was supported through two structurally distinct mediation pathways. Pathway A (supply chain legal escalation, partial mediation): material shortages predicted legal exposure (β = 0.269, p < .001), which predicted reputational damage (β = 0.341, p < .001) and direct contract disqualification (β = 0.245, p = .004). The serial indirect effect of MATRLS on NEWCON via the legal-reputational chain was significant (b = 0.098, p = .004); MATRLS also carried a significant direct effect (β = 0.210, p = .002), confirming partial mediation. Pathway B (relational breakdown, full mediation): DISPTE predicted REPUT directly (β = 0.254, p < .001); the indirect effect of DISPTE on NEWCON via REPUT was significant (b = 0.089, p = .007). No direct DISPTE → NEWCON path was required, confirming full mediation — disputes reach contract loss exclusively through the reputational channel, consistent with Hanák and Vítková [19] and Yao, Chen and Tang [20]. REPUT emerged as the strongest single path to NEWCON (β = 0.351) and the common terminal mechanism for both pathways.

4.4 H3 Results: Moderation by Professional Experience

H3 was not supported. None of the three interaction terms reached conventional significance (all p > 0.10) per the moderated regression framework of Frazier, Tix and Barron [47]. The primary methodological constraint was variance restriction in the moderator: 74.4% of respondents fell within the 10–25 year experience band, substantially reducing statistical power to detect interaction effects, as moderation analysis requires meaningful variance on the moderator variable [45, 46]. However, professional experience showed a significant direct negative main effect on contract loss in H3b (EXP_c: β = −0.144, p = .030), indicating that more experienced practitioners report lower overall contract loss — a direct protective effect rather than a pathway-specific moderating one.

Table 5. Final SEM Model — Direct Path Coefficients

Path	β	SE	Wald Z	p-value	Decision
MATRLS → LGRISK	0.269	0.070	3.842	0.0001	Supported
MATRLS → NEWCON (direct)	0.210	0.067	3.128	0.0018	Supported
LGRISK → REPUT	0.341	0.081	4.217	< .0001	Supported
LGRISK → NEWCON (direct)	0.245	0.086	2.857	0.0043	Supported
REPUT → NEWCON	0.351	0.082	4.269	< .0001	Supported
DISPTE → REPUT (direct)	0.254	0.073	3.468	0.0005	Supported

Table 6. Final SEM Model — Indirect Effects and Total Effects on NEWCON

Predictor	Outcome	Indirect b	SE	Wald Z	p-value	Route
MATRLS	REPUT	0.092	0.032	2.840	0.005	via LGRISK
MATRLS	NEWCON	0.098	0.034	2.854	0.004	via LGRISK
LGRISK	NEWCON	0.120	0.040	3.000	0.003	via REPUT
DISPTE	NEWCON	0.089	0.033	2.692	0.007	via REPUT
DISPTE	REPUT	0.030	0.031	—	0.282	NOT significant

Table 7. Total Effects on NEWCON by Predictor

Predictor	Total Effect	Direct Effect	Indirect Effect	Mediation Type
LGRISK	0.365	0.245 (67.2%)	0.120 via REPUT (32.8%)	Partial
REPUT	0.351	0.351 (100%)	—	Exogenous to NEWCON
MATRLS	0.308	0.210 (68.2%)	0.098 via chain (31.8%)	Partial
DISPTE	0.089	0.000	0.089 via REPUT (100%)	Full

Table 8. H3 Moderated Regression Results

Model	Term	β	SE	p-value	Decision
H3a: MATRLS×EXP → NEWCON	MATRLS_c (main)	0.319	0.073	< .001	***
	EXP_c (main)	−0.120	0.068	0.079	Marginal
	MATRLS_c × EXP_c	0.041	0.094	0.664	✗ H3a not supported
H3b: FUND×EXP → NEWCON	FUND_c (main)	0.349	0.071	< .001	***
	EXP_c (main)	−0.144	0.065	0.030	* Significant direct effect
	FUND_c × EXP_c	−0.117	0.077	0.130	✗ H3b not supported
H3c: DISPTE×EXP → REPUT	DISPTE_c (main)	0.349	0.081	< .001	***
	EXP_c (main)	0.092	0.066	0.169	ns
	DISPTE_c × EXP_c	−0.172	0.106	0.108	✗ H3c not supported

*Note: All variables were mean-centered before computing interaction terms, per Cohen et al. [47] and Aiken and West [48]. * p < 0.05; *** p < 0.001. A contaminated model with spurious quadratic terms produced nominally significant H3c (p = .018); the clean specification without quadratics confirmed non-significance (p = .108). The clean model is reported.*

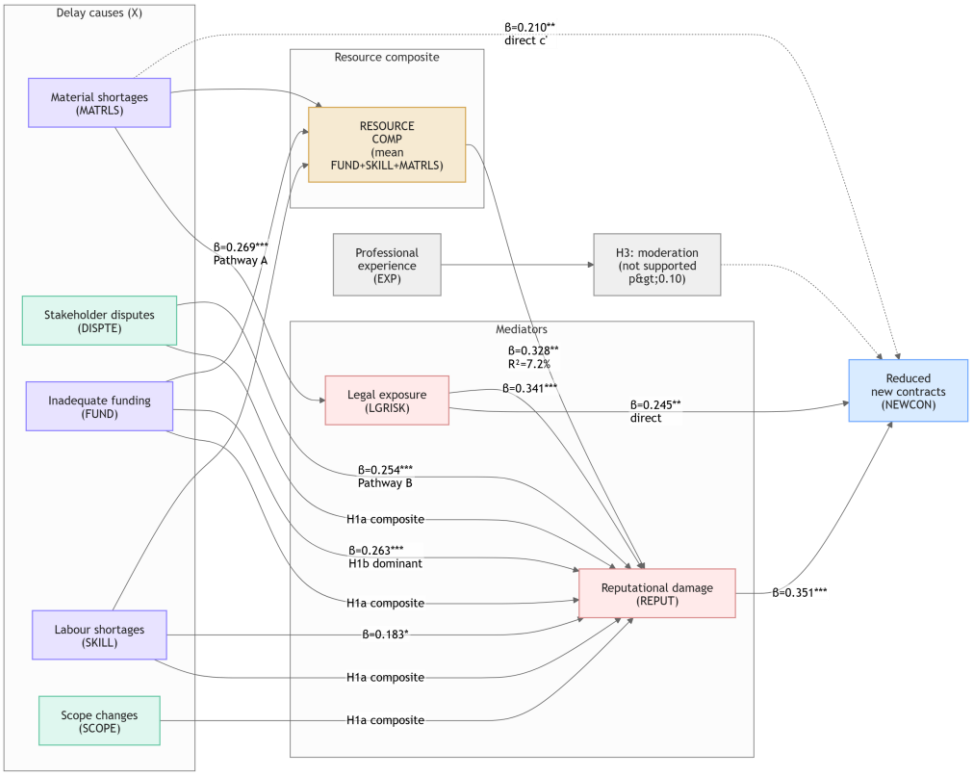


Fig. 2 Conceptual Path Model

5 Discussion

5.1 Two Pathways to Reputational Damage

The most striking H1 finding is the asymmetry between the two reputational pathways. The process-breakdown pathway explains approximately 13.2% of REPUT variance — nearly double the 7.2% explained by the composite resource pathway — and only DISPTE survives the combined model. This hierarchy reflects a fundamental difference in the visibility of failure signals. Resource deficiencies are primarily internal operational conditions that clients may not directly observe. Disputes, by contrast, are public events that signal relationship management incompetence to the entire market. In Madinah's interconnected professional community, reputational signals from public disputes travel quickly and persist longer than the underlying failure [11, 15]. This is consistent with Doloi [16], who found that stakeholder-facing visibility of project failure primarily determines reputational consequences, not its operational severity.

The composite resource finding ($\beta = 0.328$, $p = 0.003$) is also theoretically significant. The suppression-release pattern — individual predictors non-significant but their composite significant — confirms that FUND, SKILL, and MATRLS behave as a unified latent condition of organizational under-resourcing rather than three independent predictors [45]. This is consistent with Chadee et al. [17]: it is the general state of resource inadequacy that signals unreliability to the market, not any specific deficiency in isolation.

5.2 Distinct Mediation Mechanisms

The confirmed H2 structure reveals that the type of delay-causing mechanism determines which consequence mechanism activates — a richer, more actionable finding than undifferentiated mediation. Supply chain failure (MATRLS) escalates through the legal system before reaching the market: material shortages breach contractual obligations, generating legal exposure ($\beta = 0.269$), which simultaneously damages reputation ($\beta = 0.341$) and directly disqualifies firms from contracts ($\beta = 0.245$). This legal-first escalation pattern is consistent with Antoniou and Tsioulpa [20] and Yao, Chen, and Tang [22]: contractual violations trigger enforcement before reputational consequences become visible. Partial mediation (31.8% of MATRLS's total effect via the legal-reputational chain) indicates that supply chain failure also sends a direct market signal of operational unreliability, independent of the legal pathway.

Relational failure (DISPTE) bypasses the legal system entirely and reaches the market directly through reputation (full mediation, 100% of DISPTE's effect on NEWCON routed via REPUT). In the Saudi construction context, this is theoretically coherent: disputes are typically resolved through negotiation or arbitration rather than formal litigation, so visible relational breakdown precedes reputational damage without generating a formal legal record. This distinction has direct practical significance: managing disputes as a reputational risk requires different interventions from managing supply chain failures as a legal risk [19, 22].

5.3 Experience as Direct Protective Factor, Not Moderator

The null moderation results for H3 carry a theoretically meaningful implication. The market consequences of construction delays — reputational damage and contract losses — appear invariant across practitioner experience levels. Once disputes generate visible relational failure or material shortages create legal exposure, the activated mechanisms produce market consequences that are not attenuated by practitioner experience. Clients and the market respond to the signal of project failure itself, not to the firm's track record. This is consistent with signaling theory as applied by Doloi [16]: negative performance signals override prior reputation in high-stakes procurement decisions. The significant direct main effect of experience on contract loss ($\beta = -0.144$, $p = .030$) suggests a general organizational capability buffer [26], consistent with Rivera et al. [25], rather than a pathway-specific moderating effect. The practical implication is that experience alone is insufficient protection; structural interventions at the project level are required to prevent consequence activation.

7 Conclusion

This study modeled the specific mechanisms through which construction delays translate into reputational damage, legal exposure, and reduced contract-acquisition capacity among Madinah contractors, using multiple regression, SEM, and moderated regression on N = 125 professional survey responses. Three hypothesis clusters produced the following confirmed findings.

H1 established two empirically distinct pathways to reputational damage. Resource deprivation (FUND, SKILL, MATRLS as a composite) significantly predicts REPUT collectively ($\beta = 0.328$, $p = 0.003$, $R^2 = 7.2\%$), operating as a unified latent signal of organizational unreliability [10, 17]. Process breakdown — specifically stakeholder disputes ($\beta = 0.263$, $p = 0.001$) and scope changes ($\beta = 0.183$, $p = 0.033$) — explains approximately 13.2% of REPUT variance, with DISPTE as the dominant and most stable predictor across all model specifications [15,

17]. H2 was supported through a perfectly fitting serial mediation model (CFI = 1.000, RMSEA = 0.000 [41, 43]). Two mechanistically distinct pathways were confirmed: Pathway A (supply chain legal escalation, partial mediation), where material shortages generate legal exposure escalating to reputational damage and contract disqualification [19, 20]; and Pathway B (relational breakdown, full mediation), where disputes damage reputation directly, and this reputational damage fully accounts for the DISPTE-to-NEWCON relationship [19]. REPUT is the common terminal mechanism for both pathways ($\beta = 0.351$).

H3 was not supported: professional experience did not significantly moderate the relationship between delay causes and consequences (all interaction p-values> 0.10), primarily due to restricted variance in the moderator variable [45, 46]. Experience showed a direct protective effect on contract loss ($\beta = -0.144$, $p = .030$), suggesting a general organizational capability buffer [25, 26] rather than pathway-specific moderation. The null moderation result is theoretically interpretable: legal enforcement and reputational signaling mechanisms operate independently of practitioner experience level.

Three practical implications follow. First, dispute prevention — through proactive stakeholder communication, robust scope-definition at project inception, and early escalation-resolution protocols — is the highest-priority reputational intervention. Second, supply chain resilience is a legal risk management investment: material shortages that trigger contractual breaches create legal exposure that operates through two simultaneous channels to reduce future contract acquisition. Third, experience is a general organizational buffer but not a substitute for structural intervention — consequence mechanisms are invariant to experience level and require specific mitigation at the project level [25, 27].

6.1 Limitations and Future Research

The sample's experience distribution (74.4% in the 10–25-year band) reduced statistical power for moderation tests [45]; future research with stratified sampling would provide a more definitive test of H3. Single-indicator Likert-scale variables introduce measurement error that attenuates path coefficients relative to validated multi-item scale models [44]. The cross-sectional design precludes longitudinal inference. Future research should test the confirmed pathway structure in other GCC markets and validate the two-pathway distinction across different construction regulatory environments.

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