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Decisions That Build: Strategic Decision-Making and Its Influence on Construction Business Performance in New Zealand

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Abstract

The New Zealand construction industry, while central to national infrastructure and economic development, continues to grapple with persistent performance challenges rooted in weak strategic governance and fragmented decision-making processes. This study examines the relationship between strategic decision-making and organisational performance within the New Zealand construction sector, addressing a gap that construction management scholarship has largely left unattended. The study draws on survey data from construction professionals across diverse organisational sizes, project types, and regions in New Zealand, employing Partial Least Squares Structural Equation Modelling (PLS-SEM) as its analytical approach. The analysis identifies four significant predictors of construction business performance: strategic decision formulation, strategic decision implementation practices, strategic decision evaluation, and financial strength. Workforce capabilities, by contrast, did not demonstrate a statistically significant relationship with performance outcomes. This nuanced finding challenges prevailing assumptions about the primacy of human capital in construction performance models. The structural model achieved strong explanatory power, confirming the robustness of the proposed framework. These findings offer theoretically coherent, empirically supported insights into strategic performance determinants among mid-sized construction organisations in New Zealand. The voluntary sampling design and modest sample size of 102 respondents define the inferential boundaries of these conclusions.

Keywords: strategic decision-making; information quality; construction business performance; SmartPLS4

Academic Editor: Antonio Caggiano

Received: 23 March 2026
Revised: 26 April 2026
Accepted: 27 April 2026
Published: 8 May 2026

1. Introduction

The assessment of organisational performance has undergone considerable transformation over the past century. Traditionally anchored in financial and management accounting, performance evaluation relied almost exclusively on quantitative financial indicators [1]. However, the credibility of such indicators has been progressively questioned, given well-documented tendencies toward manipulative accounting practices, particularly among financially distressed firms, which render financial ratios unreliable proxies for true organisational health [2,3]. Beyond credibility concerns, scholars have demonstrated that non-financial factors, including strategic governance structures, organisational capabilities, and stakeholder relationships, are equally determinative of a firm's long-term success [4,5].

Financial metrics are now widely regarded as symptomatic rather than diagnostic, capable of revealing the consequences of strategic failure rather than its causes [6].

Within the construction industry, these limitations are particularly pronounced. Despite its critical role in national infrastructure development and economic activity, the performance of the construction industry has received comparatively limited scholarly attention, especially given its practical significance [7,8]. Existing research tends to conflate project-level performance, measured by cost, time, and quality outcomes, with broader organisational performance, neglecting the "softer" intangible dimensions that underpin strategic resilience [9]. As Bajracharya et al. [10] and Ingle and Mahesh [11] have argued, evaluating construction organisations solely against client-defined project objectives obscures the organisational, technological, and environmental factors that collectively shape business viability. This narrow lens generates incomplete assessments that cannot adequately inform strategic improvement [12,13].

The need for a more holistic approach to construction business performance has been recognised for some time. Yet, strategic decision-making, as a multidimensional driver of performance outcomes, remains underexplored [14]. Construction firms operating in increasingly competitive domestic and global markets must navigate complex environments shaped by economic volatility, market consolidation, and evolving stakeholder expectations [15,16]. Under these conditions, the capacity to formulate sound strategies, implement them effectively, and evaluate them rigorously becomes a critical organisational competency [17,18]. Conventional performance metrics, such as productivity rates, profit margins, and plan effectiveness, fail to capture this strategic dimension, rendering them insufficient as tools for sustained competitive positioning [19,20].

A growing body of work across management and construction disciplines has sought to address these shortcomings by developing multidimensional evaluation frameworks. Landmark contributions include the performance measurement matrix [21], the strategic performance measurement system [22], and the balanced scorecard [23], each of which integrates financial and non-financial indicators to provide a more complete picture of organisational health. More recent scholarship has further expanded this agenda by incorporating operational drivers, stakeholder dynamics, and information quality as key determinants of performance trajectories [24–26]. These advances reflect a broad consensus that construction business performance is a complex, context-dependent phenomenon shaped by the interaction of structural, human, technological, and strategic variables [27,28].

Despite these advances, a significant gap persists in the literature. While strategic decision-making has been studied extensively in general management contexts, its application to construction business performance remains fragmented and under-theorised, particularly in geographically distinct markets such as New Zealand [29]. Existing studies have either examined strategic constructs in isolation or have failed to integrate decision formulation, implementation, evaluation, financial strength, and workforce capabilities within a unified analytical framework. The New Zealand construction sector, a significant contributor to national GDP yet beset by persistent governance, productivity, and performance challenges, offers a compelling and underexplored empirical setting. This study directly addresses this gap by examining the relationships between strategic decision-making dimensions and business performance outcomes using Partial Least Squares Structural Equation Modelling (PLS-SEM), a method well suited to the exploratory, theory-building nature of the inquiry [30]. Specifically, the study pursues the following objectives:

1. To identify the key components of strategic decision-making that influence construction business performance in New Zealand.
2. To quantify the relative impact of these components on overall organisational outcomes.

3. To develop a validated framework linking strategic decision processes to measurable performance indicators.
4. To provide evidence-based recommendations for enhancing strategic decision capabilities within New Zealand construction organisations.

By grounding the analysis in Ansoff's strategic success theory and the resource-based view (RBV), this study offers a theoretically coherent, empirically validated framework for construction management scholarship and actionable insights for industry practitioners.

2. Literature Review

2.1. Levels of Strategic Decision-Making in Organisations

Organisational strategy operates across three levels: corporate, business, and functional. Corporate strategy determines the firm's overarching purpose and how its operations are organised and controlled [29]. This strategy is accountable for establishing the company's overall goals and objectives, assessing ideas emerging from the business and functional levels, and allocating resources in accordance with strategic priorities [30]. Because there are many levels of strategy, business executives can create goals for their companies at every level, from the most general corporate level to the most specific functional level. Sadler [31] suggests that essential strategic questions, such as the following, are posed at the corporate level:

- ➢ What is the purpose of the organisation or mission, as well as the values and principles that employees of the organisation should adhere to when conducting themselves?
- ➢ What are some ideal qualities that should be present in the culture of the company?
- ➢ Which fields of business or areas of the market should it enter or exit, and why?
- ➢ What sort of organisational structure would be most beneficial to the plan, and what kinds of control methods would be most effective?
- ➢ How can value be created through differentiated brands, core strengths, and organisational reputation?

Because strategic decision-making at the corporate level is the highest level in an organisation, decisions taken at this level will ultimately inform the firm's primary aim and the goals of lower levels within the organisation [32]. The corporate-level strategy decisions are made by senior management to enter different sectors or markets and achieve a competitive edge.

Business strategies constitute the second level of strategy within organisations. A company's strategic focus must prioritise maintaining competitive advantage across all business units, as Nyariki [33] emphasises. Business and competitive strategies outline an organisation's approach to market competition within specific sectors. Strategic success requires identifying crucial market factors and executing operations that address these factors more effectively than competitors do. Adendorff, Appels, and Botha [34] suggest that organisations capable of distinguishing their products through customer-valued attributes should implement differentiation strategies. Such an approach becomes viable when the implementation costs remain below the anticipated increase in revenue resulting from product differentiation [35].

In other words, the consumer perceives the product's price as substantially below its value relative to available alternatives [36]. According to Adendorff et al. [34], the objective of the differentiation strategy is to reduce the degree to which the company's product is affected by price competition. In other words, shoppers place less importance on cost considerations when purchasing.

The third level of strategy is known as the functional or operational strategy, depending on its use. According to Ehlers and Lazenby [37], functional strategies, also known as operational strategies, are the decisions and actions taken by an organisation's functional areas, such as marketing, operations, production, finance, and human resources, to achieve short-term goals. These functional areas include marketing, production, finance, and human resources [38]. For the corporation to support the company's business and corporate strategy, it must ensure that its competitive strategy is maintained across every functional area [39]. For the functional-level strategy to succeed, project managers must ensure that day-to-day operations in each department align with the company's overall desired outcomes. To do this, it will be necessary to set specific metrics in place so they can monitor whether each sector is achieving the broader goals [40]. Examples of functional strategies include a company's approaches to research and development, marketing, financing, and manufacturing [41].

An illustrative example concerns the company's approach to research and development. Each of these diverse strategies requires a unique set of decisions to execute its respective tasks effectively, aligned with the company's overarching strategy. Effective communication is a critical competency for leaders responsible for functional-level strategy [38]. These executives must adeptly translate organisational strategy into actionable functional strategies and provide insights to refine organisational strategy when necessary. They must also be proficient in cascading higher-level strategies into functional-level directives.

Strategic management begins with developing a vision that guides the creation of a mission statement, setting objectives, analysing the current situation, developing strategies, implementing plans, and evaluating results [42]. Research shows this management approach functions as a cyclical process with interconnected phases, helping organisations establish, implement, and monitor the achievement of long-term business goals. The process remains fluid and ongoing, with changes in one area potentially affecting the entire strategic framework.

When developing strategies, organisations must examine various environmental factors, including economic conditions, social trends, political landscapes, technological advancements, ecological concerns, and industry-specific factors [43]. This analysis covers market entry challenges, competitor relationships, availability of alternative products, and the negotiating power of both customers and vendors. After developing an effective strategy, companies must continuously evaluate their strategic decisions to maintain their competitive position. As organisations define their long-range objectives and identify appropriate strategies, the process naturally progresses to implementation [44]. Strategic management practices significantly influence organisational performance by providing a conceptual structure for understanding strategic positioning and guiding future decisions.

Taken together, the body of scholarship on strategic decision-making levels reveals both progress and persistent gaps. Earlier contributions from Sadler [31], Ehlers and Lazenby [37], and Adendorff et al. [34] established the conceptual hierarchy of corporate, business, and functional strategy, providing a useful taxonomy for understanding how decisions cascade across organisational levels. However, these foundational accounts are predominantly prescriptive and context-generic, offering normative frameworks without empirical validation in project-based or construction-specific environments. More recent work by Eriksson et al. [32], Liu et al. [41], and Doshi et al. [36] has begun to examine strategic decision-making more critically, interrogating cognitive biases, heuristic shortcuts, and the growing influence of artificial intelligence on decision quality. Yet, these studies are largely confined to general management or manufacturing contexts and do not engage with the structural complexities of construction organisations.

A key inconsistency emerges across these studies: the general management literature treats strategy formulation, implementation, and evaluation as sequential and separable phases [44–46], whereas construction management research suggests these processes are far more iterative, fragmented, and resource-constrained in practice [17,18]. M. Chen, L. Floridi, and R. Borgo [47] argue that strategic management reduces uncertainty and improves sustainability, findings well supported in the manufacturing and service industries. Still, evidence from construction-specific contexts remains sparse and inconclusive. Studies such as Nguyen [21] and Tripathi et al. [22] have attempted performance evaluations in construction and allied industries, but have not integrated the full spectrum of strategic decision dimensions formulation, implementation, and evaluation within a single empirical model. This fragmentation means that existing research cannot adequately explain how the interplay between strategic decision components collectively shapes construction business performance.

2.2. Quality of Information

Information quality occupies a foundational role in the strategic decision-making literature, yet its integration into construction management scholarship remains underdeveloped. Effective strategic decisions depend critically on the quality of the information underpinning them [45,46]; poor or incomplete information directly undermines the validity of formulation, implementation, and evaluation processes, the three strategic pillars examined in this study. Although definitions vary widely from Chen et al.'s [47] characterisation of information as well-formed meaningful data to its framing as a purposeful message between sender and receiver there is broad consensus that quality information must be accurate, timely, relevant, and actionable. What remains contested, however, is how to operationalise information quality within organisational decision-making systems, particularly in project-intensive industries. Some scholars, such as Bates [48], conceive of information abstractly as patterns of matter and energy, while others, such as Maksimov and Lebedev [49], frame it as an object with causal power over organisational behaviour. These definitional tensions have practical implications: if information is treated as a passive resource, its quality management is relegated to systems and infrastructure; if treated as an active agent shaping decisions, then quality management becomes inseparable from strategic leadership competencies. The present study adopts the latter perspective, arguing that information quality is not merely a technical concern but a strategic one that directly influences the calibre of decisions made at the formulation, implementation, and evaluation stages [50].

Knowledge is pragmatically defined as "a fluid combination of framed experience, values, contextual information, and expert insight that provides a framework for assessing and assimilating new experiences and information" [51]. Knowledge is defined as a "human or organisational asset allowing effective choices and action in context" in the standard for knowledge management systems [52]. In other words, knowledge is actualised and used in the minds of those who possess it, and in contrast to facts and information, it includes an element of judgment [51]. Buckland [53] suggests three primary applications for the word "information":

- ➢ Information may refer to the process of getting informed.
- ➢ Information can refer to knowledge that is shared, and
- ➢ Information can refer to things like data and documents.

According to Floridi [54], it is difficult to presume that a single idea of information could adequately account for all the different applications that may be performed. The quality of the information has been given much consideration in scholarly writing. The researchers examined the data's accuracy from several angles, which helped shed light on the topic and contributed to the main body of the study [55]. The most exhaustive study on the topic has been conducted in Management Information Systems and Information Management [56]. Around 1980, the notion of information as a product began gaining widespread popularity. This was because the principles of Total Quality Management (TQM) have always been applied to information quality [57]. "Covering all actions through which the needs and expectations of the customer and the objectives of the organisation are realised in a manner that is efficient and cost-effective" is how the concept of TQM is described [58]. The concept of a "product" derived from the data underlies the majority of the models presented in the academic research corpus.

According to Ridwan, Militina, and Achmad [59], quality information is defined as a consistent alignment between the information requirements and expectations of end-customers and knowledge workers to effectively meet either the knowledge worker's or end-commercial customers' or personal objectives. According to this conception, knowledge workers are office-based employees whose primary duty is to ensure the company runs efficiently and without disruption [60]. End customers are clients who buy a company's products or services directly from the company. They are also known as retail customers. According to Lillrank [61], the quality of information is still a "vaguely defined term." He has developed two distinct conceptions of information and, consequently, of its quality. One of these conceptions is that the quality of information can be measured by its accuracy. One of the guiding concepts is the "information as a deliverable" concept [62].

According to this theory, information is produced to satisfy requests that have not been clearly and concisely articulated. This occurs when information requirements evolve during ongoing discussion and exchange [61]. For example, in the tourism sector, situations like this occur frequently, especially when personnel, including tourism managers and travellers, are required to arrange their own lodging and transportation. It can be stated that the quality of the information being conveyed has improved when most people have no trouble understanding the information and when "its meaning can be assigned to it with a degree of agreement and in a way that is considered worthwhile." The second concept that Chang [63] discusses sees "information as an artefact," the quality of which is already established but must still be thoroughly characterised and described. In the accounting field, where each report's format is standard across the board, such situations occur regularly. If information is "communicated in such a way that the information receiver realises the aim of the sender," then the information is said to be of high quality in this context ("information-as-an-artefact").

In today's work environment, it is not unusual for many people to work together as a team to complete a single job, such as producing a paper or carrying out a project. Such collaboration is a defining feature of modern work environments. It is possible that navigating through situations like this might be rather tricky. Under these circumstances, the information needs are not entirely transparent; they must be identified through collaboration and communication. The idea of information as a deliverable is best suited to the work atmosphere in an office setting. By integrating the explanations offered by Lillrank [61] and situating them within the framework of the working environment, one might arrive at the following description of the quality of the information: The degree to which the information consistently corresponds to the information requirements and expectations of office employees in such a manner as to provide information that is easily comprehended and is viewed as beneficial for achieving business objectives is what is meant by the term the quality of the information.

It is important to note a limitation in the existing literature on information quality. The most comprehensive theoretical frameworks, as acknowledged by Ridwan et al. [59] and Lillrank [61], have been developed predominantly in management information systems and general organisational management contexts. Their application to strategic decision-making in construction has been largely assumed rather than empirically tested. Whereas Lillrank [61] distinguishes between 'information as a deliverable' and 'information as an artefact', the former is context-dependent, whereas the latter is format-standardised; construction environments typically operate across both modes simultaneously. Standardised contract documents coexist with highly contextual, project-specific information flows. This duality creates unique quality challenges that existing frameworks do not adequately address, reinforcing the need for construction-specific empirical investigation.

2.3. Information Used in Construction and Its Type

The construction process relies heavily on information, yet research quality in this domain is limited by Information and Communication Technology (ICT) systems that operate or administer this information [64,65]. Throughout building design and development, ICT usage has become widespread, with digital design tools largely replacing traditional manual sketching methods [66]. Dzokoto [67] notes that project failures predominantly stem from human behavioural factors. This insight suggests that human information behaviour should be a central research focus in construction; however, this area remains understudied.

Various scholars who have explored the informational aspects of construction have focused on supply chain dynamics, information flow, and certain elements of communication and knowledge management, including [68–70]. These investigations, however, insufficiently emphasise information quality, behavioural patterns of industry participants, and the critical value of information and its management within construction enterprises. Young and colleagues [71] distinguish between information's implicit attributes (the content itself) and its explicit attributes (the contextual environment in which information resides), noting that quality considerations permeate both dimensions.

These factors include quality, usability, currency, context, accuracy, availability, relevance, and accessibility [72]. According to Gerstberger and Allen [73], the only way to draw engineers to information sources and channels is not to improve the quantity or quality of the information library, but rather to bring the library to engineers themselves. This indicates an urgent need to provide information to actors in line with the quality of information they prefer. They emphasised that the quality of the channel and its accessibility are the most critical factors in determining the total amount of information used. According to the theory put forward by Gerstberger and Allen [73], gaining expertise with the utilisation of a known channel makes it more accessible. This is the foundation upon which push technology is built: information is sent to the user in response to a profile that describes their information wants and requirements. According to research conducted by KPMG and PMI [74], eight primary variables contribute to the failure of building projects. These causes include delays, inaccuracies in the estimating process, and failures in risk management.

In addition, businesses frequently experience performance issues with their subcontractors, as well as design flaws and omissions. According to the study's findings, delays account for 51 per cent of underperforming projects, bad estimates account for 50 per cent, and inadequate risk management systems account for 47 per cent. About 37 per cent of the issue is due to subcontractor performance, 20 per cent to a lack of available resources, 17 per cent to the impact of change on management teams, and 16 per cent to poor customer relations [75]. These issues result from interactions among players involved in project delivery and are a direct consequence of ineffective information management processes. Managing information in engineering organisations, particularly those involved in the construction industry, presents various issues. For instance, because of the intricate nature of construction, enormous quantities of information will likely be created, utilised, and transferred among the many project Experts [75].

To make important project decisions, the actors involved need access to project-specific information, such as design specifications, status reports, planning details, as-built information, and performance reports [76]. Similarly, a stakeholder may need specific information about the project's development. In addition, to be a successful project manager, one needs a solid understanding of the project's technical components and relevant information [77]. As a result, a significant amount of information is generated throughout the project delivery process, yet only a portion is recorded and utilised. This is because there are so many different competitors on the market [78]. When the information gathered is promptly presented in a well-structured, organised manner, it is clear that effective judgments may be made regarding the project [79]. This necessitates the establishment of channels through which users' information needs can be assessed and relevant data transmitted. This suggests that by specifying actors' information-seeking desires, suitable methods and techniques can be devised to support the successful collection and distribution of quality information tailored to the situation [80].

The foregoing review of information quality in construction reveals a persistent disconnect in the literature. At the same time, scholars such as Young et al. [71] and Gerstberger and Allen [73] have documented the role of information accessibility and channel quality in determining information use, these insights have rarely been connected to how strategic decisions are ultimately formulated, implemented, or evaluated at the organisational level. The KPMG/PMI [74] findings that delays (51%), poor estimation (50%), and inadequate risk management (47%) are the leading causes of project underperformance implicitly signal failures of information quality at the strategic level, yet the prior literature stops short of formalising this relationship. This study advances the field by explicitly positioning information quality not as a standalone variable, but as a foundational condition underpinning all three strategic decision-making processes examined in the conceptual framework. By doing so, it addresses the gap identified by Dzokoto [67] regarding the neglect of human information behaviour in construction research, while simultaneously extending the strategic management literature by grounding it in the operational realities of the New Zealand construction sector. It should be noted that information quality is not operationalised as a separate latent variable in the structural model tested in this study. Rather, this review is included to contextualise the importance of information-quality conditions to strategic decision-making in construction, consistent with the authors' prior empirical work on this relationship [45,55]. Readers seeking a direct quantitative test of the information quality–performance pathway are referred to that companion study. The structural model presented here focuses on the five constructs introduced in Section 3.

3. Hypotheses Development and Theories

Research in social and behavioural sciences requires establishing a logical or theoretical framework. This conceptual foundation explains relationships between key elements needed to address specific problems [81]. This research builds on theories that highlight how strategic decision-making affects construction business outcomes. The theoretical underpinnings include Ansoff's strategic success theory and the resource-based view approach.

Ansoff first proposed the strategic success formula in management, and it was later expanded by Ansoff and Donnel [82]. This concept suggests that superior organisational performance occurs when strategies adapt appropriately to environmental instability and when organisational capabilities align with the strategy's assertiveness [83]. Peak performance requires alignment between strategy aggressiveness and environmental turbulence, responsiveness capabilities that match strategic assertiveness, and mutually supportive organisational components [84]. This diagnostic approach helps organisations adjust their strategies and internal capacities to achieve future success [85].

The resource-based view theory, developed by Wernerfelt [86] and further elaborated by Barney [87], holds that a company's strategic direction arises from its resource portfolio [88]. This perspective maintains that organisational resources outweigh industry structure in determining competitive advantage [85]. An organisation's efficiency and effectiveness stem from its resources and capabilities. Competitive advantages and improved performance arise from organisational assets, including material, financial, informational, and human resources [89]. This theoretical approach suggests that strategic decisions in construction depend on available resources, which vary by organisational size, industry segment, and legal structure, ultimately influencing success rates. Consequently, stakeholder strategic decisions fundamentally strengthen construction organisations. The conceptual model illustrates the relationships among variables, showing them as independent and dependent factors.

The conceptual framework illustrated in Figure 1 is theoretically grounded in both Ansoff's strategic success theory and the resource-based view (RBV). However, the study's theoretical ambition extends beyond the application of these frameworks to a new empirical setting. Ansoff's theory proposes that superior organisational performance occurs when strategies appropriately adapt to environmental instability while organisational capabilities align with strategic assertiveness [82,90]. Prior applications of this theory in construction management have largely treated it as a prescriptive framework describing what firms should do rather than subjecting its predictions to rigorous quantitative testing across a representative industry sample [84,85]. This study advances that agenda by operationalising each phase of Ansoff's strategic cycle as a distinct measurable construct and testing its individual effects on performance, thereby moving from theoretical prescription to empirical verification.

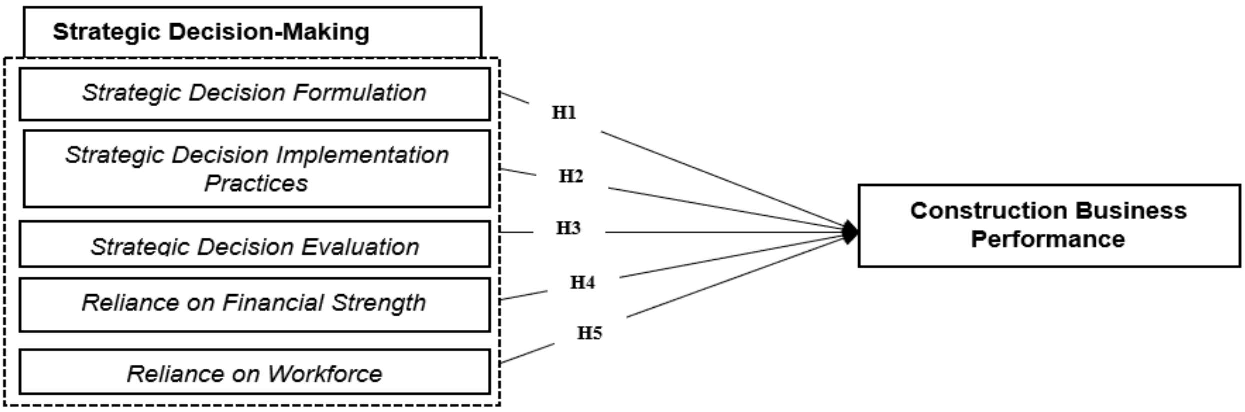

Figure 1. Conceptual Framework illustrating the hypothesised direct relationships between five independent constructs and the dependent variable Construction Business Performance (CBP).

Similarly, the RBV has been extensively cited in the construction management literature as a rationale for investing in human capital and financial resources [88,89]. Yet, studies rarely test whether these two resource categories exert equivalent or differential performance effects within the same model. By treating financial strength and workforce capability as separate constructs and estimating their independent path coefficients, this study provides a direct empirical test of the RBV's implicit assumption that all organisational resources contribute positively and significantly to performance. The theoretically important possibility that one resource category may be non-significant while another is not precisely the finding that moves a study beyond descriptive association-reporting toward genuine theoretical contribution. The conceptual framework is therefore not merely a visual summary of hypotheses, but a theoretically generative structure designed to produce findings that can confirm, qualify, or challenge established theoretical predictions in the specific context of New Zealand's construction industry.

The three strategic decision-making constructs SDF, SDIP, and SDEP are positioned as a theoretically coherent cluster based on Ansoff's strategic success theory [82,83], which conceptualises strategy as a cyclical process of formulation, execution, and review. Although these three constructs are conceptually related, they are treated as distinct latent variables rather than dimensions of a single construct, because each represents a qualitatively different type of organisational activity with separable performance consequences [42,44]. Strategic Decision Formulation captures the quality of goal-setting, environmental analysis, and strategic option generation. Strategic Decision Implementation Practices captures the effectiveness of translating formulated strategies into operational actions, resource allocations, and departmental directives. Strategic Decision Evaluation captures the rigour of ongoing performance monitoring, strategic review cycles, and corrective adjustment processes.

The two resource-based constructs, Financial Strength (FC) and Workforce Capability (RW), are theoretically grounded in the resource-based view [86,87], which posits that organisational resources constitute the foundational inputs to competitive advantage and performance. Financial Strength reflects the organisation's fiscal capacity, including liquidity, profitability, and investment capability, which enable the funding of strategic initiatives. Workforce Capability reflects the human capital available to the organisation, encompassing the skill levels, technical competencies, and experiential depth of its personnel. These two constructs are positioned alongside the strategic decision-making cluster to reflect the theoretical argument that resources and strategic processes jointly determine performance outcomes neither is sufficient alone [88,91].

Construction Business Performance (CBP), the dependent variable positioned on the right-hand side of the framework, is operationalised as a multidimensional construct capturing financial, operational, and stakeholder-related dimensions of organisational success [7,22]. This multidimensional approach deliberately moves beyond single-metric performance assessment, such as profitability alone, to reflect the complex, interrelated character of construction firm performance, as described in the broader performance measurement literature [12,24]. The framework thus positions CBP as the integrative outcome through which the effects of both strategic decision quality and resource endowment are ultimately expressed and measured.

H1. *Strategic decision formulation exerts a positive effect on construction business performance.*

Ansoff's strategic success theory identifies responsiveness capability, the organisation's capacity to translate strategic intent into operational reality, as the second critical component of the performance-generating alignment mechanism [82,91]. Strategic Decision Implementation Practices operationalise this responsiveness capability: they represent the organisational processes, structures, and behavioural norms through which formulated strategies are converted into resource allocations, role assignments, departmental directives, and performance targets [92,93]. The theory predicts a positive direct effect of implementation quality on performance because even well-formulated strategies fail to generate the environmental alignment that drives superior outcomes if execution is fragmented, inconsistent, or disconnected from strategic intent [84,85]. In project-based construction organisations, where corporate strategy must cascade through multiple contracting tiers, functional departments, and temporary project teams, the implementation challenge is structurally more demanding than in stable manufacturing or service environments [39,40]. Effective implementation in this context requires not only hierarchical directive clarity but also the capacity to engage every organisational layer in the strategic mission, creating shared accountability, removing structural impediments, and enabling adaptive responses to the site-level contingencies that inevitably arise during project execution [94,95]. The RBV further reinforces this hypothesis by predicting that organisations with superior implementation capabilities themselves, a form of organisational capability that is valuable, rare, and difficult to imitate, will consistently outperform those lacking such capabilities [87,89].

H2. *Strategic decision implementation practices exert a positive effect on construction business performance.*

Ansoff's strategic success theory treats ongoing evaluation as the feedback and recalibration mechanism through which the strategy environment alignment that drives performance is detected, maintained, and restored when conditions shift [82,83]. Strategic Decision Evaluation operationalises this mechanism: it captures the rigour with which organisations monitor whether implemented strategies are achieving intended performance outcomes, challenge their underlying assumptions, and make evidence-based adjustments when deviations occur [95,96]. The theory predicts a positive direct effect of evaluation quality on performance because organisations that lack systematic evaluation processes are unable to distinguish successful strategies from unsuccessful ones, cannot recalibrate their environmental alignment in response to market changes, and progressively accumulate strategic drift that erodes performance over time [84,97]. In the New Zealand construction context, where regulatory environments, material costs, client requirements, and labour market conditions shift frequently across project cycles, the capacity for continuous strategic self-assessment is especially critical for maintaining competitive positioning [43,91]. Evaluation is thus theorised not as a retrospective administrative function but as a forward-looking, performance-sustaining competency, the mechanism through which the dynamic, cyclical character of Ansoff's alignment model is operationally maintained [82,97].

H3. *Strategic decision evaluation exerts a positive effect on construction business performance.*

The RBV predicts that tangible financial resources constitute a foundational source of competitive advantage and performance in capital-intensive industries [86,87]. Financial Strength operationalises this prediction by capturing the organisation's fiscal capacity across dimensions of liquidity, profitability, investment capability, and financial resilience. The theory's VRIN criteria explain why financial strength predicts performance in construction specifically: financial capacity is valuable because it enables the funding of strategic initiatives, the absorption of project cost overruns, and the maintenance of operations through cash flow cycles that are structurally volatile in project-based environments [98,99]; it is relatively rare among smaller construction firms, where undercapitalisation is a persistent structural constraint [99,100]; and it is imperfectly imitable because financial reserves accumulate through sustained profitability and investor confidence that cannot be quickly replicated by competitors [87,89]. Beyond resource possession, Ansoff's theory provides a complementary rationale: financial strength enables the implementation of strategically assertive responses to environmental turbulence. Firms without adequate financial resources cannot execute the strategically aggressive actions identified by Ansoff's alignment mechanism as necessary for superior performance in dynamic environments [101]. The joint prediction of both theories therefore converges on a positive direct effect: financial strength not only endows construction firms with a VRIN-consistent competitive asset but also expands the strategic action space available to decision-makers seeking environmental alignment.

H4. *Financial strength exerts a positive effect on construction business performance.*

The RBV's VRIN framework predicts that workforce capability encompassing the skill levels, technical competencies, and experiential depth of construction personnel should positively predict organisational performance because skilled human resources in construction are valuable, relatively scarce, difficult to imitate through competitor recruitment, and non-substitutable by technological solutions in many trade-specific and project management functions [87,89]. Construction organisations whose workforces possess superior technical capabilities, safety competencies, and project management expertise are theorised to achieve higher productivity, fewer quality defects, more effective risk management, and stronger client relationships, each of which constitutes a direct performance advantage [102,103]. The labour dynamics of the construction sector reinforce this prediction: workforce skill gaps create measurable pressures on project timelines, cost outcomes, and operational efficiency that propagate across project delivery systems [103,104]. Ansoff's theory further supports this hypothesis through its responsiveness capability construct: workforce capability is a key component of organisational responsiveness, as Ansoff identifies it as necessary for strategy execution. Without competent personnel to implement strategic directives at the operational level, the alignment between strategy aggressiveness and environmental turbulence that drives performance cannot be realised [82,83]. The hypothesis, therefore, receives theoretical support from both frameworks, predicting a positive direct effect of workforce capability on construction business performance, with the caveat that this effect may be moderated by the quality of the strategic decision-making processes through which workforce resources are deployed [88,89].

H5. *The workforce exerts a positive effect on construction business performance.*

The operationalisation of each construct in this study reflects deliberate theoretical grounding rather than arbitrary item selection. Strategic decision formulation, implementation, and evaluation were operationalised as distinct, but interrelated constructs based on the established three-phase strategic management cycle [42,44], consistent with Ansoff's strategic success theory, which posits that each phase makes a separable contribution to organisational performance [82,83]. Treating these as separate latent variables rather than collapsing them into a single 'strategic decision-making' construct allows for more precise estimation of their individual effects, a methodological choice supported by PLS-SEM's capacity to handle complex multi-construct models. Financial strength and workforce capability were operationalised as resource-based constructions in line with the RBV theoretical lens [86,87], reflecting the argument that tangible (financial) and human (workforce) resources represent distinct resource categories with potentially divergent performance effects. This distinction is theoretically important: prior construction management research has tended to conflate resource availability with resource quality [102,104], an oversimplification this study addresses by treating financial strength and workforce capability as separate predictors. Construction business performance was operationalised as a multidimensional outcome construct, capturing financial, operational, and stakeholder-related dimensions of organisational success, consistent with calls in the literature to move beyond single-indicator performance measurement in construction [7,22,28].

4. Materials and Methods

This section outlines the quantitative research design. Survey methodology was selected for its effectiveness in exploring correlational relationships [105]. This approach enables the systematic collection of participant perspectives, beliefs, and experiences related to the research questions [106]. We designed our survey instrument specifically to investigate connections between strategic decision-making processes and construction business outcomes in the New Zealand context.

This study used an online survey distribution method, which offered several methodological advantages. This approach ensured respondent confidentiality and anonymity [107] while simultaneously enhancing data collection efficiency and response timeliness [108]. The survey captured detailed information on organisational characteristics, decision-making frameworks, and performance indicators in New Zealand's construction sector. This allowed us to establish a comprehensive profile of current practices and performance standards across the industry.

This study employed Partial Least Squares Structural Equation Modelling (PLS-SEM) with SmartPLS4. PLS-SEM was selected for its capacity to simultaneously model multiple causal relationships among latent constructs while accommodating smaller sample sizes. This approach is particularly appropriate for our research context, given the complexity of strategic decision-making processes and the challenges of obtaining large samples from construction industry executives.

4.1. Questionnaire Design

This study employed rating scales, a widely established approach in quantitative research [109]. We carefully selected response ranges appropriate for our research context, considering measurement precision and participant response tendencies [110]. The research employed a structured, self-administered online questionnaire designed by the researcher to maximise participant engagement. We prioritised clarity and logical flow throughout the instrument, implementing question sequencing principles based on the methodological framework of M. Saunders, Lewis, and Thornhill [105]. This systematic arrangement facilitated natural progression through the survey content. The instrument concluded with demographic items for characterising the sample. Before full deployment, we conducted both pre-testing and pilot testing to refine question sequencing and overall instrument performance.

The measurement scales used in this study were adapted from validated instruments in the strategic management and construction management literature. Strategic Decision Formulation (SDF) items were adapted from Ansoff and McDonnell [82] and subsequent empirical operationalisations of strategic planning processes [43,44]. Strategic Decision Implementation Practices (SDIP) items drew from established frameworks on strategy execution and operational alignment [92,93]. Strategic Decision Evaluation (SDEP) items were adapted from the strategy assessment literature [95,96], while Financial Strength (FC) items were grounded in organisational financial performance measurement scales [98,99]. Workforce Capability (RW) items were adapted from labour productivity and human capital constructs in construction management research [102,103]. Construction Business Performance (CBP) items were adapted from multidimensional performance measurement frameworks applicable to the construction sector [7,22]. The complete questionnaire comprised 45 items and was designed to be completed in approximately 10–15 min. To reduce common method bias and enhance scale precision, different Likert response formats were applied across construct types: a 1–7 scale was used for endogenous variables (CBP), while 1–5 and 1–7 scales were applied to exogenous variables, in line with established recommendations for reducing mono-method artefacts in self-report survey research [103]. All items were written in clear, concise language and reviewed during pre-testing to ensure respondent comprehension and terminological consistency across construction industry contexts.

4.2. Pre-Test

Before the pilot study, the research instrument's content validity was assessed through a pre-test. According to Yin [111], content validity is characterised as the extent to which an instrument displays its purpose contained in particular ideas. Moreover, content validity includes consulting a limited range of experts or potential committees to obtain their viewpoints on the wording and phrasing of survey items [112,113]. This ensures that every item in the instrument reflects each variable's concept. The pre-test was conducted with the participation of three academics, two PhD students, and one language specialist. The pre-test informed the researchers of potential difficulties arising from the questionnaire design. This included discussion and conversations with informants (i.e., academics, PhD students, and language specialists were the criteria for selecting experts) to evaluate the specific elements of the questions: (1) if any questions have to be included or excluded from the questionnaire, (2) if the survey questionnaire is acceptable, (3) if the correct questions are being asked, and (4) if the questions are simple to understand. The feedback was utilised to fine-tune the survey instrument's measurement items.

4.3. Pilot Study

A pilot test was conducted after the questionnaire was revised during the pre-testing phase to evaluate the survey's performance in an actual study and improve its internal validity. According to van Teijlingen and Hundley [114], a pilot study is a scaled-down version of a smaller-scale study or a feasibility study. It is an essential step in determining the success of a complete study. There are a few options for determining the sample size for a pilot study. Hill [115] suggested that a sample size of 10 to 30 respondents is sufficient in these circumstances. This sample size is large enough to test the null hypothesis but small enough to ignore insignificant treatment effects. According to Hair Jr et al. [112], the minimum acceptable value of the coefficient alpha is 0.60 to 0.70. Likewise, Flynn et al. [116] indicated that a coefficient alpha of 0.6 is adequate to ensure the reliability of study variables. The pilot study commenced in June and August 2023, and the process lasted about 9 weeks.

To achieve an adequate response rate for the pilot study, 60 copies of the questionnaire were randomly distributed to stakeholders in New Zealand. Out of the 60 distributed copies, 9 were not returned, while 51 were successfully received and collected. The volunteer Experts were asked to estimate the time required to complete the pilot survey to verify the questionnaire's clarity, reliability, validity, and comprehension. They also shared whether they found the directions easy to follow and the ambiguous questions. Other suggestions were welcome, including the wording of the questionnaire. There were several suggestions for improving the order of the questions and the phrasing of two of them. Once the data from 51 respondents were received, SmartPLS 4 was used to assess the measurement model. Outer loading, AVE, Cronbach's alpha, and composite reliability were examined.

According to Hair Jr et al. [112], for interpretive purposes, outer loading of 0.50 and higher is regarded as significant. As for Cronbach's alpha and composite reliability, following Hair Jr et al. [112], values of 0.60 and 0.70 are acceptable for an exploratory study. A value of 0.50 or higher shows sufficient convergent validity [112]. Finally, construct dependability was assessed using Cronbach's Alpha, which indicated satisfactory results. Based on this result, the preliminary survey appears to have satisfactory construct validity. Table 1 indicates that the factor loading for all constructs ranged from 0.523 to 0.869. Based on the model's results, all AVEs were above the 0.50 threshold. Therefore, the questionnaire can be distributed to the responder with confidence. The input received was incorporated into the final versions of the survey questionnaire.

Outer loadings indicate the strength of the relationship between each indicator and its latent construct; values $\geq$0.50 are considered acceptable for exploratory research [112]. Cronbach's Alpha and Composite Reliability values $\geq$0.70 indicate satisfactory internal consistency [112]. AVE values $\geq$ 0.50 confirm convergent validity, indicating that each construct explains more than half of the variance in its indicators. All constructs met or exceeded these thresholds, confirming the measurement model's adequacy for full-scale data collection.

Table 1. Convergent Validity.

Construct	Range of Outer Loading	Cronbach's Alpha	Composite Reliability	(AVE)
CBP	0.523–0.794	0.773	0.811	0.575
FC	0.680–0.869	0.723	0.871	0.534
RW	0.678–0.834	0.878	0.886	0.572
SDEP	0.790–0.743	0.812	0.892	0.556
SDF	0.610–0.822	0.867	0.862	0.511
SDIP	0.712–0.734	0.812	0.852	0.523

Note: Strategic Decision Formulation (SDF), Strategic Decision Implementation Practices (SDIPs), Strategic Decision Evaluation (SDE), Reliance on Financial Strength (FC), Reliance on Workforce (RW), Construction Business Performance (CBP).

4.4. Population and Sample

The population is the conceptual idea of a large proportion of cases from which a researcher takes a sample, which is then applied to the outcomes of a study. In contrast, sample size is defined as a small set of cases selected from a larger pool by a researcher and generalised to the population [117]. All persons or objects have a common feature, attribute, or personality within a population. One of the most critical aspects of the study is the population. The target population is the entire set of people or objects on which researchers aim to conclude.

This research examines organisational-level dynamics, drawing on data from diverse construction firms across New Zealand. The study targeted the substantial construction sector in the country, which comprises over 70,000 registered companies according to industry statistics. We specifically sought participation from decision-makers occupying mid- to executive-level leadership positions, including managers, directors, and technical leaders, who actively participate in strategic planning processes within their firms. This sampling approach targeted professionals who directly influence organisational strategy and can implement evidence-based improvements, aiming to identify key performance drivers in the New Zealand construction sector.

Sampling is a research strategy for selecting representative participants from a defined population [118]. This study employed voluntary sampling, a non-probability procedure in which participants self-select into the study based on their own willingness to participate [119,120]. While this approach offered practical advantages for accessing construction professionals in leadership positions across New Zealand's geographically distributed industry, particularly given the absence of a comprehensive, accessible sampling frame for the target population, it introduces important limitations that must be explicitly acknowledged. Voluntary sampling does not guarantee that the sample is representative of the broader population of New Zealand construction organisations, because participation is systematically more likely among professionals who are more engaged with strategic planning issues, more affiliated with formal industry networks, or more comfortable with digital survey platforms [105,106]. Firms that are less formally managed, less digitally engaged, or operating in regions with weaker industry association presence are therefore likely to be underrepresented in the resulting sample. This self-selection mechanism means that the findings should be interpreted as reflecting the strategic decision-making practices and performance dynamics of construction professionals who are relatively engaged and network-connected, rather than as a portrait of the New Zealand construction sector as a whole. The voluntary sampling design is appropriate for the exploratory and theory-testing objectives of this study, which aim to establish whether theorised relationships exist and to estimate their direction and magnitude, but does not support strong claims of population-level representativeness or unrestricted cross-contextual generalisability [112]. Future research employing stratified random sampling or quota-based approaches would be better positioned to produce findings with broader inferential reach.

This study determined appropriate sample representation by ensuring proportional distribution across relevant industry segments. To establish a methodologically sound sample size, we conducted power analysis using specialised statistical software that accounts for multiple analytical parameters. This approach allowed us to determine the minimum required number of participants based on anticipated effect sizes, desired confidence levels, statistical power requirements, and the complexity of our predictive model [119,120]. The analysis confirmed that our final sample of 102 respondents provided sufficient statistical power for robust PLS-SEM analysis, accounting for both measurement precision and model complexity. This sample size determination follows established methodological guidelines for structural equation modelling research while ensuring practical feasibility within the New Zealand construction sector.

4.5. Data Collection Method

This research adopts an objectivist epistemological stance [121] and employs systematic data-collection methods to gather industry perspectives. The field research spanned five months from August through December 2023 and used structured questionnaires with standardised response options. This approach was selected for capturing consistent, comparable data on industry practices and decision-making patterns across organisations.

To determine the appropriate sample size for this study, we conducted a comprehensive power analysis using G*Power 3.1. The analysis incorporated multiple critical parameters: a statistical power of 0.95 (exceeding the conventional 0.80 threshold), significance level of 0.05, medium effect size ($f^2 = 0.15$), and five predictor variables in our structural model. These parameters were selected following established methodological guidelines for PLS-SEM analysis [122].

The power analysis indicated that a minimum sample size of 92 respondents would be required to detect the specified effect size with 95% confidence. Our final sample of 102 construction industry experts not only satisfied this minimum threshold but also provided additional statistical power for robust analysis. To further validate our sample size adequacy, we implemented the more rigorous assessment procedure recommended by Grover et al. [123], which accounts for model complexity in structural equation modelling. This secondary validation confirmed that our sample of 102 respondents was sufficient for reliable estimation of path coefficients in our PLS-SEM model, ensuring statistical conclusion validity while balancing practical data-collection constraints within the specialised population of construction industry professionals.

We distributed a web-based questionnaire to construction professionals through a multi-channel recruitment strategy. Participants were identified through key industry associations, including the New Zealand Institute of Building, Infrastructure New Zealand, and the National Association for Civil Construction. Additional recruitment occurred through professional networks and digital platforms. We established initial contact through personalised electronic communications that included study details, ethical considerations, and participation instructions. The digital instrument was hosted on a secure enterprise survey platform that ensured data integrity throughout the collection process.

This digital approach offered several methodological advantages [124]. It eliminated geographical constraints, reduced resource requirements, provided respondents with scheduling flexibility, and streamlined data processing. The data collection protocol included initial invitations followed by a two-week response window. To optimise participation rates, we implemented a strategic follow-up protocol targeting non-respondents during the third week of each collection cycle. This comprehensive approach yielded a representative dataset while maintaining methodological rigour.

5. Results

5.1. Demographic Distribution of the Respondents

The participant demographic analysis presented in the following table provides insights into the study's respondents. Demographic data were collected to explore variations across key professional attributes—including organisational roles, individual profiles, and regional distribution—following established research methodologies [113,125]. Of the distributed research instruments, 102 valid survey responses were processed and incorporated into the analytical framework. While this sample meets the statistical power requirements for PLS-SEM analysis [122,123], it provides a relatively modest empirical foundation for broad claims about the New Zealand construction sector. The findings derived from this sample should therefore be read as providing theoretically grounded, directionally informative evidence about the relationships between strategic decision-making and business performance among the types of construction organisations represented in the sample, predominantly mid-sized, formally managed firms affiliated with industry associations rather than as definitive sector-wide estimates. With this interpretive boundary established, the demographic profile of respondents is presented below to allow readers to assess the characteristics of the sample against their own contextual knowledge of the sector. Table 2 presents the demographic profile of the respondents.

Table 2. Profile of Respondents.

Profiles Items	Frequency	Percentage%
1. Position in Organisation		
Project Manager	14	13.73
Project Engineer	15	14.71
Executive Director	30	29.5
Contract Manager	09	8.8
Site Manager/Engineer	05	4.9
Quantity Surveyor/Estimator	02	1.96
Marketing Manager	04	3.9
General Manager	18	17.6
Others	05	4.9
2. Company Project Specialisation		
Non-Residential Buildings	17	16.7
Residential Buildings	38	37.3
Commercial Buildings	18	17.6
Infrastructure	24	23.5
Other	05	4.9
3. Number of Direct Workers		
0–25	07	6.9
26–50	21	20.6
51–100	41	40.19
Above 100	33	32.3
Total	102	100

Several sampling characteristics of the final dataset warrant explicit acknowledgement, as they directly affect the interpretation and generalisability of the findings. The sample contains a higher proportion of medium-sized enterprises (40.19%, with 51–100 workers) than industry statistics suggest is representative of the New Zealand construction sector, where smaller firms with fewer than 25 workers numerically dominate. Residential building specialists account for 37.3% of respondents, somewhat exceeding their proportional share of the industry. Executive Directors and General Managers together represent a substantial portion of respondents, meaning that the sample reflects the strategic perspectives of relatively senior, formally positioned professionals rather than the broader range of decision-making roles present across the sector. These characteristics collectively suggest that the findings are most appropriately interpreted as reflecting the strategic decision-making dynamics of established, mid-sized construction organisations with formalised management structures, rather than being generalised to small operators, very large conglomerates, or organisations with less formalised governance arrangements. The non-probability voluntary sampling method means that statistical inference to the broader population cannot be made with the same confidence as would be possible from a probability-based sample [118,119]. Readers are therefore encouraged to treat the reported path coefficients and significance levels as indicative of the direction and relative magnitude of theorised relationships within the study's empirical context, rather than as precise population-level parameter estimates.

5.2. Common Method Bias

Common method bias (CMB) arises when predictor and outcome variables are collected from the same source using the same instrument at the same time, creating the risk that observed construct associations reflect shared method variance rather than genuine relationships [126,127]. In self-report survey research of the kind employed in this study, CMB is a structural concern that cannot be fully eliminated through procedural or statistical remedies alone. Its potential influence on the reported findings must be explicitly acknowledged and critically evaluated rather than dismissed based on a single diagnostic test [128].

The susceptibility of the constructs in this study to CMB warrants specific attention. The predictor constructs Strategic Decision Formulation (SDF), Strategic Decision Implementation Practices (SDIP), Strategic Decision Evaluation (SDEP), Financial Strength (FC), and Workforce Capability (RW), and the outcome construct Construction Business Performance (CBP) were all assessed through perceptual ratings provided by the same respondent at the same time. Because respondents evaluated both their organisation's strategic decision-making quality and its performance outcomes, there is a risk that respondents who perceived their organisations as performing well may have systematically rated their strategic decision-making processes more favourably or vice versa, producing inflated associations between predictor and outcome constructs that exceed the true population-level relationships. This consistency bias is particularly concerning for constructs such as SDF, SDIP, and SDEP, where respondents are effectively evaluating their own or their organisation's decision-making quality, creating conditions for socially desirable responding and self-serving attribution that can artificially strengthen observed path coefficients.

To assess the extent of CMB, this study employed the full collinearity variance inflation factor (VIF) test recommended by Kock and Lynn [128] and Kock [129]. This procedure regresses all model variables onto a common latent factor and examines whether VIF values exceed 3.3, above which CMB is considered a significant concern. The analysis produced VIF values ranging from 2.112 to 2.542 across all constructs (Table 3), all of which fell below the 3.3 threshold, providing initial statistical evidence that common method bias did not substantially distort the structural relationships in this model.

Table 3. Full Collinearity Testing.

CBP	FC	RW	SDEP	SDF	SDIP
2.123	2.542	2.321	2.454	2.112	2.398

However, the limitations of this diagnostic approach must be acknowledged. The full collinearity VIF test is one of several available CMB diagnostics, and its exclusive use may mean that alternative sources of method variance remain undetected [130]. Harman's single-factor test, the marker variable technique, and confirmatory factor analysis approaches to CMB assessment each capture different facets of method variance that the VIF test does not address [131,132]. The absence of a single dominant factor in an exploratory factor analysis and the logic underlying Harman's test were not formally reported in this study, which represents a gap in the CMB diagnostic coverage. Furthermore, statistical tests for CMB can indicate whether bias is severe enough to invalidate the measurement model, but they cannot confirm that bias is absent [133,134]. The VIF values below 3.3 should therefore be interpreted as evidence that CMB is unlikely to be a dominant distorting influence in this study, not as evidence that it is absent.

5.3. Common Method Variance

When a single informant data source is used, common method variance (CMV), also known as mono-method bias, may be introduced into research studies [130,131]. According to the definition, "variance due to the measuring method rather than the concept of interest" is what is meant [131]. For the most part, experts have agreed that "common method variance" is a significant concern for researchers who use self-report surveys [32,131,133]. Podsakoff argued that "common method bias inflates associations between variables" in the process of self-reporting variables. This study included a wide range of practical options for mitigating the effects of CMV [131,134]. First, respondents were informed that their responses and identities would remain anonymous throughout the research. Second, all questionnaire items were clearly, accurately, and concisely written, further strengthening the questionnaire. The scale items were also improved to reduce method biases in this study.

This was done by circumventing vague wording in the questionnaire and using different Likert scales (1–7) for endogenous variables (CBP). In contrast, Likert scales of 1–5 and 1–7 were used for exogenous variables, consistent with the scale specifications described in Section 4.1 above [135]. All questionnaire items were written in straightforward, precise, and brief language to enhance scale items. In addition to the methodological treatments discussed above, Kline [136] asserts that the presence of CMV in a model may be determined by the model's inability to establish discriminant validity in the first place. Low discriminant validity indicates that all observable variables measure a single domain of the data collection process. These analyses conclude that this investigation did not detect a significant quantity of CMV. Briefly stated, the overall measurement model evaluations clearly signal that all the validity and reliability requirements are appropriate and acceptable. As a result, the structural model could be quantified with confidence.

5.4. Measurement Model Assessment

Rigorous methodological validation was implemented to substantiate the research's empirical findings through a comprehensive measurement assessment approach. Theoretical construct validation serves as a critical mechanism for ensuring that research instruments accurately capture the intended conceptual dimensions [137]. Inadequate validation procedures can potentially undermine the integrity of research outcomes [138].

The analytical framework incorporated two pivotal validity assessment techniques: convergent and discriminant validity metrics. These complementary approaches provide a robust mechanism for examining the precision and distinctiveness of measurement constructs. Before the detailed analysis, a theoretical measurement framework (Figure 2) was developed to guide the systematic evaluation of research instruments.

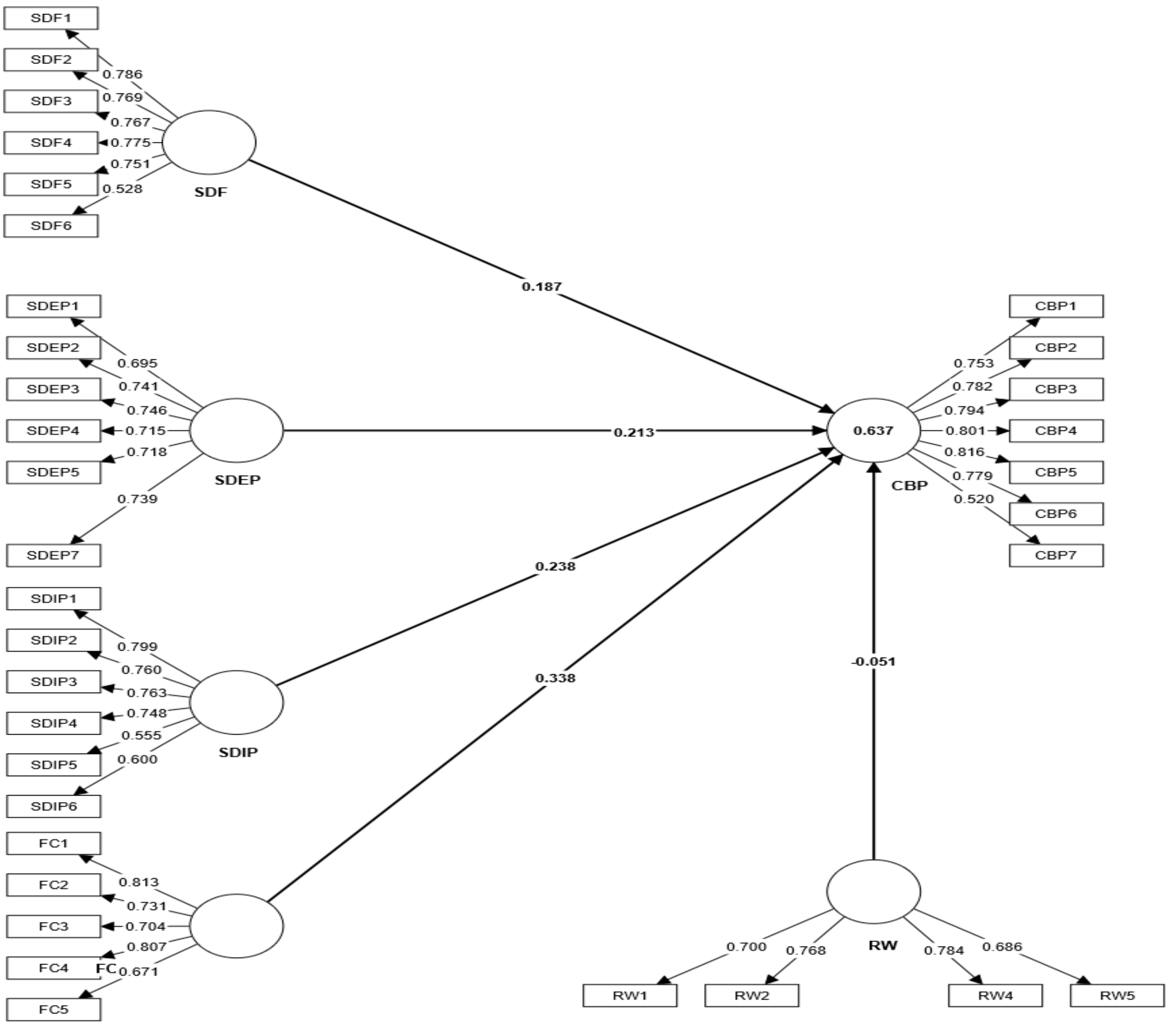

Figure 2. PLS-SEM Path Model generated using SmartPLS 4.

The validity assessment employed a multifaceted approach to validate measurement precision, utilising key statistical indicators to examine construct reliability. Specifically, the research methodology incorporated three critical metrics to ensure robust analytical validation. Outer loadings were applied to examine the distribution of variances across each construct, providing insights into the measurement model's structural integrity [139]. The analysis systematically evaluated indicator reliability using average variance extracted (AVE), a comprehensive measure of the measurement model's explanatory power. Complementing this approach, composite reliability metrics were used to assess the internal coherence of research components and their interrelationships. The detailed findings of this rigorous validation process are comprehensively documented in Table 4.

Table 4. Convergent Validity.

Item Code	Outer Loading	Cronbach's Alpha	CR (rho_a)	CR (rho_c)	(AVE)
CBP1	0.753	0.871	0.881	0.902	0.571
CBP2	0.782				
CBP3	0.794				
CBP4	0.801				
CBP5	0.816				
CBP6	0.779				
CBP7	0.520				
FC1	0.813	0.716	0.722	0.824	0.541
FC2	0.731				
FC3	0.704				
FC4	0.807				
FC5	0.671				
RW1	0.700	0.800	0.808	0.863	0.558
RW2	0.768				
RW4	0.784				
RW5	0.686				
SDEP1	0.695	0.821	0.822	0.870	0.527
SDEP2	0.741				
SDEP3	0.746				
SDEP4	0.715				
SDEP5	0.718				
SDEP7	0.739				
SDF1	0.786	0.825	0.831	0.874	0.540
SDF2	0.769				
SDF3	0.767				
SDF4	0.775				
SDF5	0.751				
SDF6	0.528				
SDIP1	0.799	0.804	0.828	0.857	0.504
SDIP2	0.760				
SDIP3	0.763				
SDIP4	0.748				
SDIP5	0.555				
SDIP6	0.600				

CBP = Construction Business Performance; FC = Financial Strength; RW = Workforce Capability; SDEP = Strategic Decision Evaluation; SDF = Strategic Decision Formulation; SDIP = Strategic Decision Implementation Practices. CR (rho_a) = composite reliability based on the factor loading magnitudes; CR (rho_c) = composite reliability based on the squared factor loadings. Both CR indices are reported to provide a more complete picture of internal consistency, as rho_c is known to be an upper-bound estimate while rho_a provides a more conservative assessment [140]. Item CBP7 (outer loading = 0.520) and SDF6 (outer loading = 0.528) were retained in the model as their loadings marginally exceeded the 0.50 threshold acceptable in exploratory structural modelling [112], and their removal did not meaningfully improve AVE values.

An advanced analytical approach was implemented to evaluate the discriminant validity (DV) of the research constructs, utilising the heterotrait–monotrait ratio of correlations (HTMT) methodology [140]. This sophisticated statistical technique provides a robust means of assessing the distinctiveness of research constructs, as recommended by leading methodological experts [140].

The discriminant validity assessment followed established validation criteria, with specific thresholds defined to ensure construct independence. Methodological guidelines suggest maintaining HTMT values within prescribed limits, specifically not exceeding 0.85 or 0.90 [141,142]. Upon comprehensive examination, as depicted in Table 5, the analysis revealed no instances violating these critical thresholds. The statistical evaluation demonstrated that values remained below the potentially problematic 0.95 benchmark. Consequently, the research constructs exhibited acceptable discriminant validity, confirming the methodological rigour of the analytical framework.

Table 5. Discriminant Validity: Heterotrait–Monotrait Ratio Statistics.

Items	CBP	FC	RW	SDEP	SDF	SDIP
CBP						
FC	0.549					
RW	0.763	0.759				
SDEP	0.804	0.588	0.586			
SDF	0.814	0.577	0.635	0.851		
SDIP	0.810	0.593	0.687	0.837	0.826	

Values in the matrix represent Heterotrait-Monotrait (HTMT) ratios of correlations between construct pairs. HTMT values below 0.85 provide strong evidence of discriminant validity; values below 0.90 are considered acceptable [140,142]. All HTMT values in this study fall below the conservative 0.85 threshold, except for SDF-SDIP (0.826) and SDEP–SDIP (0.837), which remain below 0.90 and thus within acceptable bounds. The slightly elevated values among these three strategic decision-making constructs are theoretically expected, given their conceptual proximity within the strategy process cycle [42,82], and do not indicate a failure of discriminant validity. Empty cells represent the construct's self-correlation, which by definition equals 1.00 and is therefore omitted.

5.5. Collinearity Statistics (VIF)

Examining the intricate relationships between research variables requires careful evaluation of potential inter-variable dependencies, a critical consideration in advanced statistical modelling [143]. Complex statistical interactions can significantly impact the precision of analytical estimates, potentially compromising the reliability of research findings [112].

The investigation employed Variance Inflation Factors (VIF) as a robust diagnostic tool to assess potential multivariate dependencies among exogenous constructs. Methodological guidelines suggest maintaining VIF values within a threshold that ensures statistical integrity [112,144]. It is important to distinguish these inner-model VIF values from the full collinearity VIF values reported in Section 5.2. The full collinearity VIFs (Table 3; range: 2.112–2.542) were computed to diagnose common method bias across all model constructs using the procedure recommended by Kock and Lynn [129]. The inner-model VIFs reported here (Table 6) serve a different purpose: they assess whether the exogenous predictor constructs are sufficiently independent to support unbiased path coefficient estimation in the structural model. Both analyses apply the same 3.3 threshold but address distinct methodological concerns. Utilising SmartPLS 4 for comprehensive analysis, the research systematically quantified potential collinearity across model variables. Examination of the multicollinearity assessment, detailed in Table 6, revealed VIF values ranging between 1.580 and 3.301. Four of the five predictors fall comfortably below the threshold; the interpretation of SDEP's marginal exceedance is discussed in the table note below.

5.6. Structural Model Assessment: Hypothesis Testing

Following rigorous measurement model validation, the research methodology progressed to hypothesis testing through advanced statistical techniques [145,146]. A sophisticated bootstrapping approach was implemented using Smart-PLS, employing a robust 5000-iteration sampling strategy with a significance threshold of 0.05. The analytical framework is centred on evaluating standardised path coefficients to examine the intricate relationships among critical research variables [146]. Recognising that statistical correlation does not inherently imply causation, the research design incorporated a comprehensive analysis of interaction effects to ensure methodological precision [147]. Adhering to established methodological guidelines [125], hypothesis validation criteria were defined:

https://doi.org/10.3390/buildings16101867

statistical significance was determined by t-values exceeding 1.645 in a one-tailed test, complemented by a p-value threshold of 0.05. The comprehensive findings of this nuanced hypothesis-testing approach are systematically illustrated in Figure 3 and detailed in Table 7.

Table 6. Inner VIF values.

Items	VIF
FC -> CBP	1.580
RW -> CBP	1.769
SDEP -> CBP	3.301
SDF -> CBP	3.195
SDIP -> CBP	3.188

VIF = Variance Inflation Factor. Values represent the inner-model collinearity statistics for each predictor construct relative to the dependent variable CBP. Methodological guidelines for PLS-SEM recommend that inner-model VIF values remain below 3.3 to confirm that multicollinearity does not compromise path coefficient estimates [112,143]. Four of the five predictors satisfy this criterion comfortably: FC (1.580), RW (1.769), SDIP (3.188), and SDF (3.195). The VIF for SDEP (3.301) marginally exceeds the 3.3 threshold by 0.001 and therefore warrants a cautionary note. This marginal exceedance is attributable to the theoretical proximity of SDEP with the other two strategic decision-making constructs (SDF and SDIP), which share conceptual overlap within Ansoff's strategy process cycle [82,83]. Taken in context, this near-threshold value is unlikely to meaningfully distort the SDEP path coefficient estimate; however, readers should interpret the SDEP finding with this minor collinearity consideration in mind. Future studies with larger samples may consider parcelling the three strategic constructs or testing alternative model specifications to confirm the robustness of this finding.

Table 7. Summary of Hypotheses Testing.

Hypotheses	Path	Std. Beta	Std. Error	t-Value	Bias	Confidence Interval		Decision
						5.00%	95.00%	
H1	SDF -> CBP	0.187	0.186	2.509	0.001	0.071	0.318	Supported
H2	SDIP -> CBP	0.238	0.248	3.039	0.010	0.104	0.359	Supported
H3	SDEP -> CBP	0.213	0.204	2.962	0.008	0.095	0.330	Supported
H4	FC -> CBP	0.338	0.333	3.040	0.005	0.156	0.519	Supported
H5	RW -> CBP	−0.051	−0.039	0.704	0.012	−0.199	0.047	Not Supported

Note: ** Significant at 0.05 (p-value), ** significant at 1.65 (t-value). Note: Strategic Decision Formulation (SDF), Strategic Decision Implementation Practices (SDIP), Strategic Decision Evaluation (SDE), Reliance on Financial Strength (FC), Reliance on Workforce (RW), Construction Business Performance (CBP).

The comprehensive hypothesis testing revealed nuanced insights into the factors influencing construction business performance. As detailed in Table 7, four out of five research hypotheses demonstrated statistically significant relationships aligned with the initial research propositions.

Hypothesis 1 revealed a robust relationship between strategic decision formulation and organisational performance, evidenced by a path coefficient of 0.187 and a t-value of 2.509. Strategic decision implementation practices exhibited a particularly strong positive correlation, with a path coefficient of 0.238 and a t-value of 3.039. The analysis further confirmed the critical role of strategic decision evaluation, showcasing a positive impact on business performance ($\beta = 0.213$, $t = 2.962$). Financial strength emerged as a particularly influential factor, with the strongest relationship, evidenced by a path coefficient of 0.338 and a t-value of 3.040. Notably, Hypothesis 4 stood as an exception to the prevailing pattern. The workforce reliance dimension revealed a marginally negative, statistically non-significant relationship, characterised by a path coefficient of −0.051 and a t-value of 0.704.

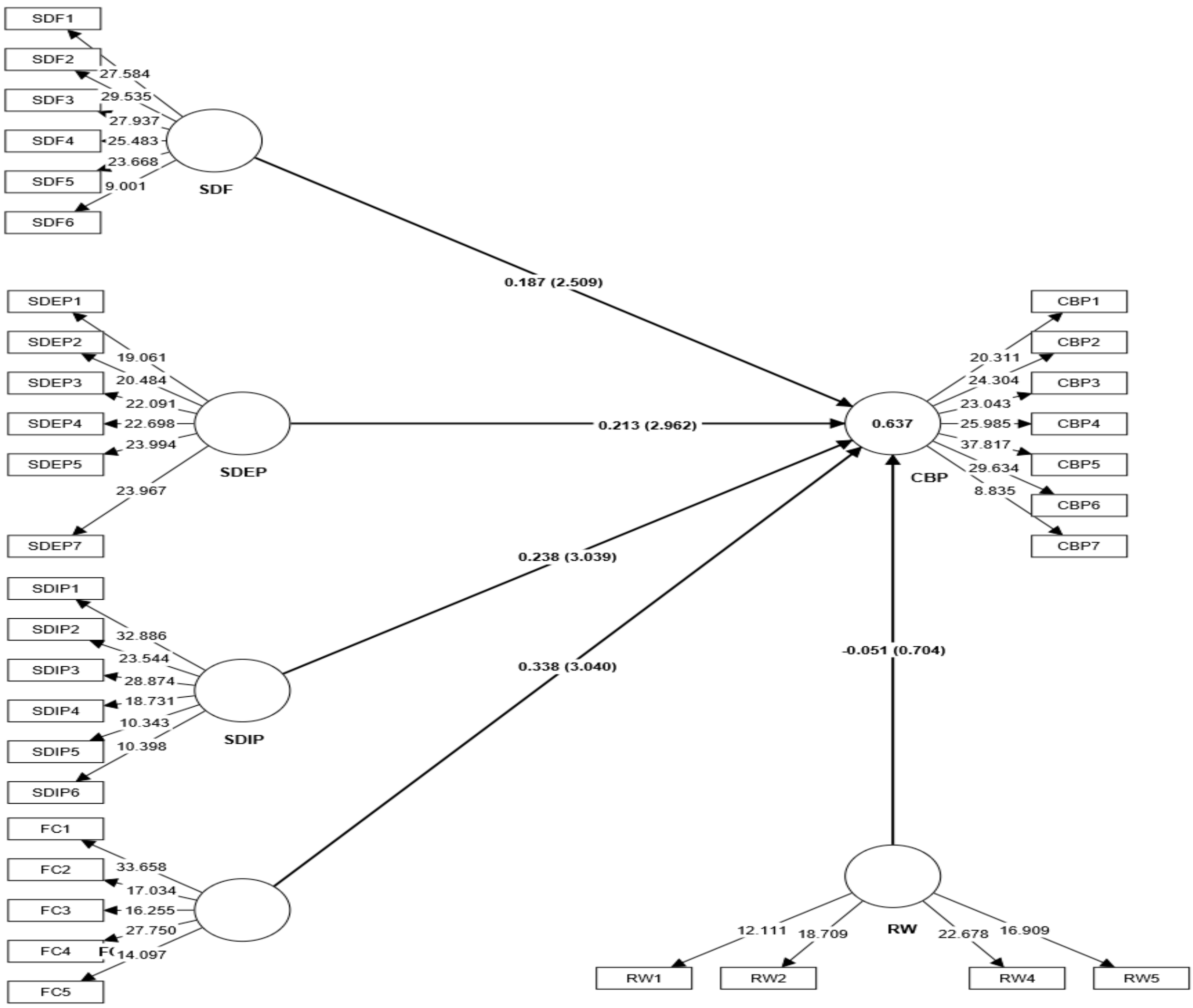

Figure 3. Evaluation of Structural Model through PLS Bootstrapping.

5.7. Coefficient of Determination (R^2)

Evaluating the explanatory power of statistical models requires sophisticated analytical techniques, with the R-square metric serving as a critical indicator of variable interrelationships [148]. This statistical measure provides insights into the extent to which exogenous variables account for variations in the dependent construct. Methodological guidelines offer nuanced interpretations of R-square values, establishing benchmarks for assessing model explicability [127]. Scholarly consensus suggests a hierarchical framework for interpreting these metrics: values approaching 0.67 indicate robust explanatory potential, those around 0.33 moderate predictive capacity, and those near 0.19 limited model effectiveness. Table 8 presents the R-squared values for the primary endogenous variable, construction business performance, providing a detailed visualisation of the model's explanatory power.

Table 8. Variance Explained in the Endogenous Latent Variable.

Item	R-Square	R-Square Adjusted
CBP	0.637	0.631

5.8. Effect Size

Evaluating the substantive significance of research variables requires sophisticated analytical techniques that extend beyond mere statistical significance [125]. Established methodological frameworks provide nuanced guidelines for interpreting the magnitude of variable impacts. The research methodology employed a comprehensive effect-size assessment, using a systematic approach to quantify the substantive importance of each investigative factor. Recommended analytical criteria delineate a hierarchical interpretation of impact magnitude: minimal effects (0.10–0.14), moderate influences (0.15–0.34), and substantial effects (0.35+). A comprehensive analysis was conducted, systematically examining the effect sizes across eleven critical research variables. The detailed findings of this extensive evaluation are comprehensively documented in Table 9, offering a granular perspective on the relative importance of each investigated construct.

Table 9. Effect Size.

Construct	F-Square	Criteria
FC -> CBP	0.013	Small Effect
RW -> CBP	0.212	Medium Effect
SDEP -> CBP	0.017	Small Effect
SDF -> CBP	0.009	Small Effect
SDIP -> CBP	0.019	Small Effect

5.9. Assessment of the PLS Predict

Advanced predictive modelling techniques offer sophisticated mechanisms for assessing research methodological robustness beyond traditional sample-based analysis [149]. The innovative cross-validation approach involves strategically partitioning the dataset to assess predictive capabilities rigorously. The methodology employs a comprehensive k-fold validation strategy that systematically splits the research data into multiple subsets [150]. This technique involves creating training samples by aggregating multiple data folds, with each subsequently utilised as a holdout sample for predictive assessment. Typically, 10-fold cross-validation is the standard analytical configuration, though researchers maintain the flexibility to adjust based on specific dataset characteristics [150]. The analytical framework establishes nuanced criteria for interpreting predictive performance: weak predictive potential emerges when item differences consistently exceed baseline measurements, medium predictive capacity is indicated by item differences predominantly falling below baseline thresholds. Persistent deviations from expected measurements suggest minimal predictive power. Comprehensive results of this sophisticated predictive analysis are meticulously documented in Table 10, providing a detailed examination of the model's forecasting capabilities.

Table 10. Construct Cross-Validity Redundancy.

Items	Q^2 Predict	PLS-SEM_RMSE	PLS-SEM_MAE	LM_RMSE	LM_MAE
CBP1	0.248	1.277	0.870	1.339	0.924
CBP2	0.336	1.244	0.835	1.346	0.895
CBP3	0.337	1.205	0.795	1.310	0.883
CBP4	0.326	1.243	0.863	1.377	0.962
CBP5	0.440	1.071	0.772	1.115	0.800
CBP6	0.423	1.087	0.780	1.157	0.805
CBP7	0.196	1.187	0.925	1.176	0.879

6. Discussions of Findings

The findings of this study offer theoretically grounded, empirically supported insights into the relationships between strategic decision-making components, organisational resources, and business performance among construction organisations in New Zealand. These insights are derived from a sample of 102 voluntary respondents. They should be interpreted accordingly: as providing strong directional and theoretical evidence within the study's empirical context rather than as definitive, generalisable conclusions about the New Zealand construction sector as a whole. With this interpretive boundary explicitly established, the findings contribute to construction management theory at three distinct levels, each of which moves beyond the simple reporting of associations between strategic variables and performance outcomes.

At the first level, the study provides context-specific empirical validation of Ansoff's strategic success theory [82,83] in a project-based industry environment. The simultaneous significance of strategic decision formulation (H1), implementation (H2), and evaluation (H3) confirms that the three-phase strategic cycle posited by Ansoff is not merely a theoretical abstraction but an empirically verifiable performance-generating system in the New Zealand construction context. Crucially, disaggregating these three phases into separate latent constructs rather than collapsing them into a single strategic decision-making index reveals that each phase contributes independently to performance. These findings advance theory by demonstrating that strategic management in construction is not a unitary process whose phases are interchangeable, but a differentiated system in which gaps at any individual phase, particularly in implementation, which has historically received less empirical attention than formulation [92,93], carry distinct performance penalties.

At the second level, the confirmed significance of financial strength (H4) alongside the non-significance of workforce capability (H5) produces a theoretically important qualification of the RBV as applied in construction. The RBV, as elaborated by Barney [87] and extended by Freeman et al. [88], treats organisational resources as a bundle whose collective deployment drives competitive advantage. The findings of this study challenge the bundling assumption by demonstrating that financial and human resources do not exert equivalent performance effects in mid-sized New Zealand construction firms. This suggests that the RBV requires contextual calibration. In industries and firm-size segments where strategic governance quality varies substantially, the performance effect of strategic decision processes may dominate and statistically displace the effect of human capital resources, a theoretically novel finding that the RBV in its standard form does not predict and cannot accommodate without modification.

At the third level, the study contributes a methodological advance to construction management theory testing by demonstrating the utility of PLS-SEM for simultaneously estimating the relative performance contributions of strategic and resource variables within a single integrated model [112,126]. Prior studies have tended to examine these variable categories in isolation, testing either strategic management models or resource-based models, producing theoretically partial accounts of performance determination. The integrated framework tested here produces a more complete theoretical account: one that acknowledges performance as jointly determined by what firms strategically decide and the resources they possess, while also revealing that these two determinants are not equally powerful under all conditions.

➢ ***Strategic Decision Formulation and Construction Business Performance (H1)***

The study establishes a significant positive relationship between strategic decision formulation and construction business performance ($\beta = 0.187$, $t = 2.509$), supporting H1. This finding is theoretically consistent with Ansoff's proposition that environmental alignment at the formulation stage is a prerequisite for downstream strategy effectiveness [82,83]. In the dynamic construction landscape, strategic formulation extends beyond conventional planning to encompass a comprehensive process of defining organisational purpose, mapping desired trajectories, and developing robust pathways that translate aspirational goals into measurable outcomes [42,44].

Effective strategic decision formulation requires synthesising multiple organisational dimensions simultaneously: internal capability assessment, external market analysis, resource appraisal, and stakeholder expectation mapping. Importantly, the formulation process is neither linear nor static; it demands continuous recalibration in response to emerging project-based challenges, regulatory shifts, and competitive dynamics that are particularly pronounced in the New Zealand construction environment [90,91]. The significance of this finding aligns with and extends prior construction management research demonstrating that organisations capable of producing well-structured, analytically grounded strategic plans consistently outperform those relying on reactive or informal planning approaches [34,85]. Stakeholder engagement is a particularly critical formulation variable: failure to incorporate the competing interests of shareholders, employees, creditors, clients, and supply chain partners at the formulation stage creates misalignment that compounds performance costs through implementation and evaluation [94].

➢ ***Strategic Decision Implementation Practices and Construction Business Performance (H2)***

Strategic decision implementation practices demonstrate a significant positive relationship with construction business performance ($\beta = 0.238$, $t = 3.039$), supporting H2 and representing the strongest effect among the three strategic decision-making constructs. This finding is particularly noteworthy because implementation has historically occupied a secondary position in construction strategy research relative to formulation [92,93]. Yet, the path coefficient here suggests its performance effect is the most pronounced of the three strategic phases tested.

This result advances the theoretical understanding of strategy execution in construction by empirically confirming that the capacity to translate strategic vision into operational reality constitutes a distinct and independently significant performance driver, rather than merely an administrative consequence of good formulation. Effective implementation requires strategic objectives to permeate every organisational layer, creating shared accountability structures and aligning resources, systems, and human behaviour with chosen strategic directions [39,40]. In the construction context specifically, where project-based organisational structures create natural fragmentation between corporate strategy and site-level operations, implementation effectiveness depends on the quality of vertical communication, the clarity of role assignments, and the robustness of progress monitoring mechanisms [37,44]. The finding is consistent with prior research emphasising that strategy execution failures, rather than strategy formulation failures, are the primary cause of underperformance in project-based organisations [93,94] and reinforces the theoretical position that implementation deserves dedicated theoretical and empirical treatment rather than being subsumed within broader strategic management constructs.

➢ ***Strategic Decision Evaluation and Construction Business Performance (H3)***

The study confirms a significant positive relationship between strategic decision evaluation and construction business performance ($\beta = 0.213$, $t = 2.962$), supporting H3. These findings position ongoing strategic evaluation not as a retrospective administrative exercise but as a proactive, performance-generating organisational competency, consistent with Mintzberg and Rose's [97] argument that strategy is as much an emergent, continuously revised process as a deliberate plan.

In the construction industry, where project cycles, client demands, material costs, and regulatory requirements shift frequently, the ability to continuously evaluate strategic decisions and make evidence-based adjustments is a critical competitive capability [95,96]. The confirmed significance of SDEP in this study extends prior work by demonstrating that evaluation rigour, operationalised here as a distinct latent construct rather than as a dimension of implementation or formulation, carries an independent performance effect. This disaggregated approach reveals a theoretical insight that composite strategic management indices obscure: even organisations that formulate and implement strategies effectively may underperform if they lack systematic mechanisms to assess whether implemented strategies are achieving intended outcomes and to identify when recalibration is required [82,83]. Regular strategy evaluation thus functions as an organisational feedback loop that sustains competitive positioning by enabling leadership to distinguish between strategies that require persistence and those that require revision [97].

➢ ***Financial Strength and Construction Business Performance (H4)***

Financial strength demonstrates the largest significant effect on construction business performance among all five predictors (β = 0.338, t = 3.040), supporting H4 and confirming the RBV proposition that tangible organisational resources constitute a foundational determinant of competitive advantage [86,87]. This finding is both theoretically consistent and practically significant in the New Zealand construction context, where project financing requirements, cash flow volatility, and capital-intensive operations create direct dependencies between organisational financial capacity and performance outcomes [98,101].

The magnitude of the financial strength path coefficient relative to the three strategic decision-making constructs warrants theoretical attention. While Ansoff's strategic success theory positions strategy quality as the primary performance driver [82,83], the RBV's prediction that resource endowment is foundational receives stronger empirical support in terms of effect size in this study. This does not necessarily contradict Ansoff's framework; rather, it suggests a theoretically important interaction: in capital-intensive, project-based industries such as construction, resource sufficiency may be a prerequisite condition without which strategic decision quality cannot be effectively translated into performance gains [88,91]. A construction firm with well-formulated, rigorously evaluated strategies but insufficient financial resources to fund their execution will be structurally constrained from realising the performance benefits that strategic quality would otherwise deliver. This interpretation aligns with Styhre's [101] observation that the construction industry's performance dynamics are deeply entangled with financial system capacity and reinforces calls in the literature for construction firms to treat financial strength management, including liquidity planning, capital structure optimisation, and cash flow forecasting as a strategic priority rather than a purely operational concern [98,99].

➢ ***Workforce Capability and Construction Business Performance (H5)***

The hypothesis concerning the influence of workforce capability on construction business performance (H5) is not supported, as the analysis reveals a non-significant relationship (β = −0.051, t = 0.704). This represents arguably the most theoretically provocative finding of this study and warrants critical interrogation rather than passive reporting.

This result directly contradicts a substantial body of construction management literature that has consistently positioned human capital as a primary driver of organisational performance. Hussain et al. [102] demonstrated that workforce training interventions directly affect project outcomes, underscoring the centrality of workforce capability to construction performance, while Shehata and El-Gohary [103] showed that labour productivity improvements translate into measurable project performance gains. Furthermore, Hussain, Xuetong, and Hussain [104] confirmed, through structural equation modelling, that both skilled and unskilled labour exert significant influence on project performance, thereby directly contradicting the present H5 result. The resource-based view, as applied to construction by Barney [87], would similarly predict that rare and inimitable human resources, skilled tradespeople, experienced project managers, and technically proficient engineers should confer sustained competitive advantage. The present finding challenges this prediction in the New Zealand context.

Several theoretically grounded explanations may account for this divergence. First, workforce capability in the New Zealand construction sector may have reached a threshold level of adequacy across firms, such that variation in workforce quality no longer differentiates high- from low-performing organisations. Under conditions of relative homogeneity in human capital, strategic decision-making processes, such as how firms formulate, implement, and evaluate strategy may emerge as the true differentiating factor, consistent with Freeman, Dmytriyev, and Phillips [88], who argued within the RBV tradition that it is not resources per se, but the managerial and strategic frameworks through which they are deployed, that ultimately drive organisational performance outcomes. Second, the non-significance may reflect the sample's particular demographic profile, which over-represents mid-sized firms (40.19% with 51–100 workers). In organisations of this size, strategic governance structures may compensate for workforce variability in ways that are less feasible in smaller firms, where individual worker capability has a more direct and visible performance impact [104]. Third, the voluntary nature of participation may mean that responding firms were, on average, more strategically mature and thus better insulated from fluctuations in workforce capability than the broader sector population.

It is also important to acknowledge alternative interpretations. The non-significance of H5 could reflect a measurement limitation: workforce capability was operationalised through perceptual self-report items completed by managers, who may have evaluated their own workforce more favourably than objective productivity metrics would confirm, a concern echoed in self-report research on labour performance in construction [103,104]. Future research should triangulate self-reported workforce capability with independent performance data to test whether the non-significance holds under more objective measurement conditions. Notwithstanding these caveats, the finding carries a clear theoretical message: in contexts where strategic decision quality varies substantially across firms, its performance effect may dominate that of workforce capability, reordering the assumed hierarchy of performance determinants in construction management theory [87,88].

7. Research Implications

Organisational success in the construction industry depends on strategic insight, human expertise, and adaptive intelligence. Traditional performance metrics cannot fully capture these dynamics. The following recommendations translate the study's findings into actionable strategies addressing the key dimensions identified.

Construction businesses should adopt digital strategic management platforms, such as Oracle Primavera Portfolio Management or Microsoft Power BI, with customised dashboards to systematically track strategic initiatives. These tools enable real-time monitoring of key performance indicators (KPIs), providing leadership with actionable insights for timely interventions. Organisations should establish quarterly strategic review sessions using standardised assessment frameworks, such as the Balanced Scorecard, to evaluate progress against established targets and recalibrate approaches as needed.

Organisations should implement integrated construction management software such as Procore, Autodesk Construction Cloud, or PlanGrid to enhance information quality that centralises project documentation, communications, and decision logs. These platforms create a single source of truth for all stakeholders, reducing information fragmentation and improving accessibility. Companies should also develop standardised information classification systems with mandatory metadata tagging to enhance searchability and establish formal information verification protocols with designated quality gatekeepers to validate critical data before strategic decisions are made.

Workforce development represents a critical dimension for construction excellence. Organisations should institute structured mentorship programs that pair experienced professionals with emerging talent, complementing personalised skills development plans that identify critical competency gaps. Technical training should be supplemented with strategic thinking workshops for construction professionals to develop their ability to connect operational decisions with strategic outcomes. Companies should also implement performance-based incentive systems that reward both individual excellence and contributions to strategic objectives.

Leadership transformation initiatives should focus on democratising strategic thinking across the organisation. Construction companies should implement regular "strategy sprints" in which cross-hierarchical teams collaborate intensively on specific strategic challenges for short periods. Leadership development programs should emphasise coaching and facilitation skills rather than directive management, allowing supervisors to draw insights from their teams. Organisations should establish innovation incubators where employees can propose and develop strategic initiatives with leadership support, creating pathways for ideas to flow upward through the organisation.

Technology integration requires a structured framework for maximum impact. Construction businesses should develop phased digital transformation roadmaps, prioritising technology investments based on strategic impact and feasibility. This should include pilot programs for emerging technologies such as BIM (Building Information Modelling), 5D for cost estimation, IoT sensors for real-time project monitoring, and AI-powered predictive analytics for risk assessment. Organisations should establish technology competency centres that provide training, support, and documentation to ensure successful adoption across project teams.

Strategic decision-making can be enhanced by implementing collaborative decision frameworks, such as the Decision Analysis Response Tool (DART) or Multi-Criteria Decision Analysis (MCDA), specifically adapted to construction contexts. These structured approaches ensure decisions incorporate diverse perspectives while maintaining alignment with organisational strategy. Companies should also maintain decision registers documenting key strategic choices, underlying assumptions, and expected outcomes to facilitate future learning and accountability.

Quality information management requires dedicated systems and processes. Construction organisations should implement dedicated Enterprise Content Management (ECM) systems, such as SharePoint or Alfresco, with industry-specific configurations to manage the information lifecycle from creation to archiving. Information governance committees comprising representatives from various organisational functions should establish information quality standards, monitor compliance, and continuously improve information management practices. Regular information audits should assess quality, accessibility, and usage patterns to identify opportunities for improvement.

Workforce capabilities can be systematically developed by establishing construction-specific competency frameworks that map the skills needed for current operations and future strategic initiatives. Organisations should partner with educational institutions to create tailored training programs that address specific skill gaps while implementing digital learning platforms such as LinkedIn Learning or construction-specific platforms offering microlearning modules accessible on job sites. Cross-functional rotational programs should be established to broaden employee perspectives and enhance organisational adaptability.

Risk management represents a crucial component of strategic success. Construction organisations should implement enterprise risk management platforms such as Resolver or SAI360 to systematically identify, assess, and mitigate risks across projects and operations. Regular scenario planning workshops should engage key stakeholders in exploring potential future states and developing responsive strategies. Organisations should also establish early warning systems with predefined triggers and response protocols for rapid adaptation to emerging risks.

Stakeholder relationship management requires dedicated approaches and technologies. Construction companies should implement Customer Relationship Management (CRM) systems tailored to construction contexts, enabling systematic tracking of client interactions, preferences, and satisfaction metrics. Stakeholder engagement plans should be developed for each major project and organisational initiative, identifying key stakeholders, their interests, and tailored engagement strategies. Regular stakeholder perception surveys should provide quantitative feedback on relationship quality and areas for improvement.

Performance measurement systems should evolve beyond traditional financial metrics. Organisations should implement balanced performance dashboards that incorporate leading indicators across safety, quality, sustainability, and innovation, alongside financial outcomes. Project performance should be evaluated using earned value management techniques that integrate schedule and cost performance with strategic alignment measures. Benchmarking programs should be established to compare performance with industry best practices and drive continuous improvement initiatives.

Knowledge management deserves focused attention to preserve organisational learning. Construction companies should implement knowledge management platforms such as Confluence or Microsoft Teams, with structured knowledge repositories organised by project type, technical domain, and strategic relevance. Post-project reviews should be conducted using standardised protocols that capture both successes and failures, with insights stored in searchable formats. Communities of practice should be established around critical knowledge domains, with designated experts facilitating knowledge sharing and development.

Implementing these practical recommendations requires committed leadership, appropriate resource allocation, and consistent evaluation. However, several limitations should be acknowledged. First, the study's sample size and regional focus on New Zealand may limit generalizability to other construction contexts with different regulatory environments and market dynamics. Second, the cross-sectional nature of the research does not capture the longitudinal effects of strategic decisions on business performance over extended periods. Third, resource constraints may challenge smaller construction organisations attempting to implement sophisticated technological solutions. Future research should address these limitations by conducting multi-country comparative studies, developing implementation frameworks tailored to different organisational sizes, and establishing longitudinal studies that track the impact of improvements in strategic decision-making over time. Additionally, researchers should explore integrating emerging technologies such as artificial intelligence and blockchain into construction decision-making processes and investigate how changing workforce demographics influence the effectiveness of strategic implementation. Construction businesses can build the adaptive capabilities required to thrive amid ongoing industry transformation by systematically implementing the recommended approaches while acknowledging these limitations and research needs.

8. Theoretical Contributions

This study makes four distinct contributions to construction management theory. First, it provides empirical validation within a New Zealand context of a multi-component strategic decision-making framework, demonstrating that formulation, implementation, and evaluation operate as separable and individually significant predictors of construction business performance. This advances beyond prior conceptual work [42,44] that proposed these as theoretically distinct phases but rarely tested their differential effects within a single structural model. The finding that all three strategic components are significant (H1, H2, H3) while operating at different effect magnitudes supports the theoretical position that strategic management in construction is not a unitary process but a differentiated system of activities, each with independent performance consequences.

Second, the study extends Ansoff's strategic success theory [82,83] into the construction industry context, an application that has remained underexplored in the empirical literature. The confirmed alignment between environmental adaptability (captured through strategic formulation and evaluation) and internal capability deployment (captured through implementation practices) validates Ansoff's core proposition in a project-based, volatile industry environment, suggesting that the theory's explanatory power is not confined to manufacturing or general management settings.

Third, the confirmed role of financial strength (H4) as a significant performance predictor reinforces the resource-based view's [86,87] proposition that tangible organisational resources underpin competitive advantage, while simultaneously demonstrating that financial resources alone are insufficient without strategic decision-making structures to deploy them effectively. The joint confirmation of H1-H4 within a single model offers an integrative theoretical account that neither pure strategic theory nor pure resource theory could provide independently.

Fourth, and most significantly, the non-significant H5 result contributes a theoretically important qualification to the RBV as applied in construction: human capital resources may be necessary but not sufficient conditions for superior performance when strategic governance quality varies substantially across firms. This finding invites construction management scholars to reconsider the assumed primacy of the 'people factor' [17] and to investigate under what boundary conditions firm size, market maturity, project complexity, and workforce capability reassert their performance relevance.

9. Practical Implications

The findings of this study carry actionable implications for construction industry leaders, policy makers, and professional development bodies in New Zealand and comparable contexts. Four practical priorities emerge directly from the empirical results.

First, the significant effect of strategic decision-making on business performance (H1) indicates that construction firms should invest in formalising their strategic planning processes. Many small-to-medium construction enterprises operate with informal or reactive planning practices [16,20]; the evidence presented here suggests that firms that institutionalise structured goal-setting, environmental scanning, and scenario planning are likely to achieve measurably superior performance outcomes. Industry bodies such as the New Zealand Institute of Building and Infrastructure New Zealand are well-positioned to develop and disseminate accessible strategic planning toolkits tailored to the sector's project-based operating model.

Second, the confirmed significance of strategic decision implementation (H2) highlights a frequently overlooked execution gap in construction organisations. Formulating sound strategies is insufficient without implementation mechanisms, clear role assignments, milestone tracking, cross-functional communication, and accountability structures. Construction firms should conduct regular audits of their strategy execution processes, ensuring that decisions made at the corporate or business level are translated effectively into functional and site-level actions [37,39].

Third, the significance of strategic decision evaluation (H3) underscores the importance of continuous performance monitoring and strategic review cycles. Construction organisations should establish formal post-project and annual strategy review mechanisms that go beyond financial auditing to assess strategic alignment, stakeholder satisfaction, and market positioning. This is particularly important given the dynamic and cyclical nature of the New Zealand construction market, where regulatory changes, material cost volatility, and labour market shifts can render previously effective strategies obsolete in a matter of months.

Fourth, the non-significant workforce capability result (H5) should not be interpreted by industry practitioners as a signal to deprioritise workforce development investment. Rather, it suggests that workforce capability improvements are most likely to translate into performance gains when embedded within a strong strategic decision-making framework. Firms that invest in workforce upskilling without corresponding investment in strategic governance structures may find that capability improvements fail to materialise into measurable organisational outcomes. This finding aligns with the growing industry emphasis on integrated capability frameworks that link workforce development to strategic planning cycles, as reflected in recent workforce strategy initiatives by the New Zealand Construction Industry Council.

10. Conclusions

This study examined the relationships between strategic decision-making and construction business performance in New Zealand's construction sector. Through rigorous PLS-SEM analysis, this study confirms that strategic decision formulation, implementation, and evaluation, as well as financial strength, are significant predictors of construction business performance. In contrast, workforce capability did not demonstrate a statistically significant relationship with performance outcomes. This nuanced finding challenges prevailing assumptions about the primacy of human capital in construction performance models.

The research provides several significant theoretical and practical contributions to the construction management literature. Theoretically, our findings both confirm and qualify the resource-based view: while financial strength is confirmed as a significant performance driver consistent with RBV predictions, the non-significant finding for workforce capability identifies an important boundary condition for the RBV as applied in mid-sized construction firms. The study also advances our understanding of how strategic decision processes directly influence organisational outcomes, particularly in New Zealand's unique construction environment. Practically, this research offers construction industry leaders evidence-based guidance for enhancing organisational performance through structured decision-making frameworks and strategically aligned, rather than isolated, workforce development initiatives.

However, several limitations should be acknowledged. The cross-sectional nature of our study captures relationships at a specific point in time, potentially missing longitudinal effects. Additionally, while our sample size was statistically adequate, broader sampling across different construction industry segments could further enhance generalizability. Future research should explore the potential mediating mechanisms that explain how strategic decision components influence performance outcomes, investigate how digital transformation affects strategic decision processes in construction firms, and examine how these relationships might vary across international construction industry contexts.

Despite these limitations, this study makes a significant contribution by empirically establishing the relative importance of different strategic decision components in driving construction business performance. By demonstrating that strategic decision-making processes and financial strength are significant performance drivers while simultaneously finding that workforce capability does not exert a significant direct effect in this context, this study provides a theoretically important and practically nuanced foundation for future research. This pattern of results suggests that the assumed hierarchy of performance determinants in construction management which has traditionally privileged human capital may require contextual qualification. Strategic governance quality may be a more powerful differentiating factor among mid-sized construction firms than variation in workforce capability alone [87,88,102,104].

A further methodological limitation is the use of a voluntary sampling design. Self-selection may over-represent construction professionals who are more engaged with strategic planning, more digitally accessible, or more formally affiliated with industry associations such as the New Zealand Institute of Building and Infrastructure New Zealand precisely the kinds of firms likely to score highly on the study's predictor constructs. Readers should therefore interpret the reported path coefficients as reflecting the strategic decision-making dynamics of relatively engaged, mid-sized construction organisations rather than the sector as a whole.

Notwithstanding these constraints, this study makes a theoretically and practically meaningful contribution by providing the first integrated empirical test of Ansoff's strategic success theory and the resource-based view in the New Zealand construction sector. The confirmed significance of strategic decision formulation, implementation, evaluation, and financial strength as performance predictors offers empirically grounded support for relationships that the prior literature had largely treated prescriptively. The non-significant workforce capability result provides an important theoretical qualification of the RBV, identifying a boundary condition warranting investigation in larger, more representative studies. These findings represent not a definitive account but a theoretically coherent, empirically supported point of departure for a progressive research agenda that future probability-based studies can extend and challenge.

Author Contributions: Conceptualisation, T.D.M.; methodology, T.D.M.; software, validation, formal analysis, data curation, T.D.M.; investigation, J.O.B.R. and W.S.; resources, J.O.B.R.; writing—original draft preparation, T.D.M.; writing—review and editing, visualisation, J.O.B.R., W.S. and T.D.M.; supervision, J.O.B.R.; project administration, W.S. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: The study was conducted in accordance with the Declaration of Helsinki and approved by the Ethics Committee of Massey University (ethics approval No: 4000025806, 3 February 2023).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The original contributions presented in this study are included in the article.

Conflicts of Interest: The authors declare no conflicts of interest.

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