A MULTI-DIMENSIONAL EVALUATIVE FRAMEWORK FOR EXAMINING PROJECT REPUTATION WITHIN THE CONSTRUCTION INDUSTRY: CONTRACTORS' PERSPECTIVE

by

OLADIMEJI ABDUL-RASHEED OLAWALE

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College of Business & Law, University of the West of England, Bristol

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Declaration

I affirm that this thesis is the product of my scholarly endeavours, with all content derived from other sources acknowledged adequately within the body of the text. This work has not, either partially or wholly, been submitted for any other accolade besides the Doctor of Philosophy at the University of the West of England. All materials originating from external sources have been appropriately acknowledged and cited in adherence to ethical standards, and a comprehensive list of publications derived from this thesis has been provided.

Signed: Oladimeji Olawale
Date: December 2023.

Dedications

This thesis is dedicated to my beloved parents, Alhaji Engr Surakat Olayide Olawale and Alhaja Risikat Olawale. Your unwavering faith in my abilities, countless sacrifices, and steadfast support have been the foundational pillars of this significant achievement. To my dear wife, Opeyemi Olawale – your enduring love and immeasurable patience have been the bedrock of my strength throughout this academic journey. Your support has been my constant in times of challenge and celebration. To my cherished children, Aaliyah, Zidane, and Khairah – you are my greatest inspiration. Each day, your presence in my life fuels my determination and purpose. This accomplishment is as much a tribute to you as to my endeavours. I desire that this achievement serves as a testament to what dedication can yield and as a beacon of inspiration for you to reach even loftier heights in your own lives. This journey, marked by perseverance and enriched by your love, culminates in a success that belongs to all of us. It is a shared victory, a collective triumph that speaks volumes of the power of faith, love, and unity in achieving one's dreams.

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Abstract

The construction industry, intrinsically project-focused, faces significant challenges in managing project reputation. High-profile incidents like the collapse of the Charles de Gaulle Airport terminal and the Grenfell Tower fire have starkly highlighted how individual projects can profoundly impact an organisation's reputation. Despite this, the extant literature predominantly addresses broader organisational reputation, often neglecting the nuanced and crucial aspect of project-specific reputation. This oversight has created a research gap, emphasising the need for a comprehensive framework to assess project reputation, particularly considering contractors' pivotal role in shaping project outcomes and reputations.

Therefore, this research was guided by the primary aim of constructing a comprehensive, multi-dimensional conceptual framework to assess project reputation within UK construction businesses. The objective was to delve into the theoretical underpinnings of project reputation, explore diverse stakeholder perspectives, and develop a framework addressing the unique challenges of the UK construction sector. The study adopted a critical realist stance and utilised an exploratory sequential mixed-methods approach. The initial literature review pinpointed four fundamental constructs: client satisfaction, innovation, competency, and project performance, which led to formulating twelve theoretical hypotheses concerning project reputation.

To validate and contextualise these hypotheses, Focus Group Interviews (FGIs) were conducted with 33 professionals from the industry, revealing six additional influential factors not fully captured in previous literature. The synthesis of literature review findings and FGI insights yielded a list of 72 factors, forming the basis for the quantitative phase of the study. This list and the initial twelve hypotheses informed the questionnaire design, which was then piloted and disseminated broadly. Participants included UK-based contractors and stakeholders with experience in construction projects. Of 256 disseminated questionnaires, 141 were suitable for analysis, marking a 55% response rate.

The study employed statistical methods, including mean ranking, reliability testing, and Kruskal-Wallis tests, to identify critical elements influencing project reputation. A deeper exploration into the interrelationships between these factors was undertaken

through Structural Equation Modelling (SEM). This rigorous analytical process validated ten initial twelve hypotheses, resulting in a comprehensive SEM supported by a conceptual framework detailing the factors influencing project reputation.

The implications of this research are significant for construction entities, informing operational strategies, processes, and potential project outcomes. The findings offer insights into best practices and policy formulation, addressing issues related to project failures. By prioritising key constructs and indicators, construction firms can refine their project management approaches, concentrating on areas vital for project success and reputation enhancement. These insights are also crucial for risk management, training, and promoting a culture of continuous improvement. Given the widespread issues with construction project failures in the UK and globally, this research underscores the need for stricter regulations and enhanced project management practices. Policymakers can utilise these findings to develop more effective laws, improving the sector's overall reputation.

However, the research has limitations. The study's reliance on literature-defined factors may not encompass every aspect influencing project reputation. Its focus on UK contractors potentially overlooks other vital perspectives, and the specific context of the UK construction industry may limit the generalizability of the findings to other regions with different industry dynamics.

Keywords: *Organisational Reputation, Project Reputation, Project Success, Construction Organisation, Construction Industry, Project Performance, Innovation, Client Satisfaction, Managerial Competency.*

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List of Research Publications

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Journal Articles

1. Olawale, O.A., Oyedele, L.O., Owolabi, H.A. (2020). Construction practitioners' perception of key drivers of reputation in mega-construction projects. *Journal of Engineering, Design and Technology*, 18, pp. 1571-1592. https://doi.org/10.1108/JEDT-10-2019-0255

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13. Olawale, O.A., Oyedele, L.O., Owolabi, H.A., Kusimo, H.O., Gbadamosi, A.O., Akinosho, T.D., Abioye, S.O., Kadiri, K.O. and Olojede I (2019). Complexities of smart city project success: a study of real-life case studies. Proceedings of the CIB World Building Congress 2019, Hong Kong SAR, China, 17 – 21 June 2019.

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1 Chapter One: Introduction
1.0 Background to the Study

In recent years, there has been an unprecedented interest in the concept of "reputation" among academics, particularly within business, marketing and, more recently, the construction literature (Shamma, 2012; Balmer et al., 2016; Blackburn et al., 2018; Olawale et al., 2019; Olawale et al., 2020a, Olawale et al., 2020b). This growing interest has been attributed to the belief that reputation influences the actions and behaviours of individuals (i.e., customers, stakeholders, and staff) (Cornelissen & Thorpe, 2002; Abratt & Kleyn, 2012). As a result, many business organisations and practitioners see reputation as an intangible asset that can offer organisations a competitive advantage (Walsh et al., 2009), attract high-quality employees (Vidaver-Cohen, 2007), increase brand loyalty (Hur et al., 2014), as well as improve future earnings and growth (Stuebs & Sun, 2010). However, despite these well-known positive impacts of reputation, it is also imperative to note that reputation is fluid, dynamic, and based on stakeholder perception, which can change dramatically quickly (Walker, 2010; Aula & Mantere, 2013). Due to this dynamic nature, effective reputation management has become a critical organisational issue requiring robust understanding and strategy, considering today's complex, highly competitive and volatile business environment.

1.1 Problem Statement and Gaps in Knowledge

Within project-based organisations such as construction firms, reputation's fluid and volatile nature often presents enormous challenges for practitioners (Walker, 2010). Evidence within the literature has shown that many construction organisations have suffered substantial reputational damage because of one or more of their projects failing to achieve project expectations, outcomes, and objectives, i.e., time, cost, and quality (Ahsan & Gunawan, 2010; Doloi et al., 2012). For example, Aéroports de Paris/Architects and Engineers, which was a renowned project organisation, suffered severe damage to its reputation when one of the terminals (terminal 2E) it constructed at Charles de Gaulle airport in France collapsed and led to the death of six people (Kaljas, 2017). Similarly, the London Grenfell Tower fire, which led to the death of 72 residents, including 70 injured, presents a classic scenario where the bad reputation

associated with an unfortunate event affected the organisation's fortunes (Shildrick, 2018).

Due to this intertwined nature of reputation in construction vis-à-vis the failure/success of projects, many researchers are beginning to investigate project reputation more independently, distinct from organisational reputation, especially within the construction sector (Barthorpe, 2010). Several scholars have suggested that projects, like individuals and organisations, have their reputation. According to authors such as Olawale et al. (2020a), Olawale et al. (2020b) and Irfan and Hassan (2017), project reputation is the aggregate/combined perception of stakeholders about a project's quality and functionality (fitness of use). As argued by Olawale et al. (2020a), each project in a project-based environment has a unique reputation, independently influencing the construction organisation's reputation. Project reputation is analogous to the marketing domain, where the different range of products contributes to the organisational reputation of the entire business/company. For example, large UK construction firms like Balfour Beatty, Costain, etc., whose business operations inherently thrive on building and delivering infrastructure projects, will ultimately rely on project execution and the success of such for their overall firm reputation and business opportunities. Therefore, given the perceived reputation of an organisation's project/s, prospective clients can form certain expectations about an organisation's performance (i.e., quality, smooth delivery, safety, etc.) on possible similar projects. Thus, this study aligns with the above conceptual views (i.e., Olawale et al., 2020a; Olawale et al., 2020b, Irfan & Hassan, 2017) that projects do possess an intrinsic reputation of their own since a project with a good reputation is more likely to attract stakeholders and resources, while a project with a poor reputation may struggle to achieve its goals and objectives.

Nevertheless, while the idea of project reputation seems to be gaining increased traction in conceptual studies (Irfan & Hassan, 2017; Irfan et al., 2020), the two dominant questions confronting most scholars are: (1) "What unique factors influence a project's perceived reputation"? Furthermore, (2) "whose opinions matter most in judging project reputation"? These fundamental questions remain unresolved in most construction literature, especially given reputation's complex, contingent and perception-driven nature. The existing body of literature, although disproportionately

focused on organisational reputation, has attributed project reputation to project success (Khan et al., 2016; Mir & Pinnington, 2014; Badewi, 2016; Irfan & Hassan, 2017) and examined diverse vital factors influencing project reputation including project performance (Floricel et al., 2016), innovation (Courtright & Smudde, 2009; Salman et al., 2018), competency (Skulmoski, 2010; Zhu et al., 2014), client satisfaction (Ning & Ling, 2014; Leon et al., 2018), among others.

For instance, studies like Ahadzie et al. (2008), Turner and Zolin (2012), and Al-Hajj and Zraunig (2018) opined that project performance may have a significant influence on the perceived reputation of a project. Performance in projects examines how a project meets its defined goals and objectives regarding cost, time, scope, and quality, with diverse studies evaluating project performance from process and product perspectives (Ika, 2009; Olawale et al., 2020a). According to Fombrun et al. (2004), while successful project performance can improve reputation and future business opportunities, poor project performance may lead to negative publicity and loss of customer confidence. Similarly, in a related but extensive study, Artto et al. (2008) identified innovation as a determinant of project reputation. According to de Jesus Pacheco (2017), projects that showcase innovative approaches and new ways of solving problems are highly regarded and often generate positive publicity, thus improving the perceived reputation of such projects. As D'Attoma and Ieva (2020) suggest, an innovation that enables achieving a project's stated outcomes can act as a defining differentiator from other projects and, therefore, enhance such a project's positive perception.

In another critical theoretical study by Loufrani-Fedida and Missonier (2015), the managerial competency of project managers in delivering a project has also been identified as an essential factor in evaluating a project's perceived reputation. As suggested in Moradi, Kähkönen, and Aaltonen's (2019) study, a project manager's managerial competency can significantly influence the perceived reputation of a project. Millhollan and Kaarst-Brown (2016) argue that project managers with practical managerial skills are often better equipped to lead cross-functional project teams and manage project risks and issues while handling stakeholders' expectations effectively. Ensuring effective management and delivery of a project to time, cost, and quality will improve clients' satisfaction, thus improving the perceived reputation of a project (Jo

& Barry, 2008; Basu, 2014). In addition, client satisfaction stands at the forefront of project success and reputation evaluation. Projects that meet or exceed client expectations are consistently associated with favourable perceptions, positively influencing the project's reputation (Müller & Turner, 2007; Bryde, 2008; Turner, 2009; Fortune et al., 2011). While Ozorhon (2013) expands the scope of project stakeholders to include a wide array, it is the client, as the primary stakeholder, whose satisfaction is paramount for the perceived success and commendation of the project. Jepsen and Eskerod (2009) and Eskerod et al. (2015) suggest that meeting clients' expectations directly shapes the favourable dialogue surrounding a project. In contrast, client dissatisfaction can harm a project's reputation, overshadowing the sentiments of other stakeholders and potentially causing lasting damage (Olander & Landin, 2005; Vuorinen & Martinsuo, 2019).

The above-highlighted factors, among others, have featured significantly in the literature as essential for evaluating project success and, invariably, the perceived project reputation, particularly in project-based organisational domains like construction (Thomas & Fernandez, 2008; Ika, 2009; Olawale et al., 2020a; Olawale et al., 2020b). However, despite the contributions of existing studies, the notion of project reputation remains a largely under-conceptualised research area in construction literature, with scholars calling for more in-depth understanding. Although reputation is of growing relevance within project management settings, studies on reputation generally remain scanty in the construction literature, let alone studies on project reputation. The few existing studies on reputation in construction have conceptualised it from an organisational standpoint (Khalfan et al., 2007; Upstill-Goddard et al., 2013). Also, other studies like Khan et al. (2013), Mir and Pinnington (2014), Badewi (2016), Irfan and Hassan (2017), who have all highlighted the significance of project reputation in their studies, have merely focused on the reputation of past delivered projects as a success driver, thus offering a limited view of the criticality of project reputation for construction organisations. Although the extensive study by Olawale et al. (2020a) appears to have engaged well with the concept of project reputation by looking into practitioners' perception of drivers of project reputation, the study also failed to significantly conceptualise project reputation as a notion, thus limiting the academic understanding of the underlying constructs. Overall, there is an alarming shortage of literature on a multi-construct evaluatory

framework for investigating project reputation within the construction industry, especially from project contractors' perspectives.
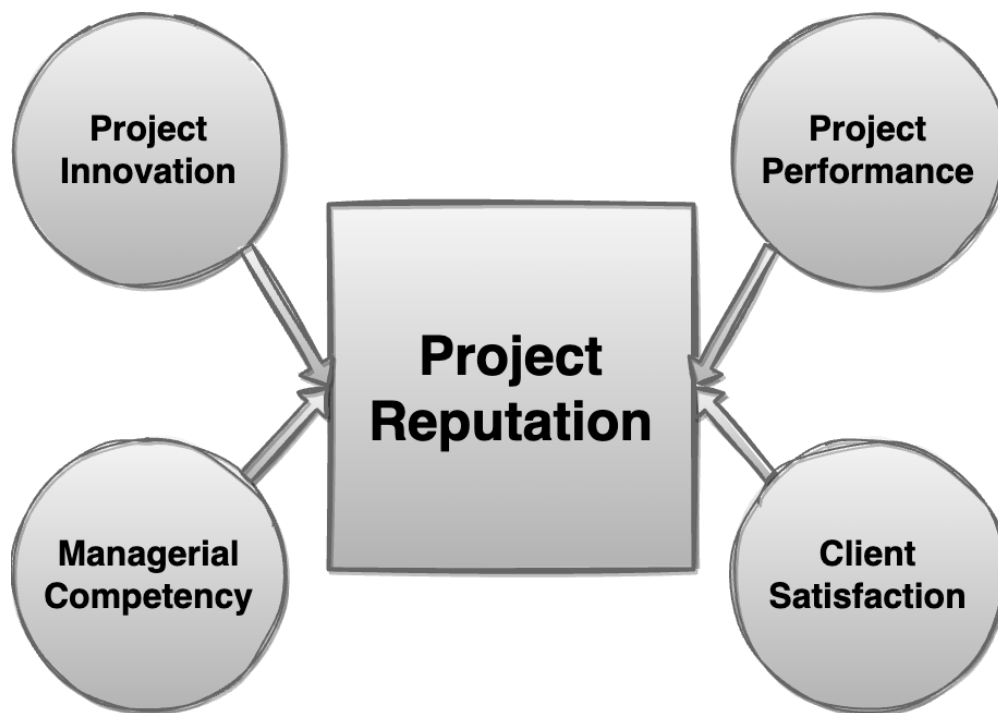
Figure 1: Focus of the study

The idea of exploring the contractors' perspectives in this thesis stems from the perspective of the increasingly significant roles that contractors play in the success or failure of a construction project, as they are responsible for executing the plans and completing the work (Alzahrani & Emsley, 2013; Suprapto et al., 2015). Their performance can significantly impact the project's reputation and the companies involved. In addition, contractors are often the primary point of contact for clients and stakeholders during the construction process, and their interactions and communication can affect the perception of the project's reputation (Olawale et al., 2020a). More so, Shu Hui et al. (2011) and Aarseth et al. (2013) argue that contractors have first-hand knowledge of the challenges and opportunities that arise during the construction process and can provide valuable insights into the factors contributing to a project's reputation. Consequently, understanding the contractor's perspective can help identify areas for improvement and inform strategies for enhancing project reputation and overall performance. Examining project reputation from the contractor's perspective can provide a more comprehensive understanding of the factors that

influence reputation within the construction industry. Hence, this study emerges with the overall aim of interrogating the concept of project reputation to develop a multi-dimensional theoretical framework for evaluating project reputation within UK construction organisations.

1.2 Aim and Objectives

This thesis aims to develop a robust multi-dimensional conceptual framework for evaluating project reputation for UK construction businesses. To achieve this aim, the following objectives will be implemented:

1. To examine the concept, dimensions, and key drivers of project reputation in construction project delivery.
2. To examine project performance and its impact on the reputation of construction projects.
3. To examine project leader's competencies and their influence on project reputation.
4. To examine the role of innovation on projects and its influence on perceived project reputation
5. To examine the role of client satisfaction and its influence on project reputation.
6. To examine contractors' perspectives on positive project reputation for developing a multi-dimensional evaluative framework.

1.3 Justification for the Study

This doctoral research serves as a critical stepping stone towards illuminating the complex dynamics of project reputation within the construction industry, specifically focusing on contractors' instrumental in determining project outcomes. The significance of the UK construction sector is remarkable, with its massive economic footprint and extensive employment generation. As a testament to this, the industry contributes an impressive £117 billion to the UK economy annually and fuels employment opportunities for approximately 3 million individuals (Office for National Statistics, 2023). Regrettably, this vital industry has been marred by several high-profile insolvencies, such as the Carillion case, which had far-reaching ramifications for many stakeholders, including subcontractors, employees, shareholders, and

lenders. The wide-ranging impact of these incidents extends beyond financial losses, significantly tarnishing the reputation of the sector as a whole and undermining stakeholder trust (Bolton et al., 2022). More troublingly, the Carillion debacle is not an isolated incident. Current data reveals a deeply concerning trend, with 26% of UK construction firms displaying tell-tale signs of financial distress, suggesting a looming risk of failure (Moore Stephens, 2018). This alarming situation casts a shadow over the reputation of UK construction firms, further exacerbating the challenges they grapple with, particularly in their pursuit of global competitiveness.

Such considerable risk among a significant fraction of UK construction organisations highlights an urgent need for a detailed understanding of the key drivers influencing project reputation. It is of utmost importance to decode the multifaceted interplay between stakeholder perceptions and reputation, given that the latter significantly impacts the sustainability and growth of these firms. Hence, the primary objective of this research is to devise a comprehensive evaluative framework that can effectively pinpoint the critical dimensions of project reputation from the contractors' perspective. It aims to provide invaluable insights to guide strategic decision-making, improve industry performance, and mitigate reputational risks. Expanding upon these notions, this research endeavours to augment resilience among construction organisations, bolster their competitive edge, and foster long-term sustainability. The study aspires to substantially contribute to the scholarly dialogue on project reputation management within the construction sector by addressing this conspicuous gap in existing knowledge. This study not only embarks upon a critical exploration of the role of project reputation in the construction industry but also offers a valuable toolkit for practitioners to navigate the tumultuous landscape of this sector. By homing in on the nuances of project reputation and its determinants, this research aims to guide construction firms, enabling them to enhance their reputational management strategies, foster robust stakeholder relationships, and ultimately secure their standing in the industry.

1.4 Unit of Study

The term "unit of study" refers to the entity subject to investigation or analysis in a research project (Babbie, 2020). In other words, the unit of analysis is the entity carefully examined to draw a conclusion and make a general assumption about a

larger group or phenomena. According to Sedgwick (2014), the choice of unit of study is mainly dependent on the research question and the type of data being collected. Depending on the focus of the study, the unit of analysis could be individuals, groups (project teams, projects, organisations), artefacts (books, photos, newspapers), geographical units (town, census tract, state), or social interactions. For instance, in a quantitative research study, the unit of study may be a household, an individual respondent, or a specific demographic group. In a qualitative research study, the unit of study may be a particular event or phenomenon, a group of people, or an organisation.

To avoid making erroneous conclusions about individuals or groups, the unit of analysis must be suitably determined in any research to prevent mistakes such as ecological fallacy, which happens when individual conclusions are drawn based on group analysis, or exception fallacy, which occurs when group conclusions are based on rare individual cases (Trochim, 2006). As this study aims to investigate the concept of project reputation to develop a multi-dimensional theoretical framework for evaluating project reputation within UK construction organisations from contractors' perspective, the unit of study is individual. The study is structured to elicit individual contractors' perceptions and opinions regarding project reputation. Focusing on the individual as the unit of study, the research aims to provide a detailed and nuanced understanding of project reputation within UK construction organisations. The multi-dimensional theoretical framework the study aims to develop will be based on the insights gained from exploring the individual perspective. It may guide future research or inform practice in the construction industry.

1.5 Overview of the Research Methodology

This study investigates the concept, dimensions, drivers, and impacts of project reputation on construction organisations from practitioners' perspectives. The study adopts an ontological realism perspective to achieve this aim, which posits an objective reality independent of our perceptions or beliefs. This perspective assumes the presence of a tangible, external world that can be investigated and comprehended through scientific inquiry. The study also adopts a subjective-objective epistemology perspective, which acknowledges the availability of diverse pathways to acquire

knowledge about the world. This perspective recognises both the scientific path that accentuates the utilisation of empirical data and objective methods to explore and comprehend the world and the interpretive path that places value on subjective experiences and personal perspectives in understanding the world. The study employs a critical realism philosophical paradigm to reconcile these seemingly contrasting worldviews. This approach incorporates interpretive and positivist methods by considering the knowledge of reality obtained through participants' interpretations and the pre-existing notion of knowledge obtained via scientific methods. This approach facilitates adopting an exploratory sequential mixed methodological approach that systematically combines different research methods.

The mixed methodological approach facilitates the incorporation of both interpretive and positivist methods into the study, enabling the researchers to attain a more comprehensive understanding of the phenomenon under investigation. The study selected two research strategies, phenomenology and survey research, due to their relevance to the study's aim. Phenomenology was chosen because it enables the researcher to explore the concept, dimensions, drivers, and impacts of project reputation on construction organisations from practitioners' perspectives without preconceived notions or assumptions. Phenomenology is well-suited to situations where a significant phenomenon has been poorly or wrongly conceptualised, as it can provide insight into practitioners' subjective experiences and perspectives. Complementing phenomenology is survey research, which involves collecting data from a sample of individuals through self-report measures, such as questionnaires. Survey research was chosen because it allows the researcher to elicit the opinions of a large population on the findings of the phenomenological research. Survey research can provide a comprehensive perspective on project reputation. It can help to identify trends, patterns, and relationships that may be absent from a smaller or more selective sample.

The study adopted focus group interviews and questionnaire surveys to collect data for the qualitative and quantitative approaches adopted. This study employed a random sampling strategy for the qualitative stage to select information-rich participants likely to have relevant knowledge or expertise on project reputation. This sampling strategy is appropriate because it enables the researcher to gain a more

nuanced and comprehensive understanding of the phenomenon being explored. In contrast, a snowball sampling strategy was employed for the quantitative stage to confirm the broader applicability or generalizability of the qualitative findings using survey research. This sampling strategy was necessary as the population of interest was difficult to access or identify, and the researcher leveraged the referrals of existing contacts within the UK design, engineering, and construction industry to recruit a large sample of questionnaire respondents over time. Both sampling strategies have been widely adopted in studies exploring social concepts within the construction industry. The collected data were subsequently analysed using content-driven thematic analysis using NVivo software, statistical analysis aided by SPSS software, and Structural Equation Modelling.

1.6 Scope and Limitation

The focus on the UK construction industry and the contractors' perspective in this study is both a strength and a limitation. It is a strength because the study addresses a gap in the literature by providing a comprehensive multi-dimensional framework for evaluating project reputation specific to the UK construction industry. Moreover, by focusing on contractors' perspectives, the study offers insights into the factors most relevant to contractors when evaluating project reputation. However, this focus is also a limitation because the conceptual framework developed in this study may need to be generalisable to other geographic locations, industries, or stakeholder groups. As such, the findings of this study should be interpreted with caution when applied to contexts outside of the UK construction industry or other stakeholder groups. Another limitation of this study is that it only focuses on four key drivers of project reputation: client satisfaction, innovation, competency, and project performance. While these drivers were identified through a thorough literature review and validated through empirical data, other drivers may be excluded from this study. For instance, the reputation of a project may be influenced by factors such as environmental sustainability, ethical standards, and social responsibility.

Therefore, the conceptual framework developed in this study should be considered as a starting point for evaluating project reputation. Future studies can explore other potential drivers relevant to specific industries, stakeholders, or geographic locations. Despite these limitations, this study provides a valuable contribution to the literature

on project reputation by developing a comprehensive and multi-dimensional conceptual framework that can be used to evaluate project reputation in the UK construction industry. By identifying the key drivers of project reputation and their interrelationships, this study provides a roadmap for contractors to improve their project reputation and enhance their competitiveness in the industry. Furthermore, the mixed-methods approach employed in this study, which incorporated both qualitative and quantitative methods, provides a robust and well-rounded analysis of project reputation, which can inform future research and practice in this field.

1.7 Contributions of the Study: Theory and Practice

This study makes significant theoretical and practical contributions to the construction management literature and practice. Firstly, the study develops a robust multi-dimensional conceptual framework for evaluating project reputation. The framework incorporates the four key drivers of project reputation: project performance, innovation, managerial competency, and client satisfaction. It combines evaluative, impression management, and relational theories into one multi-construct reputational theory. This theoretical contribution provides a more nuanced understanding of project reputation, which has practical implications for construction businesses seeking to manage and enhance their reputation. Secondly, the study contributes to the construction management literature by highlighting the importance of considering the perspectives of different stakeholders in evaluating project reputation. While the study focuses solely on contractors' perspectives, future research can explore other stakeholders' perspectives, such as clients, designers, subcontractors, and suppliers. Incorporating these perspectives into the conceptual framework would provide a more comprehensive understanding of project reputation and could help construction businesses identify areas for improvement in their reputation management strategies.

Thirdly, the study provides practical implications for construction businesses seeking to manage and enhance their reputation. The conceptual framework developed in this study can serve as a tool for construction businesses to evaluate their reputation across multiple dimensions and identify areas for improvement. For example, a construction business may use the framework to identify areas where it is performing poorly and take corrective measures to improve its reputation. Additionally, the

framework can be used to monitor changes in reputation over time and evaluate the effectiveness of reputation management strategies. Finally, the study's findings have practical implications for project stakeholders, such as clients, investors, and policymakers. By providing a more nuanced understanding of project reputation, the study's findings can help these stakeholders make more informed decisions about which construction businesses to work with and which projects to invest in. For example, a client may use the framework to evaluate a construction business's reputation before awarding a contract. In contrast, an investor may use it to assess a construction project's potential risks and returns.

1.8 Structure of the Thesis

This thesis is structured into ten cohesive chapters, each dedicated to a distinct facet of the research process. Figure 2 below illustrates the flow and content of the theory.

Chapter	Description
Chapter 1 (Introduction)	This chapter provides an introduction to the study, highlighting its background, aim and objectives, the gaps it seeks to fill in existing knowledge, the unit of study, and an overview of the chosen research methodology, along with the scope, limitations, and intended contributions of the study, followed by a description of the thesis's structure.
Chapter 2 (What is Reputation)	This chapter examines the concept of reputation, delving into the definitions and factors influencing organisational reputation across sectors, with a focus on project-based organisations and project reputation, and it investigates the relationship between project success and project reputation.
Chapter 3 (Literature Review)	This chapter presents an in-depth literature review exploring the key constructs—client satisfaction, innovation, competency, and output specification—that influence the project reputation of construction organisations.
Chapter 4 (Theoretical Framework)	This chapter discusses the three main organisational reputation theories—evaluative, impressional, and relational—culminating in the development of an integrative multi-theoretical construct.
Chapter 5 (Research Methodology)	This chapter elaborates on the research's philosophical framework, paradigm, reasoning approach, methodology, strategy, and sampling process.
Chapter 6 (Qualitative Study)	This chapter outlines the qualitative study design, including the selection of the population and sampling techniques, data collection methods, data analysis approach, ethical considerations, and the formulation of the qualitative research hypothesised framework.
Chapter 7 (Quantitative Study)	This chapter details the quantitative study process, comprising the selection of population and sampling techniques, the creation of the questionnaire, data collection and response rate, preliminary data screening and analysis, descriptive statistics, and the Kruskal-Wallis test.
Chapter 8 (Structural Equation Modelling)	This chapter covers the application of Structural Equation Modelling, evaluating model fitness, construct validity and reliability, performing Confirmatory Factor Analysis, and developing a Structural Equation Model that encompasses Client Satisfaction, Innovation, Competency, and Output Specification Constructs.
Chapter 9 (Discussion & Findings)	This chapter involves the interpretation and discussion of the findings, focusing on differences in perceptions according to respondents' job roles and discussing the results of the Structural Equation Modelling.
Chapter 10 (Conclusion)	This chapter summarises the study's key findings, discusses their practical and theoretical implications, addresses study limitations, and proposes areas for future research.

Figure 2: Layout of the thesis

2 Chapter Two: What is Reputation?
2.0 Chapter Overview

This chapter serves as a comprehensive exploration of the concept of reputation, beginning with its general understanding and progressing towards its organisational implications. Initially, it expounds on the core definitions of organisational reputation, offering a broad perspective that considers various contexts across diverse sectors. The narrative then specifically tailors to reputation in project-based organisations, articulating its importance and the unique factors contributing to its shaping within such settings. A further focus is directed to project reputation, bringing forth a detailed conceptual review that dissects its components and how they interrelate. The chapter also discusses process and product success factors in project management, providing an analysis that bridges the gap between project success and project reputation. Lastly, it scrutinises the various factors influencing project reputation, providing a foundational understanding which will be built upon in subsequent chapters.

2.1 What is Reputation?

The term "reputation" is a social construct that reflects the overall estimation in which an individual, group, or organisation is held by others (Fombrun, 2005). It encompasses various characteristics, including honesty, reliability, trustworthiness, and competence (Fombrun & Shanley, 1990). According to Fombrun (2005), reputation can significantly determine an individual or group's social standing, impacting their ability to access resources and opportunities. Authors such as Galaskiewicz (1985) and Fombrun and van Riel (1997) contend that reputation is often established through various behaviours and interactions with others. It is also often shaped by the expectations and norms of the community in which an individual or group operates. For instance, an individual or group that consistently behaves in a trustworthy and reliable manner will likely develop a positive reputation.

In contrast, someone who consistently acts deceitfully or is unreliable will likely develop a negative reputation. It is equally important to note that the actions and behaviours of others can also influence reputation, as people often rely on the reputations of others when making decisions about whether to interact with them (Rao, 1994). If an individual or group has a positive reputation, others may be more likely to

trust them, do business with them, or engage in other forms of social exchange. On the other hand, if an individual or group has a negative reputation, others may be less likely to trust or engage with them in any way.

2.2 Organisational Reputation – Concept and Definitions

Reputation, whether ascribed to individuals or organisations, has always been of paramount importance. Tracing the study of corporate reputation in academic literature, its roots can be found in the 1960s, showcased by works such as Finn (1961) and Macleod (1967). However, the actual exploration into the concept and its implications began to gain prominence in the 1990s and 2000s through the insights provided by authors like Fombrun and Shanley (1990) and Balmer (2009). Recent contributions from scholars such as Abratt and Kleyn (2012) and Mishina, Block, and Mannor (2012) further illustrate its ongoing relevance. Environmental factors, such as globalisation, fast-paced product cycles, and intensified competition across for-profit and non-profit sectors, spurred the heightened emphasis on corporate reputation management during the 1990s. Deregulation, privatisation in various industries, and a surge in mergers, acquisitions, and divestitures underscored the need for corporate reputation management, especially when such changes clouded the corporate image. Balmer (2009) pointed to the discrepancy that may arise between an organisation's desired perception and its actual public image. Furthermore, the public's escalating expectations around corporate social responsibility spotlighted the entities behind brands, postulating that a "socially responsible" image can yield better financial outcomes (Dowling, 2006; Balmer, 2009).

"Organisational reputation" is undeniably multifaceted, drawing academic and industry attention. Authors from diverse disciplines, be it public relations (Hutton et al., 2001), marketing (Gray & Balmer, 1998; Weiss et al., 1999), economics (Gentzkow & Shapiro, 2006), sociology (Camic, 1992), or strategic management (Roberts & Dowling, 2002; Fombrun, 2005), have ventured to define this elusive term. The resulting array of definitions, as highlighted by Fombrun and Rindova (1998), has inevitably led to ambiguities. Different fields offer varying lenses through which to view corporate reputation. For instance, strategic management views it as either an attribute inferred from past actions or the public's judgment accumulated over time

(Weigelt & Camerer, 1988; Roberts and Dowling, 2002). Meanwhile, sociology perceives reputation as a reflection of legitimacy or societal acceptance (Camic, 1992), and in economics, it serves as a signal from a company to its customers (Gentzkow & Shapiro, 2006). Despite the variances in definition (Barnett and Pollock, 2012; Lange et al., 2011; Walker, 2010; Fombrun and van Riel, 1997), the consensus remains that organisational reputation represents stakeholders' collective perceptions about an organisation, shaped by factors like past actions, performance, and values (Fombrun and Shanley, 1990; Fombrun, 2005). Weigelt and Camerer's (1988) definition, which categorises corporate reputation as an attribute or attributes drawn from past actions, is widely cited. Similarly, Roberts and Dowling (2002) see it as a cumulative public judgment over time. Other researchers have discussed corporate reputation regarding customer perceptions, such as collective beliefs in the organisational field about a firm's identity and prominence, its media visibility, and the business favour it has gained (Rao, 1994).

Reputation is widely acknowledged as intricate and multi-faceted, making it a unique asset that's challenging to duplicate. Authors like Barney (1986) and Dierickx and Cool (1989) argue that a company's and its stakeholders' interactions are uniquely irreplicable. Building a reputation can also be lengthy for new entrants in a competitive market. One of the critical drivers of organisational reputation is the organisation's behaviour and actions. Organisations that consistently act ethically and responsibly are likely to have a positive reputation, while those that engage in unethical or irresponsible behaviour are likely to have a negative reputation. In addition, organisations that deliver high-quality products and services, have a strong financial performance and are transparent and accountable are more likely to have a positive reputation. The importance of organisational reputation is highlighted by the significant consequences that can result from a negative reputation. Ethical conduct often translates to a positive reputation, while deviations may tarnish it. This has substantial ramifications, as a negative reputation can erode trust, diminish loyalty, and impact financial performance (Fombrun, 2005).

The myriad definitions of reputation in literature underline a fundamental dilemma (Barnett and Pollock, 2012; Lange et al., 2011; Walker, 2010; Fombrun and van Riel, 1997). While consensus on a singular definition remains elusive, Walker (2010)

offered an encompassing perspective of corporate reputation as: "A relatively stable, issue-specific aggregate perceptual representation of a company's past actions and prospects compared against some standard". This definition considers five critical attributes of reputation: (1) reputation is based on perceptions; (2) reputation is the collective perception of all stakeholders; (3) reputation is comparative; (4) reputation can be positive or negative, and (5) reputation is stable and enduring. This definition also reflects the views of leading articles (Walker, 2010), which formed a sample of only well-cited in the field; thus, the meaning is still the most precise because it encompasses critical attributes of reputation, which are elucidated subsequently. The first definitional attribute is that reputation is based on the view of the stakeholders and that reputation is somewhat out of the hands of the organisation (Brown et al., 2006). This is because of the multifaceted nature of the functioning of an organisation, which has internal and external stakeholders at its helm. This view is supported by Fombrun (2005), who asserts that it is difficult for reputation to be entirely captured by one person/stakeholder and equally challenging to manipulate in one direction due to its intricate nature.

The second definitional attribute is that reputation is a collective concept based on all stakeholders' perceptions. This implies that one person does not socially construct a reputation. Still, it is based on the collective perceptions of multiple stakeholders such as customers, employees, managers, creditors, media, and the government of host communities. However, this attribute is often issue-specific because an organisation may have a different reputation for product quality, environmental responsibility, social responsibility, and employee treatment (Walker, 2010). As a result, Lewellyn (2002) put forward a central question: a reputation for what and according to whom? To this end, it can be construed that organisations have multiple stakeholders. They also have numerous reputation worldviews, and each worldview represents the aggregate perception of all stakeholders for that specific issue (Walker, 2010). The third definitional attribute implies that reputation is comparative. This suggests that an organisation's reputation is benchmarked against other leading organisations (Fombrun, 2005) regarding project delivery and product quality.

In contrast to this view, Wartick (2002) maintains that reputation is not wholly about benchmarking reputation against leading organisations but also about comparing

against an industry average or an organisation's previous reputation(s). The fourth definitional attribute indicates that reputation can be positive or negative (Rhee and Haunschild, 2006). This insinuates that reputation can be advantageous or disadvantageous to organisations because a good reputation will attract investors, customers, and good staff, while a bad reputation will repel them. The fifth definitional attribute indicates that reputation is somewhat enduring and stable (Rhee and Haunschild, 2006). Contrary to the unpredictability of reputation, it is viewed as relatively stable over a period (Walker, 2010).

One of the critical challenges in managing organisational reputation is the complexity and multifaceted nature of the concept. Reputation is influenced by various factors, including the organisation's past actions and performance and external factors, such as media coverage and stakeholder perceptions (Fombrun, 2005). This complexity makes it difficult for organisations to effectively manage their reputation and predict how their actions will impact their reputation. According to recent research, several propositions can help organisations better understand and manage their reputation. First, reputation is not static; it is constantly evolving and shaped by the organisation's ongoing actions and performance (Wang et al., 2020). This means that organisations must proactively manage their reputations and continuously monitor and adjust their actions and behaviours to maintain a positive reputation. Second, reputation is a multidimensional concept influenced by tangible and intangible factors (Wang et al., 2020). Tangible factors include the organisation's financial performance and product quality, while intangible factors include the organisation's values and corporate social responsibility efforts (Wang et al., 2020). Organisations should, therefore, consider both tangible and intangible factors when managing their reputation. Third, reputation is context-specific, meaning that it can vary depending on the stakeholder group and the specific context in which the organisation operates (Wang et al., 2020). Organisations should consider each stakeholder group's unique context and perspective when managing their reputation.

Scholars and industry experts unanimously acknowledge the value of corporate reputation as an essential organisational asset. Balmer (2009) asserts that an organisation's identity, branding, communications, and reputation collectively bestow a strategic edge (p. 545). Over time, literature has illuminated the myriad advantages

of a sterling reputation. From the customer's standpoint, a reputable organisation seems more trustworthy, mitigating perceived risks and bolstering loyalty. This trust can justify premium pricing, with customers often willing to pay a premium for services from esteemed organisations (Fombrun, 2005; Dowling & Moran, 2012). In supply chain relationships, a respected organisation may be met with lenient contract terms and reduced monitoring, leading to cost savings. A company's reputation plays a pivotal role in the human resources domain. Current and prospective employees gravitate towards organisations with positive reputations, exhibiting enhanced loyalty and productivity (Roberts & Dowling, 2002; Fombrun, 2005).

Additionally, such organisations are less vulnerable to crises, and even when adversities arise, their accrued goodwill minimises damage (Fombrun, 2005). Corroborating the academic stance, industry insights, such as those from the Reputation Institute, underscore the necessity of reputation management. Their "Energy Industry Reputation Profile" (2011, p. 5) emphasises its significance in distinguishing energy companies in an oversaturated global market, attracting premier talent, and securing advantageous business partnerships. Even the non-profit realm is not impervious to the influence of reputation. Research indicates that charities with commendable reputations excel in donor acquisition and can profoundly shape donor behaviour (Bennett & Gabriel, 2003; Meijer, 2009).

2.3 Factors influencing Organisational Reputation across diverse sectors.

Corporate reputation, as comprehensively elucidated in the preceding discourse, remains paramount in charting organisations' success, growth, and overall trajectory. However, corporate reputation is not an isolated construct but an intricate tapestry woven together by myriad determinants. For instance, an organisation's financial performance undeniably stands out as one of the foundational pillars. In their evaluations, stakeholders are known to hold organisations with sterling financial performance in high esteem. This solid financial footing lends credence to the organisation's stability and potential for future growth.

Conversely, organisations with lacklustre financial performances can receive reputational setbacks and decreased stakeholder confidence (Fombrun, 1996;

Balmer, 2009; Barkema & Schijven, 2008). Another cornerstone shaping corporate reputation is Corporate Social Responsibility (CSR). The modern organisation does not operate in a vacuum but within a societal and environmental context. Hence, companies that exemplify an unwavering commitment to broader societal and environmental stewardship are often painted with brushes of trust, responsibility, and ethics. Their dedication to CSR initiatives, as underscored by Bennett & Gabriel (2003) and Meijer (2009), becomes a beacon for enhanced reputation.

Communications and branding also have been found to play a critical role in shaping corporate reputation (Fombrun, 1996; Balmer, 2009; Roberts & Dowling, 2002). How an organisation communicates with its stakeholders and the strength of its brand can significantly influence its reputation (Barkema & Schijven, 2008; Dowling & Moran, 2012). Organisations that are transparent and consistent in their communications and have a strong brand are more likely to be viewed favourably. Crisis management also plays a crucial role in shaping corporate reputation (Fombrun, 1996; Balmer, 2009; Roberts & Dowling, 2002). An organisation's ability to manage crises effectively can significantly impact its reputation (Barkema & Schijven, 2008; Dowling & Moran, 2012). Organisations that respond quickly and transparently to crises and take responsibility for their actions are more likely to mitigate reputational damage.

Leadership and corporate culture are other key factors in the literature influencing organisational reputation (Fombrun, 1996; Balmer, 2009; Roberts & Dowling, 2002). The behaviour and actions of an organisation's leaders and the corporate culture they create can significantly impact an Organisation's reputation. Organisations with strong and ethical leadership and a positive corporate culture are more likely to be viewed favourably by stakeholders (Barkema & Schijven, 2008; Dowling & Moran, 2012). Another factor influencing Organisational reputation is the quality of products and services (Fombrun, 1996; Balmer, 2009). Organisations consistently providing high-quality products and services are more likely to be viewed positively by customers and other stakeholders (Barkema & Schijven, 2008; Dowling & Moran, 2012). Stakeholder engagement is also crucial in shaping organisational reputation (Fombrun, 1996; Balmer, 2009; Roberts & Dowling, 2002). Organisations that actively engage with their stakeholders, such as through community engagement, are more likely to be viewed favourably and have a better reputation (Barkema & Schijven, 2008; Dowling & Moran,

2012). Business practices and ethics are also essential to influencing reputation (Fombrun, 1996; Balmer, 2009; Roberts & Dowling, 2002). Organisations that engage in unethical practices, such as labour violations or environmental degradation, may have a negative reputation (Barkema & Schijven, 2008; Dowling & Moran, 2012).

Employee satisfaction and engagement can also shape Organisational reputation (Fombrun, 1996; Balmer, 2009; Roberts & Dowling, 2002). Organisations with high employee satisfaction and engagement can be viewed more favourably by stakeholders and enhance the company's overall reputation (Barkema & Schijven, 2008; Dowling & Moran, 2012). Furthermore, the growth of digital platforms and the rise of social media have significantly impacted traditional reputation management strategies (Reputation Institute, 2011; Balmer, 2009; Barkema & Schijven, 2008). How an Organisation interacts with its audience, reviews, and feedback can significantly impact its reputation.

Moreover, Environmental, Social and Governance (ESG) concerns are increasingly becoming essential factors that shape organisational reputation (Fombrun, 1996; Balmer, 2009; Roberts & Dowling, 2002). Society and investors are becoming more sensitive to social and environmental issues, so an organisation's reputation can be significantly influenced by how well it addresses these concerns (Barkema & Schijven, 2008; Dowling & Moran, 2012). Innovation is also critical in shaping organisational reputation (Fombrun, 1996; Balmer, 2009; Roberts & Dowling, 2002). Organisations perceived as innovative and taking steps to improve or change their industry are more likely to be viewed positively, which can help build a better reputation (Barkema & Schijven, 2008; Dowling & Moran, 2012). For instance, if a company can demonstrate a commitment to developing innovative and high-quality products, it will likely be seen as a successful business that meets the needs and wants of its customers.

Corporate Social Responsibility (CSR) has increasingly become a critical determinant in shaping an organisation's reputation. As Porter and Kramer (2006) point out, when synergistically integrated with business strategies, CSR initiatives offer mutual benefits for the organisation and the community. A significant aspect of CSR, the social value of projects, mirrors an organisation's dedication to the welfare of society, transcending mere profit motives. Bhattacharya, Sen, and Korschun (2008) highlight

that CSR endeavours are instrumental in forging a positive corporate image and bolstering stakeholder trust, thereby fortifying the organisation's reputation. Organisations that adopt comprehensive CSR strategies resonate with contemporary consumer expectations, demonstrating a responsible citizenship ethos. Businesses that proactively engage in activities benefiting social, environmental, and economic realms are more likely to garner public trust and allegiance.

An organisation's vision is not merely a statement of intent; it is the bedrock upon which the reputation and identity of the organisation are built. In their insightful work, Collins and Porras (1996) delve deep into the concept of visionary companies, emphasising the profound impact an effectively communicated and inspiring vision has on an organisation's stature and success. This vision goes beyond mere words; it embodies the essence of the organisation's aspirations and values, serving as a beacon that guides every facet of its operations. A well-defined and compelling vision is instrumental in carving out a distinct identity for an organisation. It differentiates the organisation in a crowded marketplace, elevating it above its competitors. This unique identity, forged by a clear vision, fosters a strong connection with customers, investors, and the wider community, establishing a recognisable and respected brand.

Beyond external perceptions, the internal impact of a clear vision is equally significant. It provides a sense of direction and purpose, uniting employees under a common goal. This unity is essential in fostering a cohesive and productive organisational culture. When employees understand and align with the vision, they are more likely to feel a sense of belonging and commitment to the organisation, which translates into higher engagement, motivation, and performance. In today's rapidly evolving business landscape, where stakeholders are increasingly concerned with organisations' ethical and sustainable practices, a vision encompassing these values can significantly elevate an organisation's reputation. A vision integrating sustainability, social responsibility, and ethical practices resonates deeply with modern consumers and stakeholders, further solidifying the organisation's reputation as a leader and innovator.

Financial performance, often viewed as the bedrock of organisational success also plays a crucial role in shaping an organisation's reputation, as highlighted by Fombrun

and Shanley (1990). Key financial metrics like profitability, growth, and market share are not merely numbers on a balance sheet; they are indicators closely monitored by various stakeholders and serve as a barometer for the organisation's health and efficiency. These metrics significantly influence how internal and external stakeholders perceive the organisation, impacting everything from investor confidence to employee morale. Strong financial performance indeed plays a crucial role in enhancing an organisation's reputation, particularly in the eyes of investors and shareholders. It is often seen as a sign of a company's viability, strategic effectiveness, and managerial competence. Financial success can attract further investment and talent and provide the resources for innovation and expansion. However, this is just one aspect of a multifaceted picture.

Emotional appeal, which includes facets like earned admiration and trust, is a nuanced yet highly influential factor in shaping an organisation's reputation. Aaker (1991) highlighted the critical role of brand personality traits such as sincerity, excitement, and competence in establishing a deep and meaningful connection with stakeholders. These traits are not superficial adornments but are fundamental to the essence of a brand's identity, determining how the public perceives and receives it. At the heart of emotional appeal lies trust, a component that is meticulously developed over time through consistent and ethical behaviour. Mayer, Davis, and Schoorman (1995) have extensively discussed how trust is not spontaneously generated but is cultivated through continuous and reliable actions, transparent communication, and adherence to ethical principles. Trust forms the backbone of any relationship, including the one between an organisation and its stakeholders. It is a precious commodity in the business world, earned through consistent performance and responsible conduct. Organisations that master the art of building emotional appeal through authenticity, dependability, and empathy are more likely to forge a strong and enduring reputation. In an era where consumers and other stakeholders increasingly make decisions based on their values and beliefs, emotional appeal can be a significant differentiator. Organisations that can align their values with those of their stakeholders and communicate this alignment effectively are likely to see a reinforcement of their reputation. This alignment can manifest in various forms – from corporate social responsibility initiatives that resonate with the public's concern for social and

environmental issues to marketing and communication strategies that authentically reflect the organisation's character and ethos.

However, it is pertinent to understand that different industries may have specific factors that influence their corporate reputation due to the industry's unique characteristics (refer to Table 1). The factors that influence an organisation's reputation reflect the values and expectations of its stakeholders. These values and expectations can vary depending on the industry or sector in which an organisation operates, as well as the social, cultural, and economic context in which it operates. For example, some industries may emphasise financial performance and stability, which can be critical to an organisation's long-term viability. In these industries, an organisation's reputation may be heavily influenced by its ability to generate profits, maintain a robust financial position, and demonstrate financial stability. Other sectors may place a greater emphasis on social and environmental responsibility.

In these industries, an organisation's reputation may be influenced by its commitment to sustainability, ethical business practices, and social responsibility. Still, other sectors may place a greater emphasis on innovation and the ability to adapt to change. In these industries, an organisation's reputation may be influenced by its ability to develop new products or services or respond to market demand or technology shifts. These values and expectations reflect the broader social and cultural norms and values of the organisation's community. By prioritising certain factors that influence reputation over others, an organisation can align itself with its stakeholders' values and expectations and build a consistent reputation with these values.

For example, in the technology industry, innovation and product quality may be significant factors (Barkema & Schijven, 2008; Dowling & Moran, 2012), while in the healthcare industry, patient safety and ethical practices may be critical. For instance, customers in the hospitality industry expect high-quality services and hospitality. In contrast, customers in the IT industry expect a higher level of product quality (Anselmo, 2018). Furthermore, consumers expect high corporate responsibility from technology firms due to their high E-commerce activities (Boussis & Fogelvik, 2018). In the financial services industry, reputation is heavily influenced by the level of trust and confidence that customers have in the institution. This is especially true in the

wake of the global financial crisis of 2008. Companies with a strong reputation in this industry are more likely to retain customers and attract new ones.

On the other hand, the oil and gas industry focuses more on environmental and social responsibility. Companies in this industry are often judged on their ability to minimise the negative impact of their operations on the environment and local communities. In the consumer goods industry, reputation is often tied to the quality of the products and the company's ability to meet consumer expectations. Companies with a strong reputation in this industry are more likely to attract loyal customers who will continue to purchase their products. These examples demonstrate the importance of understanding the key factors influencing corporate reputation to stay competitive. It is important to note that these factors are not mutually exclusive, and their relative importance may vary depending on the specific industry or organisation. Additionally, these factors are subject to change as the economy and society progress.

Table 1: Industry-specific factors influencing organisational reputation across diverse industries.

S/N	Industry	Industry-specific factors	References
1.	Healthcare	Regulations	Singh & Mistra (2021); O'connor (2016); Kok et al., (2015); Ross et al., (2016)
		Patient satisfaction and quality of care	Naidu (2009); Mosadeghrad (2014); Vogus & McClelland (2016); Bolton et al., (2018); Kruse et al., (2017); Fatima et al., (2018)
		Data privacy and security	Behera et al., (2022); Nifakos et al., (2021); Page (2017); Alharbi, Atkins & Stanier (2017); Alharbi, Atkins & Stanier (2016); Rahim et al., (2016)
		Drug pricing	Jin et al., (2008); Ion et al., (2021); Vahabzadeh et al., (2017); Behera et al., (2022)
2.	Financial Services	Regulations	Jo et al., (2015); Pérez (2015); Gomber et al., (2018); Anagnostopoulos (2018); Yeoh (2017); Omran & Ramdhony (2015)
		Ethical practices	Jo et al., (2015); Fatma et al., (2015); Islam et al., (2021); Aramburu & Pescador (2019); Martínez-Ferrero et al., (2016); Gatzert (2015)
		Cybersecurity	Demirkan et al., (2020); Tosun (2021); Wang & Johnson (2018); Lezzi et al., (2018)
		Product safety and efficacy	Gatzert (2015); Jo et al., (2015); Aramburu & Pescador (2019); Boateng & Okoe (2015)
		Customer service	Gatzert (2015); Dijkmans et al., (2015); Jo et al., (2015); Fatma et al., (2015); Pérez (2015); Saeidi et al., (2015); Boateng & Okoe (2015)
3.	Retail Industry	Product quality and safety	Hanaysh (2018); Fatma et al., (2015); Cham et al., (2018); Dyduch & Krasodomska (2017); Su et al., (2017); Park et al., (2017)
		Customer service	Hanaysh (2018) ; Roy et al., (2018) ; Cham et al., (2018) ; Su & Chang (2017) ; Rana & Paul (2017).
		Ethical sourcing and supply chain management	Hanaysh (2018); Chkanikova & Mont (2015); Naidoo & Gasparatos (2018); Govindan (2018); Hughes et al., (2019)
		Environmental and social responsibility	Hanaysh (2018); Dyduch & Krasodomska (2017); Islam et al., (2021); Saeidi et al., (2015)
4.	Energy and Utilities Industry	Environmental performance	Ardito & Dangelico (2018); Dangelico (2015); Phan & Baird (2015); Tsai et al., (2015); Martos et al., (2016); Wang & Zhao (2017); Yoon et al., (2018)
		Safety and reliability	Avancini et al., (2019) Ahmad et al., (2021); Aguero et al., (2017); Zhou et al., (2016); Sinsel et al., (2020)
		Pricing	Yan et al., (2018); Niu et al., (2020); Salm (2018); Haider et al., (2016)

#	Industry	Category	References
		Community engagement and stakeholder management	Langer et al., (2017); Creamer et al., (2018); Becker et al., (2017); MacArthur (2016); Feng et al., (2017)
5.	Food and Beverage Industry	Food safety and quality	Etter et al., (2019); Tang (2015); Han et al., (2015); Rhou et al., (2016)
		Ethical sourcing	Chkanikova & Mont (2015); Hanaysh (2018); Hughes et al., (2019); Feng et al., (2017); Formentini & Taticchi (2016); Govindan (2018); Rhou et al., (2016)
		Environmental and social responsibility	Rhou et al., (2016); García-Madariaga & Rodríguez-Rivera (2017); Fatma et al., (2015)
		Nutritional content	Mialon et al., (2015); Popkin (2017); Mozaffarian et al., (2018)
6.	Technology Industry	Product and service quality	Foroudi et al., (2016); Doorley & Garcia (2015); Oztemel & Gursev (2020); Li et al., (2017); Dale & Plunkett (2017); Govindan & Hasanagic (2018).
		Cybersecurity	Demirkan et al., (2020); Tosun (2021); Wang & Johnson (2018); Lezzi et al., (2018)
		Data privacy and security	Behera et al., (2022); Nifakos et al., (2021); Alharbi, Atkins & Stanier (2017); Rahim et al., (2016)
		Corporate responsibility and social impact	Stohl et al., (2017); Chuang & Huang (2018); Scherer et al., (2016); Albuquerque et al., (2019); Ioannou & Serafeim (2015).
7.	Manufacturing Industry	Environmental performance	Ardito & Dangelico (2018); Dangelico (2015); Phan & Baird (2015); Tsai et al., (2015);
		Safety	Avancini et al., (2019) Ahmad et al., (2021); Aguero et al., (2017); Zhou et al., (2016); Sinsel et al., (2020)
		Ethical sourcing and supply chain management	Hanaysh (2018); Hughes et al., (2019); Feng et al., (2017); Formentini & Taticchi (2016); Govindan (2018)
		Product quality and safety	Han et al., (2015); Rhou et al., (2016)
8.	Public Sector	Transparency	Abd Aziz et al., (2015); Stamati et al., (2015); Pérez (2015); Grossi et al., (2015); Jiang & Men (2017); Sovacool & Andrews (2015)
		Public engagement and stakeholder management	Brown et al., (2017)
		Service quality	Dijkmans et al., (2015); Jo et al., (2015); Fatma et al., (2015); Pérez (2015); Saeidi et al., (2015); Boateng & Okoe (2015)
		Ethical conduct	Naidoo & Gasparatos (2018); Govindan (2018); Hughes et al., (2019)
9.	Service Industry	Quality of service	Hanaysh (2018) ; Roy et al., (2018) ; Cham et al., (2018) ; Su & Chang (2017) ; Rana & Paul (2017).

		Customer satisfaction	Singjai et al., (2018) Cham et al., (2018) ; Su & Chang (2017) ;
		Ethical conduct	Hanaysh (2018); Chkanikova & Mont (2015); Naidoo & Gasparatos (2018); Govindan (2018); Hughes et al., (2019)
		Transparency	Kim (2019); Pérez (2015); Jiang & Men (2017); Fombrun et al., (2015); Islam et al., (2021); Albu & Flyverbom (2019); Agarwal et al., (2015).
		Employee engagement	Slack et al., (2015); Gill (2015); Kumar and Pansari (2015); Osborne & Hammoud (2017);

2.4 Construction Organisation's Reputation

Organisational reputation, due to its relationship with positive performance, has been widely recognised as one of the essential foundations on which organisational success is grounded (Rindova et al., 2005). Academics and practitioners believe that organisational reputation influences the evaluations that stakeholders make about organisations. It is, therefore, not surprising that when an organisation has a positive reputation, it can leverage its reputation to receive a premium for a product or a service from clients/customers (Vidaver-Cohen, 2007; Lange et al., 2011). With the realisation of the corporate worth of reputation, it is no surprise that reputational management issues have moved from the periphery to the mainstream in organisations, particularly project-based ones. Extensive studies on project performance, such as Khan et al. (2013), Mir and Pinnington (2014) and Olawale et al. (2020a), have revealed the association between project performance and reputation. Khan et al. (2013) asserted that a positive or negative reputation is established when a project delivers or fails to deliver the benefits for which it was created. Based on the above assertion, the construction Project-based Organisations (PBOs) case is unique.

For context, a project-based organisation focuses on completing specific projects or tasks rather than on ongoing operations. This type of organisation is common in construction, engineering, and consulting industries, where projects have a clear beginning and end and aim to deliver a specific product or service to a client. However, these PBOs operate in a dynamic environment where they undertake unique projects that differ in size, complexity, geographical contexts, and stakeholders. Each of these projects could impact the given construction firm's reputation positively or negatively. Evidence within the literature has shown that many organisations have suffered substantial reputational damage due to one or more of their projects failing to achieve project expectations, outcomes, and objectives, i.e., time, cost, and quality etc. (Ahsan & Gunawan, 2010; Doloi et al., 2012; Olawale et al., 2020a).

For instance, the collapse of the Ronan Point Tower in London, UK, presents a classic scenario where the bad reputation associated with an event affected the fortunes of the contractors (Pearson & Delatte, 2005). The Ronan Point Tower, built by the construction company Taylor Woodrow-Anglian, was constructed using a "system-

built" method, which involved large prefabricating sections of the building off-site and then assembling them on-site (Pearson & Delatte, 2005). In 1968, a gas explosion caused the partial collapse of the Ronan Point Tower, a 22-story high-rise building. The incident resulted in the deaths of four people and dozens of injuries. According to Russell et al. (2019), an inquest into the accident revealed that adopting a new type of construction method, the "system-built" method, considered revolutionary at the time, did not provide adequate structural support. The incident caused a significant negative impact on the reputation of the contractor. The disaster prompted a major rethink of the safety regulations for high-rise buildings in the UK, and the contractor was heavily criticised for not providing adequate safety measures (Pearson & Delatte, 2005; Russell et al., 2019). The method was abandoned after this incident, and it was a big blow to the company's reputation as it was seen as a significant failure in terms of safety. It raised questions about the quality of their work.

Similarly, the case of Aéroports de Paris/Architects and Engineers (ADPi), which was a renowned project organisation, suffered severe damage to its reputation when one of the terminals (terminal 2E) it constructed at Charles de Gaulle airport in France collapsed and led to the death of 6 people (Kaljas, 2017). Terminal 2E was intended to be a state-of-the-art terminal designed to handle many passengers, but it collapsed just a few months after it opened. The collapse was caused by a design flaw in the terminal's roof structure, which could not support the weight of the accumulated snow. The collapse of Terminal 2E further damaged the reputation of Aéroports de Paris (ADPi) and the architects and engineers involved in the project. The collapse highlighted the poor design and execution of the terminal and the lack of safety measures in place. The incident resulted in the terminal's closure for several months and caused significant disruption to the airport's operations. The incident also caused a substantial financial loss for the company, architects, engineers, and airport operators. Overall, the collapse of Terminal 2E at Charles de Gaulle Airport added to the existing issues surrounding the airport's construction and further damaged the reputation of ADPi and the architects and engineers involved in the project. Likewise, the London Grenfell Tower fire, which led to the death of 72 residents, including 70 injured, presents a classic scenario where the bad reputation associated with the event affected the fortunes of the contractors (Shildrick, 2018). The project faced widespread criticism for its lack of safety measures and regulatory oversight, further damaging its

reputation. The negative publicity surrounding the disaster made it more difficult for construction companies and government agencies to secure funding and partnerships for future projects.

These occurrences indicate that one recent failure can negatively impact the reputation of construction PBOs. Therefore, construction firms must pay attention to their performance on projects because their organisational longevity depends on it. More so, owing to the ever-increasing number of fanciful and intricate project designs, multibillion-dollar megaprojects, and conflicting expectations from multiple stakeholders (Okenyi et al., 2023), the reputation of many construction organisations has become intertwined with the perceived performance of their projects (Alvarenga et al., 2019; Olawale et al., 2020a). Hence, project success/failure inherently results in a positive/negative reputation for the construction firm. Despite the apparent impact of project performance on project reputation, it is still surprising that projects continue to fail in large numbers (Papke-Shields et al., 2010; Olawale et al., 2019; Olawale et al., 2020b) and construction organisations continue to become insolvent.

2.5 Industry-Specific Factors Influencing Construction Organisation's Reputation

The construction industry is characterised by a distinct operational paradigm that inherently influences the reputation of its organisations. This paradigm's heart is the composition and structure of construction projects and the teams that bring them to fruition (see Figure 3). Construction projects are complex, often large-scale, endeavours that integrate various disciplines, from initial design to final construction and commissioning. They are typically one-off endeavours, each with its own set of specifications, challenges, and stakeholders. This unique project-based structure contrasts the continuous and standardised production processes in industries like manufacturing or the iterative development cycles in the technology sector.
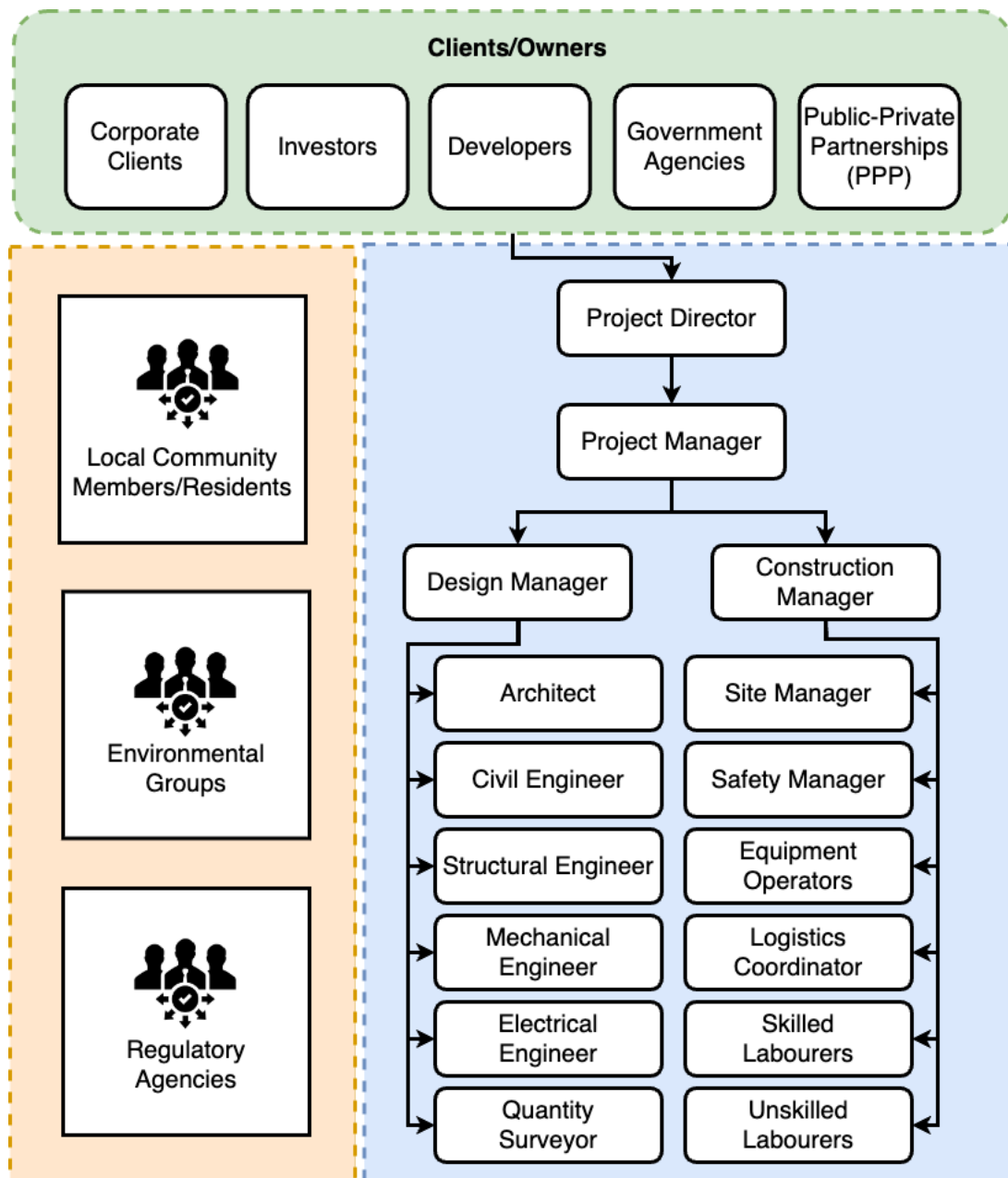
Figure 3: Composition of stakeholders in a typical construction project team

The structure of a construction project unfolds in stages: initiation, planning, execution, monitoring and control, and closure. Each stage is critical and requires close coordination of a multidisciplinary team. The construction team is a matrix of professional roles and responsibilities, encompassing project managers, architects, engineers, safety officers, quantity surveyors, skilled and unskilled labourers, and various specialist subcontractors. Hence, it is only rational that some industry-specific factors influencing the reputation of construction organisations stem from this unique project composition and team structure.

For instance, construction outputs/outcomes are obvious and tangible. The structures erected become part of the societal fabric, shaping the physical environment and directly impacting community life. The permanence and prominence of these outputs mean that any deficiencies are public and enduring. As such, the work's quality and the construction's integration into its environment are immediately apparent, impacting the organisation's reputation long after the project is completed. In addition, construction is high stakes, with inherent risks to health and safety due to the nature of the work. Therefore, the industry's reputation is disproportionately influenced by its safety record. High-profile accidents can not only have devastating immediate impacts but can also cause lasting reputational damage. Consequently, a company's commitment to safety and its efficacy in instilling a culture of safety consciousness is paramount.

Furthermore, the project-based nature of construction requires intricate coordination among diverse professionals and trades. Each project is a new endeavour with unique variables and challenges. The ability to consistently deliver projects on time, within budget, and to the expected quality is a litmus test for an organisation's reputation. This is particularly challenging given that construction projects are often subject to the unpredictability of external factors such as weather, supply chain disruptions, and regulatory changes. Also, construction organisations operate within a dense framework of regulations and standards. Compliance with these regulations is critical, as non-compliance can lead to legal action, financial loss, and reputational damage. The ability to navigate this complex regulatory landscape is a critical reputational factor, reflecting the organisation's reliability and integrity.

Additionally, the range of stakeholders in construction is broad and varied, encompassing clients, suppliers, subcontractors, the workforce, regulatory bodies, and the affected communities. Managing these stakeholder relationships effectively is a complex task that requires transparency, responsiveness, and ethical engagement. The reputation of a construction organisation is highly dependent on its ability to maintain positive and productive relationships with all stakeholders. Lastly, the environmental footprint of construction activities is significant, encompassing resource use, waste generation, and potential ecological disruption. Sustainable practices and

environmental stewardship are increasingly important reputational factors. Organisations that are committed to reducing their ecological impact are better regarded than those that do not.

2.6 Project reputation – Conceptual review

Reputation is a crucial aspect of organisational performance, reflecting the perceived quality and effectiveness of an organisation's actions and results. Theoretical papers on reputation (e.g., Schmidt, 1993; Kilduff and Krackhardt, 1994; Tadelis, 2002) have established that actions and performance are valuable reputation signals. According to Khan et al. (2013), reputation is created by the actions and results of organisations and is established through the delivery or failure to deliver a project, product, or service. This understanding is further supported by Kilduff and Krackhardt (1994), who argue that measuring reputation requires examining an organisation's past actions and performance. In the context of construction organisations, which are typically project-based, measuring reputation involves an examination of the organisation's performance on each of its multiple projects. Through this examination, consistent organisations can be distinguished from inconsistent organisations, high-quality organisations from low-quality organisations (Rao, 1994), and top performers from underperformers. However, this thesis posits that each project has its unique reputation, known as project reputation, which independently influences the reputation of the construction organisation.

Project reputation, defined as stakeholders' aggregate perception of a project's quality, the extent to which it meets its objectives, and the level of stakeholder satisfaction, is analogous to product reputation in the marketing domain. Each project contributes to the organisational reputation of the construction organisation, and based on an organisation's particular project reputation, prospective clients can form expectations about the organisation's performance on similar potential projects. While the concept of project reputation seems laudable, issues arise when trying to uncover whose opinions matter most when judging project performance, which develops project reputation, especially when such evaluation is contingent on the nature, stakeholder perspective and timing of assessment (see Figure 4) (Ika, 2009). These issues have led to a lack of consensus when defining project performance because it is shrouded

by complexity and ambiguity. To understand the complexities associated with project reputation, elements contributing to the ambiguity of project performance, which develops project reputation, will be illuminated in subsequent sub-sections.
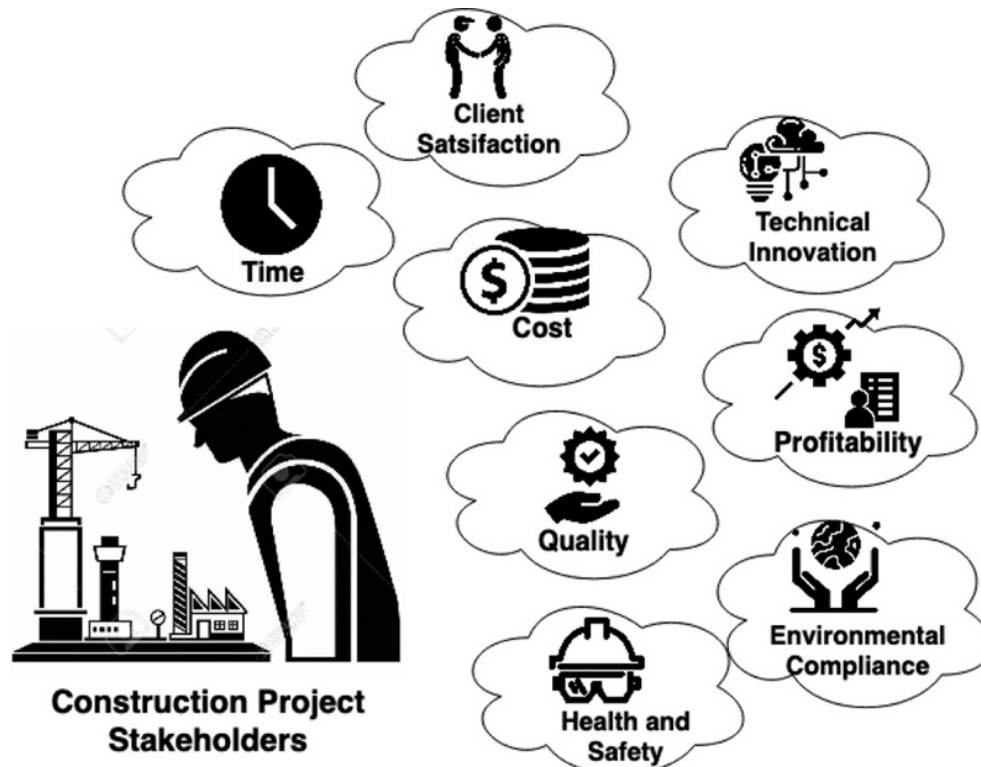
Figure 4: Possible success criteria from different stakeholder perspectives

2.6.1 Project Performance Criteria

Project performance criteria refer to principles or standards used to judge project performance. While there are different principles and standards for adjudging project performance (Atkinson, 1999; Chan et al., 2004; Bannerman, 2008), there is no consistent principle or standard. This lack of consistency is grounded on the disagreement that the criteria used to evaluate project performance depend on stakeholders' project expectations and the extent to which those criteria are fulfilled (Lim and Mohamed, 1999). Due to the multiple stakeholders involved in a project, different stakeholders will hold other project performance criteria (Baccarini, 1999), which are inherently incompatible and mutually exclusive on projects. Much of these varying project performance criteria have been documented in the literature. For instance, de Wit (1988) argue that the most important criterion for measuring project performance is the degree to which project objectives are met. Contrastingly, authors

such as Nguyen et al. (2004) and Chan et al. (2004) contend that project performance ought to be measured against the general criteria of time, cost, and quality, which is known as the "Iron Triangle" (Atkinson, 1999).

While the iron triangle remains the most widely discussed in the literature, McLeod et al. (2012) argue that the iron triangle is limited in scope; thus, it ignores the interest and perception of internal and external stakeholders in projects, which are crucial to the project (Baccarini, 1999). As such, scholars like Bryde and Brown (2005), Pinto and Slevin (1998), and Baker et al. (1974) believe that the overall satisfaction of both internal and external project stakeholders is essential for project performance. According to these studies, since typical projects often involve multiple participants, the success/failure of the project will, therefore, depend on the fulfilment/nonfulfillment of their expectations (stakeholder satisfaction) on the project. Other commentators that align with this viewpoint include Bannerman (2008), Jugdev and Müller (2005), Shenhar et al. (2001), Lim and Mohammed (1999) and Baccarini (1999). From the above perspectives, it is essential to note that different stakeholders will hold other project performance criteria. However, these criteria are inherently incompatible and mutually exclusive on projects; thus, "absolute success/failure" is, therefore, not possible. In the realisation of these differing project performance criteria, there is the need to establish common goals with all the stakeholders at the initiation stage of a project so that varying perceptions can be reduced to a minimum (Liu and Walker, 1998).

2.6.2 Project Performance Perception

Project performance perception can be construed as the belief or opinion of an individual or a stakeholder group about project success. Project performance perception is often guided by an intuitive performance criterion which project stakeholders hold. This subsequently informs the basis for which stakeholders will judge projects. Authors such as Ika (2009) and Bannerman (2008) argue that a typical project has a wide range of stakeholders, all of whom possess subjective perceptions towards project performance. Given that a specific construction project often involves multiple individuals such as project sponsors, contractors, end-users, insurers,

architects, and engineers, among others, their perceptions of ideal project performance will most likely differ about one another.

To put this into perspective, a project may be deemed successful by a project sponsor based on their own post-project financial profit realisation. In contrast, the same project may be considered a failure by a contractor because it was not a profitable venture for his organisation. This effectively means that a project might be viewed as a success for one group while it is perceived as a failure by other groups based on their distinct success criteria (Baccarini, 1999; de Wit, 1998). The presence of these differing project success perceptions confirms the notion of Baker et al. (1974) that there is no "absolute success" because it is almost impossible for a project to satisfy all the stakeholders involved. In realisation of this varying project success perception, Liu and Walker (1988) suggest the compelling need to establish common goals at the initiation stage of a project with all the stakeholders so that varying perceptions can be reduced to a minimum. In another compelling suggestion, Boddy and Paton (2004) argue the need to conduct a stakeholder analysis of project stakeholders at the beginning to determine which stakeholders will most influence project success. As such, the project should be fine-tuned towards meeting the goals set by the most critical stakeholders if the project is to be a success.

2.6.3 Project Performance Temporality

The timing of project performance evaluation is a critical consideration when assessing project success. While projects are typically evaluated upon completion, Lanzara (1999) argues that project success evaluation is not static and may change as situations and contexts evolve. This means that projects initially considered failures may be viewed as successful, and vice versa. For instance, The Concorde and The Sydney Opera House were initially perceived as failures. Still, they later became models of success, while Charles de Gaulle Airport – Terminal 2E, initially perceived as successful, turned out to be a colossal failure. These examples illustrate the ambiguity surrounding the concept of project success and the need to consider the timing of evaluation. The dynamic nature of project success evaluation has implications for project management practice. Jugdev and Müller (2005) and Atkinson

(1999) suggest that projects should be subjected to multiple assessment during the project life cycle for different purposes.

For example, formative evaluations during the project planning phase can help identify potential issues and inform decision-making. Additionally, summative evaluations conducted upon project completion can provide an overall assessment of project success. Multiple evaluations also allow stakeholders to provide feedback and improve project outcomes. Stakeholder engagement is essential in project management, as stakeholders' perspectives can vary, and their expectations may change throughout the project lifecycle. By conducting multiple evaluations and engaging stakeholders, project managers can adapt to changing circumstances and ensure that the project meets stakeholders' needs.

2.7 Process & Product Success Factors in Project Management

Owing to the ambiguous and multi-dimensional nature of project success, it is regarded as one of the most controversial concepts in project management (Rodriguez-Segura et al., 2016). Further proof of its ambiguity is the increasing acknowledgement by authors such as Baccarini (1999), Jugdev and Muller (2005), Ika (2009) and McLeod et al. (2012) that project success transcends project management success and that it needs to be measured against the functional specifications and requirements of the project. According to McLeod et al. (2012), this results in a distinction between a project's process success and a project's product success. Focusing on the former may lead to the consideration of short-term criteria such as time, cost, and scope (Atkinson, 1999; Jugdev & Muller, 2005; Ika, 2009), while the latter leads to the consideration of long-term criteria such as product use, user or client satisfaction and benefits to users or clients (Shenhar et al., 2001; Bannerman, 2008). Based on these distinctions, it is not hard to imagine that a project's process and product success will propagate different success factors crucial to attaining project success. Based on this supposition, subsequent paragraphs will discuss "process success factors" and "product success factors".

In the case of project process success, authors such as Nguyen et al. (2004) and Toor and Ogunlana (2008) argue that regular client consultation is of utmost importance to achieve overall process success. This is particularly important because it allows the

client and the project participants to keep track of their activities. Since the project process considers how a project is managed throughout the life cycle, emphasis is placed on competence (Caudron, 1999; Toor & Ogunlana, 2008) and sufficient experience (Belassi & Tukel, 1996) of the team delivering the project. According to Toor and Ogunlana (2008), this also includes the competency and leadership of the project manager and how they manage the project. For example, in a construction project, the project manager manages health and safety processes by identifying and upholding health and safety measures to minimise threats to staff and those affected by the work throughout the project life cycle. As such, success will depend on the successful completion of the project without health and safety issues (Chan et al., 2004) and the successful completion without environmental issues (Chan et al., 2004). Furthermore, a project manager demonstrates their dexterity by delegating responsibilities to appropriate and capable team members and setting deadlines where appropriate (Nguyen et al., 2004; Jha & Iyer, 2006).

Regarding project product success, authors such as Bojanic (1991) and Zeithaml et al. (1990) suggest that quality is a vital product success factor because projects are delivered in a highly competitive market, and meeting or exceeding client expectations can be a source of competitive advantage. Although design quality is not as crucial as time or cost to the client in the short term, using a high-quality design will increase end-user satisfaction, which may lead to increased market share (Diekmann & Girard, 1995; Chua et al., 1999; Chan et al., 2004). Since the project product considers the long-term satisfaction of the client, importance is placed on the sustainability and durability of the project upon completion (Chua et al., 1999; Chan et al., 2004). This is because clients are usually concerned about their project being able to withstand wear, pressure, or damage. According to authors such as Akinsola et al. (1997) and Chan et al. (2004), using technologically advanced project materials is essential for withstanding wear and tear as it increases quality, safety, and value for money, which allures the client.

2.8 Project Success and Project Reputation

Project success and reputation are often conflated in project management if a successful project will automatically lead to a positive reputation. However, upon

closer examination, it becomes clear that these two concepts are distinct and should be treated as such (Davis, 2018). At its core, project success refers to the extent to which a project meets its predetermined objectives and delivers the desired outcomes (Agarwal & Rathod, 2006). This is typically measured in tangible metrics such as cost, time, and scope. A successful project is completed on time, within budget, and delivers the agreed-upon deliverables to the required quality standards.

Project reputation, on the other hand, refers to a project's perceived quality and value in the eyes of stakeholders (Olawale et al., 2019; Olawale et al., 2020a; Olawale et al., 2020b). This can include external stakeholders such as customers and the public and internal stakeholders such as employees and executives (Atkinson, 1999). A project with a positive reputation is perceived as having made a significant contribution to the organisation or society and is respected and admired by its stakeholders (Rao, 1994). It is important to note that project success and reputation are not always mutually exclusive (Irfan & Hassan, 2017). A successful project can lead to a positive reputation, as stakeholders are more likely to view the project favourably if it meets its objectives and delivers the desired outcomes (Agarwal & Rathod, 2006). However, it is also possible for a project to succeed in meeting its goals and providing the desired outcomes but to have a negative reputation due to factors such as poor communication, conflicts with stakeholders, or unethical behaviour (Munns & Bjeirmi, 1996). On the other hand, it is possible for a project to have a positive reputation but to be deemed a failure to meet its objectives and deliver the desired outcomes. This can occur when a project is perceived as having made a significant positive impact but fails to meet its cost or schedule targets.

2.9 Factors influencing project reputation and conceptual framework.

An extensive literature review on project reputation identified several factors that affect project reputation, including project performance, innovation, managerial competency, and client satisfaction (see Figure 1). Project performance is one of the critical factors that influence project reputation. Project performance refers to the degree to which a project meets its objectives and deliverables within time, cost, and quality constraints. A successful project with high performance is likely to enhance the project's reputation and contribute to positive perceptions among stakeholders. On the other hand, poor

project performance is expected to damage the project's reputation and lead to negative perceptions. Innovation is another essential factor that influences project reputation. Innovation refers to introducing new ideas, technologies, processes, or products that bring value to the project and its stakeholders. Innovative projects are likely to receive positive recognition and enhance project reputation, particularly in industries where innovation is highly valued. Conversely, projects that lack innovation or fail to deliver value may damage the project's reputation and lead to negative perceptions.

Managerial competency is a critical factor that influences project reputation. Managerial competency refers to the ability of project managers to plan, organise, control, and direct project activities to achieve project objectives. Competent project managers will likely enhance project reputation by ensuring that projects are delivered on time, within budget, and to the required quality standards. In contrast, incompetent project managers are likely to damage the project's reputation and lead to negative perceptions among stakeholders. Client satisfaction is a pivotal element in determining the reputation of a project. It precisely measures how well a project aligns with the client's needs and expectations. When a project successfully fulfils these criteria, it not only garners affirmative feedback from the client but also elevates its reputation in the broader market. Conversely, a project that falls short of satisfying the client's expectations risks tarnishing its reputation, as client discontent can lead to adverse perceptions that may resonate across the stakeholder spectrum. Therefore, ensuring client satisfaction is not merely beneficial but essential for the favourable standing of a project's reputation.

3 Chapter Three: Literature Review

3.0 Chapter Overview

This chapter delves into an exhaustive exploration of the literature, illuminating the fundamental constructs of client satisfaction, innovation, competency, and project performance that hold significant sway over the project reputation of construction organisations. These constructs are pivotal from a contractor's perspective as they represent core operational metrics that are directly controllable and closely monitored within the construction project lifecycle. They are among the most immediate indicators of a contractor's effectiveness and success. Client satisfaction is directly linked to future business opportunities, innovation is increasingly becoming a competitive necessity, competency is a baseline expectation in the contracting business, and project performance is the ultimate measure of a contractor's capability.

Moreover, while the literature is rich with discussions on broader themes like Corporate Social Responsibility (CSR) and environmental sustainability, these increasingly important constructs can be seen as secondary or indirect factors influencing reputation from a contractor's viewpoint. They are often embedded within the broader corporate strategy and may only sometimes directly intersect with the day-to-day project management and delivery concerns at the forefront of a contractor's operational agenda. Focusing on the selected constructs allows the thesis to delve deeply into already well-established areas in the literature, providing an opportunity to address persistent "grey areas" or gaps in understanding how these factors are interlinked and contribute to reputation in the construction industry. The well-established nature of these constructs in academic discourse provides a solid foundation for developing a framework for evaluating project reputation, ensuring that the analysis is grounded in concepts recognised for their relevance and ripe for deeper exploration. Hence, this chapter unpacks each construct, elucidating its intricate dynamics and impactful roles within the broader reputation framework. Further, this chapter takes another step, synthesising the insights from these critical constructs to formulate well-grounded hypotheses.

3.1 Client Satisfaction in Project Delivery

Client satisfaction has been central to many academic discussions in recent years, reflecting its fundamental importance within project management. The client's perception towards the successful implementation and completion of a project largely determines the success or failure of the project, making it a crucial area of study within the discipline (Atkinson, 1999; Lim & Mohamed, 1999). Client satisfaction refers to aligning the project outcomes and the client's initial expectations. These outcomes encompass not just the tangible results of the project, such as the constructed building or infrastructure, but also the more intangible elements, such as effective communication, efficient conflict resolution, and the overall handling of changes and risks throughout the life of the project (Turner & Muller, 2005). Client satisfaction also plays a crucial role in a firm's sustainability and future growth. According to Kemp et al. (2021), a satisfied client is more inclined to provide recurring business, offer positive testimonials, and enhance the firm's industry reputation. Conversely, an unsatisfied client can disseminate detrimental experiences within their circle, potentially causing future business losses and tarnishing the firm's reputation (Olawale et al., 2019; Kemp et al., 2021). Consequently, every project team should consider achieving client satisfaction an integral target.

The escalating competition within the construction industry and the rising demand for increasingly intricate and innovative projects have heightened the challenges of attaining client satisfaction. Considering the unique properties of each project and the diverse demands and anticipations of different clients, there is a conspicuous inadequacy in a one-size-fits-all strategy. Hence, Durdyev et al. (2018) argue that a more tailored approach that considers each project's specific circumstances and each client's nuanced expectations is more apt. Client satisfaction within project management's shifting dynamics adopts a multifaceted role, serving as an outcome metric and a critical component influencing the project life cycle. This satisfaction extends past the project delivery's functional aspects, including the quality of interpersonal relationships, adaptability to changes, and adherence to ethical principles. Importantly, client satisfaction is not a static metric measured at the project's end but a fluid perception that evolves throughout the project lifecycle (Williams et al., 2015). This ongoing evolution underscores the need for project teams

to persistently commit to maintaining high-quality interactions and deliverables at each stage.

Construction projects' inherent complexity and unpredictability often lead to project scope, budget, or schedule alterations. The project team's ability to manage and communicate these changes effectively can significantly impact client satisfaction. Therefore, proficient change management and transparent communication become vital skills for project teams in maintaining and enhancing client satisfaction during periods of uncertainty (Savolainen et al., 2018; Alassaf, Mahdavian and Oloufa, 2021). Client satisfaction in project delivery extends its implications to the broader industry. It not only dictates the market competitiveness and future business opportunities for individual firms but also moulds the industry's reputation and public image. Client satisfaction, resulting from successful project delivery, can contribute to a positive industry image, attracting further investments, talent, and innovations (Lo and Kam, 2022; Rajhans and Bhavsar, 2022). In contrast, pervasive client dissatisfaction can erode the industry's credibility and impede growth.

3.1.1 Determinants of Client Satisfaction in Project Setting

Client satisfaction, characterised by the client's perception of the value received in a transaction or relationship, is a multifaceted construct shaped by numerous contributing factors. Quality, being a paramount determinant, extends to both the physical output and the processes involved in project execution, such as project management and communication methods (Durdyev et al., 2018; Olawale et al., 2020a). When the final project output either aligns with or surpasses client expectations, it fortifies the client's perception of project success, elevating the project's reputation. Technical competency of the project team also significantly influences client satisfaction (Zuo et al., 2018; Olawale et al., 2020a; Sarvari et al., 2021). This encompasses not only the required expertise for project execution but also the agility in addressing challenges and uncertainties throughout the project life cycle. A project team that displays a high level of technical competency reinforces the client's confidence in their ability to deliver a quality project, thereby fostering client satisfaction and amplifying the project's reputation (Zuo et al., 2018).

Change management skills of the project team also contribute significantly to client satisfaction (Hornstein, 2015). Given construction projects' inherent intricacies and unpredictability of construction projects, alterations in scope, budget, or schedule alterations are often unavoidable. The efficiency and effectiveness with which a project team manages these changes can critically affect the client's level of satisfaction. Project teams that exhibit proficient change management and maintain open communication with the client are more likely to be favourably evaluated, thus enhancing the project's reputation. Adherence to ethical standards by the project team also plays a vital role in shaping client satisfaction (Hornstein, 2015; Olawale et al., 2020a). This involves upholding honesty, transparency, and integrity in all client interactions, fostering trust and respect, and ultimately cultivating client satisfaction while boosting the project's reputation. Alignment of project goals with client expectations (Baccarini, 1999; Ika, 2009), client involvement throughout the project lifecycle (Sarvari et al., 2021), and the responsiveness of the project team in addressing unexpected challenges or changes (Sarvari et al., 2021) are other critical determinants of client satisfaction. Effective risk management (Zou et al., 2007; Hillson & Simon, 2007) and ensuring a satisfactory cost-value ratio (Gronroos, 1984; Kärnä, 2004) also significantly impact client satisfaction, thus influencing the perceived project reputation. Given its profound impact on perceived project reputation, prioritising client satisfaction should be a strategic imperative for any project team aiming to strengthen its reputation in the industry.

3.1.2 Hypotheses on Client Satisfaction and Impact on Perceived Project Reputation

3.1.2.1 Better Engagement of Clients Throughout the Project Delivery Lifecycle

Considering the construction industry's evolving dynamics, the established measures of project success—adherence to timelines, cost, and quality specifications—are increasingly seen as insufficient. Contemporary scholarship indicates a shift towards a more inclusive definition of project success that integrates aspects such as client satisfaction and project team flexibility alongside the traditional yardsticks (Toor & Ogunlana, 2010; Atkinson, 1999). In this context, Davis (2014) underscores the

profound significance of harmonising project goals with client expectations. A sense of shared purpose can be cultivated by establishing well-defined, realistic project goals that resonate with the client's vision. This alignment can substantially boost client satisfaction, thus augmenting the project's reputation. However, a divergence between project goals and client expectations could trigger dissatisfaction, tarnishing the project's reputation. The implication is that aligning goals and expectations is not desirable but a fundamental prerequisite for project success in the contemporary construction industry.

An associated element of this client-focused approach to project management is the emphasis on transparent and sincere communication with clients. The criticality of open dialogue lies in fostering understanding and trust and facilitating a collaborative problem-solving approach (Müller & Turner, 2007; Yang et al., 2009). By keeping clients apprised of the project's progress and challenges, project teams can work together to devise solutions, thus minimising potential misalignments between client expectations and project deliverables. This suggests a paradigm shift in project management from a one-way communication style to a dialogue-oriented, collaborative approach. Moreover, the literature lauds the strategy of proactive assessment and resolution of client concerns throughout the project's lifespan (Pinto et al., 2009; Anantatmula, 2010). This involves continuous monitoring and swift action to address any emerging issues, thus allowing project teams to adapt to changing client expectations. Such proactive issue management bolsters client satisfaction and optimises project outcomes by minimising disruptions and delays. Consequently, the traditional reactive problem-solving approach is gradually replaced by a more preemptive, solution-oriented methodology. Drawing from these perspectives, the following hypothesis is put forward:

Hypothesis 1: Better engagement of clients throughout the project delivery lifecycle will positively enhance the perception of the project's reputation.

3.1.2.2 Meeting and Exceeding Client Expectations

According to Müller and Turner (2010), the ability of a project to meet and even surpass client expectations increasingly informs its reputation. Consequently, client

satisfaction has emerged as a primary metric of project success and an influential factor in establishing a project's standing among its stakeholders. Further, Lingard et al. (2009) and Bower (2003) highlight the critical role of a project team's performance in meeting these evolving client expectations. Projects considered successful are often those managed by an efficient and skilled team capable of delivering outcomes that align with the client's goals. This alignment is crucial for enhancing a project's industry reputation (Oyedele, 2013). However, Smyth (2005) warns of the potential threats to a project's reputation that may arise from the frequent discrepancies between expected and actual project outcomes, emphasising the complexity of consistently meeting client expectations. A client-centric perspective on project success thus necessitates an intricate interplay of several components.

A common thread in contemporary project management literature is the call for active client involvement in crucial decision-making processes (Yang et al., 2011; Bryde, 2005). This participation enables a shared understanding of project objectives and creates an environment conducive to collaboration, fostering a sense of client ownership in the project's outcomes. When clients make essential project decisions, the likelihood of alignment between project deliverables and client expectations is enhanced, contributing to client satisfaction and, ultimately, project success (Müller & Turner, 2010). Clear and regular communication with the client is another critical component of successful project management. Effective communication mechanisms ensure that project goals, progress, challenges, and changes are conveyed promptly and efficiently, thereby keeping clients informed and engaged (Pinto, Slevin & English, 2009). Furthermore, regular communication aids in promptly identifying any deviations from client expectations, enabling early intervention and resolution.

Adaptability to client requirements is also a notable factor influencing project success. With the dynamic nature of the construction industry and evolving client needs, project teams must exhibit flexibility in adjusting project plans and strategies. The capacity of a project team to respond swiftly and effectively to changing client demands can significantly enhance client satisfaction, thereby positively impacting project reputation (Lechler, Edington, & Gao, 2012). Risk identification, reporting, and mitigation carried out regularly, form another pillar of successful project management. Proactively identifying potential risks and strategising mitigating measures minimises potential

project setbacks and instils client confidence in the project team's ability to manage unforeseen challenges (Anantatmula, 2010). Lastly, an effective change management process is indispensable in navigating the complex landscape of construction projects. Change is inevitable in any project lifecycle; managing it effectively can make the difference between success and failure. By implementing robust change management processes, project teams can address unexpected alterations in a structured and efficient manner, ensuring the continuity of project activities and minimising client dissatisfaction (Bryde, 2005). As such, informed by these arguments and considerations, the following hypothesis is proposed:

Hypothesis 2: Meeting or exceeding the client's project delivery expectations positively influences perceived project reputation.

3.2 Innovation in Project Delivery

The construction industry is a critical economic growth and development driver, contributing significantly to infrastructure, job creation, and overall socio-economic progress. However, the industry faces challenges such as low productivity, inefficiencies, and a reputation for project delays and cost overruns. To overcome these challenges and enhance project delivery, the role of innovation in the construction industry has garnered increasing attention in recent years. Innovation within the construction industry can be classified into three principal categories: technological, process, and organisational innovations (Manley, 2008). Each of these categories carries the potential to significantly influence the industry, though their implementation has its challenges. Technological innovations involving the adoption of advanced tools, materials, and construction methods are widely advocated as catalysts for improved productivity, cost reduction, and enhancement of the quality and sustainability of projects (Azhar, 2011). One such innovation, Building Information Modelling (BIM), enhances design coordination, collaboration, and visualisation of projects, thus promoting improved decision-making and reduced errors (Succar, 2009; Gbadamosi et al., 2019; Jaiswal et al., 2022; Anukaenyi et al., 2023). However, implementing technological innovations can encounter obstacles such as resistance to change, deficiencies in skill, and high initial investment costs (Rogers, 2003).

On the other hand, process innovation introduces changes to the planning, management, and execution of construction projects. Champions of process innovation propose that integrating practices such as Lean Construction, Integrated Project Delivery (IPD) (Okenyi et al., 2023), and partnering can usher in improved efficiency, waste reduction, and enhanced collaboration among project stakeholders (Koskela, 1992; Kent & Becerik-Gerber, 2010). Despite their potential to positively impact project reputation through timely delivery, adherence to budget, and quality enhancement, sceptics argue that process innovations may necessitate significant alterations in organisational culture, mindset, and power dynamics, which can present considerable challenges (Bresnen & Marshall, 2000). Organisational innovation necessitates changes in construction firms' structure, culture, and management practices. Advocates suggest that fostering a culture of innovation, implementing knowledge management systems, and adopting more flexible organisational structures can equip construction firms with the adaptability needed to navigate changing market conditions and steer project success (Dulaimi et al., 2002; Oyedele et al., 2020). However, maintaining organisational innovation can be challenging to quantify, and its impact on project reputation may be less direct and immediate than technological and process innovations (Nam & Tatum, 1997).

The nexus between innovation and project reputation in the construction industry is complex. While innovations can enhance a project's reputation by improving performance, reducing costs, and delivering superior-quality outcomes (Egbu & Renukappa, 2013), they can also introduce risks. For instance, prefabricated components can yield faster construction times, fewer defects, and a safer working environment, positively influencing project reputation (Gibb, 2001). Moreover, adopting sustainable construction practices and green building technologies can enhance the public image and environmental footprint, further bolstering the project's reputation (Oyedele, 2010). However, implementing untested technologies or materials may lead to unforeseen technical issues or failures, potentially resulting in project delays, cost overruns, or safety concerns (Winch, 1998). Furthermore, integrating innovative practices may necessitate organisational structure and process alterations, potentially leading to resistance. Consequently, adopting innovation must be coupled with adept risk management to safeguard and enhance project reputation.

3.2.1 Types of Innovation in Project-based Settings

The progression of the construction sector is marked by the emergence of various categories of innovation: incremental, radical, architectural, and disruptive. Each typology, unique in its approach and impact, provides a different avenue for industry advancement. As conceptualised by Abernathy and Clark (1985), incremental innovation represents the ethos of continuous refinement. These are minor yet consistent modifications to existing products, processes, or systems. These minor but continuous enhancements in the construction industry may involve adopting more efficient construction methods, using new materials with superior properties, and integrating energy-saving technologies. Proponents such as Adams et al. (2006) argue that these minor improvements can yield significant project delivery and performance advancements over time. The promise of incremental innovation lies in its feasibility and the minimal disruption it causes to existing operations. However, there's a potential pitfall, as pointed out by Slaughter (1998). Incremental innovation might not be adequate to tackle more substantial, enduring challenges in the industry, such as low productivity and sustainability issues. It also risks inadvertently reinforcing existing inefficiencies due to its focus on improving current methods rather than introducing fundamentally new approaches.

Radical innovation, conversely, is characterised by introducing fundamentally new products, processes, or systems, offering considerable changes in project design, construction, and operation (Green et al., 1999). The potential promise of radical innovation lies in its transformative capacity. Building Information Modelling (BIM) and modular construction, for instance, revolutionise design and construction processes, substantially improving productivity, quality, and sustainability (Eastman et al., 2011; Arashpour et al., 2016). Gann and Salter (2000) posit that such innovations can bring game-changing improvements. However, there are challenges to implementing such groundbreaking innovations, as noted by Rogers (2003). These include resistance to change, lack of necessary skills, and high initial investment costs, which may deter adoption and dampen the potential impact.

On the other hand, according to Henderson and Clark (1990), architectural innovation involves restructuring existing components or systems to enhance performance or

functionality (Henderson & Clark, 1990). This might include reconfiguring construction processes or reorganising project teams in the construction sector. The promise of architectural innovation lies in its ability to leverage existing knowledge and resources in novel ways, enhancing project outcomes without requiring brand-new systems or processes. However, as Bresnen and Marshall (2000) note, significant changes to organisational structures and procedures needed by architectural innovation can pose formidable implementation challenges. It may disrupt established workflows and necessitate a shift in corporate culture, which could be resisted by stakeholders accustomed to traditional methods.

Modular innovation involves making changes to individual components of a product while maintaining the overall design or architecture. This type of innovation often involves improvements to individual subsystems that can be designed independently yet function together in a single, cohesive unit (Baldwin & Clark, 1997). Within the construction industry, examples of modular innovations can be seen in using prefabricated or modular components. These are designed and assembled off-site, transported and installed on-site, resulting in significant time and cost savings (Arashpour et al., 2016). Arashpour et al. (2016) argue that this approach allows for more control over individual components' quality, reduces waste, and allows for faster and more efficient construction processes. However, the adoption of modular innovation has its challenges. While these innovations offer numerous benefits, the industry must also grapple with potential drawbacks. Baldwin and Clark (2000) note that while modular systems allow for rapid improvements and adaptations in individual components, they can also lock companies into specific design choices that are difficult to change later. Moreover, the success of modular innovation heavily relies on the ability to effectively manage and coordinate the various independent modules, requiring strong project management and quality control measures. Modular innovation can provide significant value within the construction industry despite these challenges if properly managed.

3.2.2 Hypotheses on Innovation and Impact on Perceived Project Reputation

3.2.2.1 Incremental Innovation

The significance of innovation in underpinning competitive advantage and fostering improved project outcomes within the construction industry has been widely accepted (Dodgson, Gann & Salter, 2008). This has precipitated a heightened focus on the strategic integration of innovative practices at the project level and their subsequent implications on the project's reputation. Notably, scholars and practitioners have taken a particular interest in an incremental approach to innovation, which suggests a gradual and deliberate integration of innovative practices (Davila, Epstein, & Shelton, 2006). The theory of incremental innovation advocates for continual improvements to existing processes or technologies as a strategy for significant advancements in project performance (Bessant and Tidd, 2007). This approach goes beyond mere refinements. By strategically planning and executing incremental innovations, construction projects can promote operational efficiency, minimise waste, and enhance their reputation (Rogers, 2003). Incremental innovations, seen through the lens of risk reduction, allow for manageable shifts, thus minimising the likelihood of project disruptions and maintaining stakeholder confidence (Ettlie, Bridges, & O'Keefe, 1984).

Furthermore, the capacity of a project team to continually adapt and learn is instrumental in effectively implementing these incremental innovations (Cohen & Levinthal, 1990). A project team's ability to recognise, assimilate, and apply novel knowledge – or absorptive capacity – can determine the team's ability to integrate innovative concepts and drive continual improvements successfully. As Zahra and George (2002) highlight, a high absorptive capacity within a team can positively influence project reputation by consistently delivering superior outcomes. Yet, the pathway to innovation isn't without challenges. Even with the incremental approach, which might seem less daunting than radical change, resistance can be an issue. Hence, there's a call for robust risk management strategies to pre-empt and address potential pitfalls (Armenakis and Bedeian, 1999). Proactive risk management can mitigate resistance to change by detecting, reporting, and addressing potential problems in the early stages of innovation integration.

Alongside risk management, the importance of regular stakeholder communication must be considered. A clear and consistent dialogue about innovation updates can

reduce misunderstandings, build acceptance, and reinforce trust between the project team and stakeholders (Rogers, 2003). Moreover, an ongoing feedback mechanism allows for the active involvement of stakeholders in the innovation process, promoting a sense of ownership and a positive reception to change (Love, Gunasekaran, & Li, 1999). Lastly, the underlying project culture is crucial in successfully adopting innovation. An environment that nurtures creativity and encourages the exploration of new techniques and processes facilitates the integration of innovation, thus reinforcing a positive project reputation (Dodgson, Gann & Salter, 2008). Hence, the following hypothesis is proposed:

Hypothesis 3: Implementing innovative ideas on projects on an incremental basis will positively enhance the perception of a project's reputation.

3.2.2.2 Radical Innovation

Radical innovation, defined as the development and implementation of fundamentally new products, processes, or systems, can create significant shifts in how construction projects are designed, executed, and operated (Slaughter, 1998; Manley, 2008; Gann and Salter, 2000; Rogers, 2003). Embracing radical innovation can address chronic industry challenges such as low productivity and sustainability issues, yield substantial improvements in project performance, and potentially enhance project reputation (Arashpour et al., 2016; Eastman et al., 2011). In the hands of a strong leadership team, radical innovation can act as a catalyst for transformation. Leaders equipped with vision and determination can encourage the acceptance of new ideas and foster a culture that embraces and supports radical changes. This sense of progress and dynamism can positively impact a project's reputation, indicating a willingness to challenge the status quo and strive for excellence (Coulson, 2008).

However, these considerable benefits are balanced by significant challenges. Resistance to change, the need for specialised skills, and substantial initial investment costs can create obstacles to implementing radical innovation (Rogers, 2003). Here, a robust feasibility and market analysis plays a pivotal role. By systematically analysing the potential of a proposed innovation and gauging its acceptability in the market, construction firms can mitigate the risks associated with radical changes and

ensure the project's reputation remains intact (Ball et al., 2003). The project team's ability also plays a significant role in this equation. Teams with a high-risk tolerance and specialised skills are better equipped to handle the complexities and uncertainties associated with radical innovation. Their capacity to navigate these challenges can directly contribute to the project's success and reputation (Winch, 1998). Resource availability is another crucial factor. The implementation of substantial, ground-breaking innovations often necessitates significant resources. The readiness to allocate these resources signals a project's commitment to innovation and can enhance its reputation in the industry (Rintamaki et al., 2007).

Stakeholders' buy-in is vital in the process of implementing radical innovation. When stakeholders are actively involved and their concerns addressed, their acceptance of significant changes increases. This acceptance can drive the success of the innovation and contribute positively to the project's reputation (Pollock et al., 2002). Radical innovation often necessitates substantial changes, requiring robust change management and contingency plans. Managing change effectively and adapting quickly reflects a project's management competence. This competence, in turn, can enhance the project's reputation (Ball et al., 2003). Acknowledging these perspectives, the following hypothesis is proposed:

Hypothesis 4: Implementing radical innovative ideas on a project can enhance positive perception of project reputation.

3.2.2.3 Architectural Innovation

The influence of architectural innovation on strategic development and project performance in the construction industry is gaining increased recognition (Henderson & Clark, 1990). Architectural innovation encapsulates the reconfiguration of familiar components into novel formations, presenting potential transformative solutions for persistent industry issues, such as productivity, sustainability, and inefficiency (Slaughter, 1998). A competent design team with a creative approach is at the heart of successful architectural innovation implementation. This team, equipped to understand end-user preferences and trends, can generate innovative solutions that disrupt traditional construction methodologies, leading to improved performance and

sustainability (Eastman et al., 2011). The innovation process, however, must be coupled with clear communication of design objectives and expectations to ensure that all stakeholders align with the innovation's goals and methods (Bernstein and Turban, 2018). However, the introduction of architectural innovation is a two-edged sword. While it promises to elevate project performance, it concurrently introduces fresh challenges, such as resistance to change, skill deficits, and high initial investment costs (Rogers, 2003).

A crucial component of managing these challenges is the efficient implementation of design changes. Rapidly changing construction environments necessitate agility and flexibility in the design process, making it critical to establish a reliable mechanism for integrating these changes without disrupting the project's momentum (Davies et al., 2014). Regular design reviews and quality checks should augment this process to ensure the innovative designs are feasible, meet set standards, and align with the project's overall goals (Arashpour et al., 2016). To further mitigate potential risks associated with architectural innovation, customer involvement in design feedback and iterations is invaluable. Stakeholders' buy-in is a crucial factor for innovation success (Rogers, 2003), and involving customers in the design process provides opportunities to align the innovation with end-user preferences, reducing the likelihood of product-market misfit (Coulson, 2008). Nevertheless, organisations that effectively manage architectural innovation through these mechanisms can enhance overall efficiency and project delivery, justifying the call for widespread adoption of such innovation strategies in the construction industry (Davies et al., 2014).

Interestingly, many construction organisations overlook the systematic management of architectural innovations (Dougherty, 1992; Abernathy and Clark, 1985). This omission can be attributed to the inherent complexity of such innovations, which often yield only a few visible outcomes, and their disruptive potential (Henderson & Clark, 1990). The potential for architectural innovation to enhance the project's reputation is undeniable. Successful implementation can exceed client expectations and demonstrate a project's ability to handle complex, innovative solutions (Rintamaki et al., 2007; Coulson, 2008). Furthermore, the customer's involvement in design iterations underscores the project's commitment to stakeholder engagement, thus enhancing the project's reputation (Pollock et al., 2002). Yet, the successful

deployment of architectural innovation requires a robust framework that includes strategies for preventing failures (Manley, 2008; Gann and Salter, 2000), identifying and reporting potentially disruptive changes (Eastman et al., 2011), and proactive evaluation of past innovation events to pre-empt escalation of innovation-related risks (Manley, 2008). Balancing these complex elements effectively can lead to the successful implementation of architectural innovation in the construction industry, enhancing project performance and reputation. Therefore, the following hypothesis is proposed:

Hypothesis 5: Effective management of architectural innovation in construction projects will enhance the project's reputation.

3.2.2.4 Modular Innovation

Modular innovation, an approach that involves modifying individual components of a system without radically changing the overall architecture, holds significant potential for project enhancement and reputation (Schilling, 2000). A thorough analysis of current project components is critical at the outset of such an approach. Understanding the existing system in-depth provides a strong foundation for identifying elements that can benefit from innovation (Ethiraj & Levinthal, 2004). It serves as a crucial stepping stone towards identifying areas requiring improvement, which is pivotal for charting a strategic roadmap for modular innovation implementation. Modular innovations offer both iterative and radical innovation benefits by allowing for substantial improvements within established frameworks. This reduces the risk of total system disruption while promoting efficiency, productivity, and sustainability (Ethiraj & Levinthal, 2004). Efficient planning and execution of improvement actions are at the core of these benefits. The meticulous planning and execution process helps to integrate improvements effectively without disrupting the overall project structure, which would otherwise increase the project's complexity and impede progress (Garud & Kumaraswamy, 1995).

However, implementing modular innovation requires a delicate balance and deft management of relationships among various stakeholders (Brusoni & Prencipe, 2001). An integral part of managing these relationships is transparent communication about

refinements with stakeholders. Keeping stakeholders apprised of ongoing changes helps ensure alignment with project goals, facilitating smoother execution of improvements and reducing potential resistance to changes (Henderson and Clark, 1990). Introducing modular innovation into a project also necessitates regular monitoring and evaluation of improvements. Such evaluations provide valuable insights into the effectiveness of the implemented changes, offering opportunities for further improvements and adjustments if needed (Sosa, Eppinger, & Rowles, 2007). This approach aligns with maintaining a continuous improvement culture within the project team, which underscores the project's commitment to perpetual evolution and improvement (Pil & Cohen, 2006). Projects implementing modular innovations can improve their reputation by demonstrating adaptive capability and a commitment to continuous improvement, thus creating a perception of resilience and future readiness (Baldwin & Clark, 2006; Fixson & Park, 2008).

However, the relationship between modular innovation and project reputation remains complex and multifaceted. Successful implementation improves project reputation, but this depends on effective risk management, collaboration, and stakeholder communication. This suggests that project reputation is influenced by the successful implementation of modular innovation and how the process is managed (Langlois, 2002). Thus, an all-encompassing approach that integrates analysis, planning, execution, communication, and evaluation is critical to effectively integrating modular innovation into a project, thereby enhancing project performance and reputation. Therefore, the following hypothesis is proposed:

Hypothesis 6: Improving and refining existing components within a project can enhance the positive perception of the project's reputation.

3.3 Competency in Project Delivery

Construction project delivery is an intricate and multifaceted endeavour, the success of which is fundamentally reliant on the competency of the individuals, teams, and organisations involved. According to Ahadzie et al. (2008), "competency" is often used indiscriminately as an alternative to competence and vice versa. However, considering recent academic deliberations, it is now understood that both terminologies have

theoretical and practical differences. Competence relates to the requisite expertise that an individual must possess to deliver a specified job. At the same time, competency is best described as the attributes that an individual exemplifies as part of their job role (Cheng et al., 2005). Based on this elucidation, it can be construed that competence is a work-related concept that describes the areas of work at which an individual needs to be competent. At the same time, competency is a person-related concept that refers to the characteristics/behaviours underlying competent performance. Consequently, throughout this thesis, competency will mean a person-related concept that relates to the dimensions of behavioural action underlying competent performance (Cheng et al., 2005; Ahadzie et al., 2008).

Competency, within the domain of construction project delivery, is a concept that is often misconstrued as being synonymous with technical skill or knowledge. However, a more nuanced interpretation posits competency as a comprehensive amalgam of skills, aptitudes, and expertise that enables a person or entity to execute tasks proficiently and efficiently (Clarke, 2015). This implies that competency involves understanding and applying construction techniques and regulations and the ability to manage resources, coordinate diverse teams, communicate effectively, and make crucial decisions in high-pressure situations (Fellows & Liu, 2015). Critically, competency in the construction industry is a dynamic concept, but rather one that must continually evolve to accommodate the dynamic nature of the field. The rapid technological advances, changes in regulations and standards, and increasing complexity of projects necessitate constant learning, adaptation, and skill enhancement (Whyte & Lobo, 2017). This underlines the importance of continuous professional development and lifelong learning as integral components of competency in the construction industry.

Since the recognition of projects as critical to organisational growth and survival within today's complex, highly competitive and volatile business environment, the demand for competent project managers has risen. As a result, forward-thinking organisations who desire to be continuously relevant in this volatile business environment now focus on finding and hiring project managers who drive project and organisational value with their competencies. These project manager competencies are the skills, knowledge, and characteristics that enhance the effectiveness of project managers in the delivery

of their job and ultimately increase the likelihood of project success (Moradi, Kähkönen and Aaltonen, 2019). According to Ahsan et al. (2013), McClelland's (1973) research has influenced an extensive research effort on the relationship between PMCs and project outcomes (e.g., Cheng et al., 2005; Ahadzie et al., 2008; Müller and Turner, 2010; Ahsan et al. 2013). Several of these studies have conducted academic surveys resulting in many lists of competencies relevant to project managers (e.g., Stevenson and Starkweather, 2010; Ahsan et al., 2013). For instance, Skulmoski and Hartman (2010) identified personal attributes, communication, leadership, negotiations, professionalism, social skills, and project management competencies as key competencies a project manager needs. Similarly, Stevenson and Starkweather (2010) identified six critical competencies for project managers: leadership, the ability to communicate at multiple levels, verbal skills, written skills, attitude, and the ability to deal with ambiguity and change.

On the other hand, some studies have focused on investigating the requisite project manager competencies needed in specific industries, such as the construction industry (e.g., Toor and Ogunlana, 2008; Ahadzie et al., 2009) and the information technology industry (e.g., Napier, 2009; Skulmoski and Hartman, 2010; Silva de Araujo and Pedron, 2015). Several other studies have assiduously explored the association between specific leadership styles of project managers and project outcomes (e.g., Anantatmula, 2010; Müller and Turner, 2010). In addition, project management institutions have also developed competency models for project management. They include the Project Management Competency Development Framework and the International Project Management Association Competence Baseline (Loufrani-Fedida and Missonier, 2015). Likewise, standards of practices (e.g., IPMA Competence Baseline, Project Manager Competency Development Framework) have also identified project managers' competencies.

3.3.1 Competency and Implication on Perceived Project Reputation

Competency, in essence, refers to the collective abilities, skills, knowledge, and behaviours that enable individuals or teams to perform tasks effectively (Boyatzis, 1982). In construction project delivery, these competencies span technical expertise, managerial acumen, decision-making, and interpersonal skills (Clarke, 2015; Hsieh et

al., 2014). On the other hand, project reputation represents a project's perceived value, quality, and success as construed by various stakeholders, such as clients, project teams, and the wider public (Yang et al., 2009). This perception carries considerable weight as it influences future project opportunities and shapes the overall image of the organisations involved (Yang et al., 2010).

The academic literature broadly concurs that a discernible link exists between competency and project reputation. For instance, studies by Hsieh et al. (2014) indicate that a high degree of competency within project teams is directly proportional to a favourable project reputation. Proficiency in project delivery, adherence to timelines and budgets, and consistent quality output are measures of competency that concurrently influence the perceived reputation of projects. Moreover, a detailed analysis of Smyth and Morris's work (2007) reaffirms the critical role of managerial competency in shaping project reputation. Their study suggests that exemplary leadership and sound management practices inevitably lead to project success, enhancing its reputation. Also, Loosemore (2016) extends the competency discourse beyond technical and managerial realms to incorporate communication and interpersonal skills. The author argues that project teams adept at managing stakeholder relations and expectations are more likely to develop a positive project reputation. Empirical evidence further supports these theoretical underpinnings. Fellows and Liu (2015) conducted a survey that indicated that projects exhibiting high competency levels often enjoyed superior reputations. Similarly, Winch (2010) pinpointed decision-making competency as a crucial factor that shapes project reputation, especially in volatile and uncertain circumstances.

3.3.2 Relationship between Project Manager Competencies and Project Reputation

In recent years, the construction industry has experienced a surfeit of ambitious, high-stakes projects accompanied by multi-layered stakeholder expectations. The reputation of construction organisations has become increasingly tied to the perceived performance of these projects (Alvarenga et al., 2019; Olawale et al., 2020a). Consequently, project success or failure manifests as a bolstered or tarnished reputation for the construction firm. Despite the glaring implications of project performance on organisational reputation, an alarming rate of project failure persists,

leading to insolvencies within construction organisations (Papke-Shields et al., 2010; Olawale et al., 2020a). Scholars such as Bredillet et al. (2015) and Loufrani-Fedida and Missonier (2015) have proposed a salient solution to mitigate incessant project failures and the associated reputational fallout — Project Manager Competencies (PMCs).

This proposition aligns with a survey by PriceWaterhouseCoopers (2014), which found that high-performing projects that substantially contribute to organisational value are more likely to be managed by competent project managers. The purported influence of project managers on project performance has led to extensive research efforts exploring the relationship between PMCs and project performance (Cheng et al., 2005; Ahadzie et al., 2008; Anantatmula, 2010; Müller & Turner, 2010; Sommerville et al., 2010; Ahsan et al., 2013; Mohammadi et al., 2014; Rezvani et al., 2016). To fully understand the relationship between PMCs and project reputation, it is essential to identify and analyse the specific competencies that hold the most influence. Technical skills, leadership acumen, risk management expertise, and communication prowess have been commonly recognised as crucial PMCs (Crawford, 2005; Müller & Turner, 2010). Each of these competencies contributes differently to the overall project reputation.

Technical skills, for instance, ensure the project manager's ability to understand and handle the complex technical aspects of a construction project (Crawford, 2005). A project manager with a sound technical understanding can execute intricate project designs efficiently and make informed decisions, which could significantly enhance the project's reputation. Similarly, leadership acumen enables a project manager to motivate and manage the project team effectively, leading to improved performance and, consequently, a better project reputation (Müller & Turner, 2010). Moreover, a competent project manager is skilled in managing risks and uncertainties that could adversely affect project performance, safeguarding project reputation. Communication is another pivotal competency, allowing project managers to effectively manage stakeholder expectations and maintain open and honest dialogues with them. This ability enhances stakeholder satisfaction and ultimately strengthens the project's reputation.

3.3.3 Hypotheses on Competencies and Impact on Perceived Project Reputation

3.3.3.1 Efficient Communication among Project Teams and Stakeholders

Shannon and Weaver's (1949) communication model laid the groundwork for understanding the pivotal role of effective communication in establishing mutual understanding, coordinating activities, and achieving desired outcomes in project contexts. In construction projects, clear and concise communication processes are integral in determining project success, improving efficiency, aligning expectations, and enhancing project reputation (Espinosa et al., 2007). Clear communication minimises misunderstandings and misinterpretations, which is particularly critical given the complexity and dynamism of construction projects (Dainty et al., 2006). Complementing this perspective, Pinto and Pinto (1990) present evidence that successful projects typically exhibit superior communication, characterised by clarity and conciseness and active listening and feedback mechanisms. The principle of active listening ensures that every stakeholder's perspective and concern are accurately understood and addressed (Yang, Huang & Wu, 2011). Similarly, feedback mechanisms provide an avenue for constructive discussions, enabling necessary adjustments and fostering an environment of trust and respect among stakeholders (Dainty et al., 2006).

The choice of appropriate communication channels is another vital element of efficient communication. As Zou et al. (2014) highlighted, the communication medium should be chosen based on the message's nature, urgency, and the stakeholders' preferences and accessibility. Effective channels can significantly enhance communication quality and message transmission efficiency (Smyth & Edkins, 2007). Moreover, regular communication scheduling is critical in maintaining a steady flow of information and updates among stakeholders. Scheduled communication fosters predictability and provides a platform for dialogue, promoting stakeholder engagement and alignment with project objectives (Mok & Shen, 2015). However, scheduling should be different from the need for timely responses to queries and issues. Prompt responses signify responsiveness and attentiveness, two qualities crucial for project management, particularly during crises or unanticipated events (Drevet, 2018). Lastly,

transparent sharing of project status and updates ensures that stakeholders are consistently informed about the project's progress, challenges, and milestones. Transparency in communication cultivates trust, encourages collaboration, and is instrumental in promoting a positive project reputation (Verweij, 2015).

Despite the above, enhancing communication efficiency in construction projects can be challenging due to resistance to change, cultural barriers, and information overload (Loosemore & Muslmani, 1999). These potential obstacles reinforce the need for effective communication management and meaningful collaboration between project stakeholders. Therefore, the systematic integration of transparent communication processes, active listening and feedback mechanisms, appropriate channel usage, regular communication scheduling, timely responses, and transparent sharing of updates form the foundation of effective communication, ultimately contributing to successful project execution and enhancing project reputation. Consequently, this study propounds the following hypothesis:

Hypothesis 7: Efficient communication among project teams and stakeholders will positively impact the project's reputation.

3.3.3.2 Project Manager's Competency in Efficient Project Delivery

According to Kerzner (2017), project management competence, a combination of knowledge, skills, and attitudes, is crucial for successfully delivering a project within its defined constraints. In construction projects, the project manager's competence in efficient project delivery is paramount, significantly influencing project outcomes, quality, client satisfaction, and consequently, the project's reputation (Mir & Pinnington, 2014). This multifaceted competence necessitates adept control over project resources, fosters robust stakeholder relationships, and adapts to dynamic project environments (Turner & Müller, 2005). Practical project planning and execution skills are central to a project manager's competence. As Müller & Turner (2010) suggested, the ability to develop detailed plans, set realistic timelines, and implement those plans effectively can significantly enhance the project's success rate. Furthermore, possessing a deep understanding of project operations, including project scope, deliverables, timelines, and stakeholder expectations, ensures the project

manager can anticipate challenges and devise suitable solutions (Zwikael & Smyrk, 2012).

The capacity to identify and mitigate risks is another crucial competency of a project manager. Given the high-risk nature of construction projects, the ability to foresee potential risks and devise appropriate mitigation strategies is vital to prevent cost overruns, project delays, and client dissatisfaction (Ahadzie, Proverbs, & Olomolaiye, 2008). This ability goes together with solid decision-making capabilities, as project managers often must make timely and informed decisions in response to evolving project circumstances (Pinto, 2014). A proven track record of successful project deliveries further strengthens a manager's competence. Past successes affirm the manager's skills and expertise and inspire stakeholder confidence, thus enhancing the project's reputation (Clarke, 2012). Effective delegation and resource allocation skills are equally important. Project managers can ensure smooth project operations and timely delivery by efficiently assigning tasks to team members based on their skills and competencies and optimally utilising available resources (Pant & Baroudi, 2008). Despite the inherent challenges associated with construction projects, such as resistance to change, resource constraints, and unforeseen external factors (Koskela & Howell, 2002), competent project management can effectively navigate these issues. This highlights the importance of factors like effective project planning and execution, a deep understanding of project operations, risk identification and mitigation, robust decision-making, a proven track record, and effective delegation and resource allocation in contributing to the project manager's competence, ultimately driving successful project delivery, and enhancing the project's reputation. Consequently, this study develops the following hypothesis:

Hypothesis 8: Project manager's competency in efficient project delivery and operations will positively influence the perception of a project's reputation.

3.3.3.3 Effective Leadership Competencies of Project Manager

As Northouse (2018) described, effective leadership involves successfully influencing, motivating, and enabling others to achieve project objectives. In project management, a project manager's leadership competencies can significantly influence project outcomes, potentially leading to improved performance, increased client satisfaction,

and enhanced the project's reputation (Müller & Turner, 2010). This leadership is multidimensional, requiring visionary and strategic thinking abilities, robust interpersonal and influence skills, the capacity to inspire and motivate the team, conflict resolution and problem-solving skills, and the ability to foster a positive and productive project culture (Dvir, Eden, Avolio, & Shamir, 2002). Visionary and strategic thinking abilities are fundamental for navigating the evolving landscape of a project. A project manager's capacity to envisage the project's long-term goals and chart strategic paths towards these objectives plays a significant role in the project's success (Yukl, 2013). This ability also aids in foreseeing potential challenges and proactively devising strategies to mitigate them.

Strong interpersonal and influence skills are equally essential. Yukl (2013) articulated that a project manager's capacity to foster collaborative relationships among stakeholders is directly influenced by their ability to connect with and influence others. This includes effectively communicating project goals, negotiating compromises, and managing diverse viewpoints (Dulewicz & Higgs, 2005). Moreover, the ability to inspire and motivate the team is a critical leadership competency. Project managers must cultivate an environment where each team member feels valued, understood, and encouraged to contribute their best (Keegan & Den Hartog, 2004). This aspect goes together with the capacity to foster a positive and productive project culture, which is vital for ensuring team cohesion, engagement, and overall project success (Thamhain, 2012). Conflict resolution and problem-solving skills are also integral to effective project leadership. Given the potential for conflicts and issues in project delivery, such as scope creep and budget overruns, project managers must be adept at resolving conflicts and finding solutions to project-related problems (Clarke, 2012).

Lastly, emotional intelligence, which involves understanding and managing one's emotions and those of others, plays a significant role in handling team dynamics. Recognising and addressing team members' emotional needs can help maintain a positive team environment, thus contributing to project success (Turner, Huemann, & Keegan, 2008). Despite the challenges posed by resistance to change, resource constraints, and unforeseen external factors (Turner & Müller, 2005), effective project leadership, characterised by visionary and strategic thinking, interpersonal and influence skills, the ability to inspire and motivate, conflict resolution, and emotional

intelligence, can effectively navigate these issues, thereby ensuring successful project execution and benefit realisation. Hence, this study develops the following hypothesis:

Hypothesis 9: Effective leadership competencies of a project manager can positively influence the perception of a project's reputation.

3.3.3.4 Project Manager's Technical Proficiency

As conceptualised by Crawford (2005), technical proficiency is integral to a project manager's role, requiring the effective application of knowledge, skills, and techniques to steer projects towards their intended outcomes. In project management, this proficiency can significantly impact the project's trajectory, leading to improved performance, greater client satisfaction, and enhanced project perception (Jugdev and Müller, 2005). Technical proficiency encompasses a range of competencies, such as adequate knowledge of project-specific technical aspects, the ability to guide the team on technical issues, the capability to oversee technical quality checks, staying updated with the latest technological advancements, skills to solve complex technical problems, and communication of technical complexities in simple terms (Kerzner, 2017). The knowledge of project-specific technical aspects is pivotal in managing and mitigating project complexities. A deep understanding of these technical nuances equips project managers to foresee and strategically navigate potential challenges, thus fostering trust and promoting better collaboration (Davis, 2014).

Project managers should also be equipped to guide the team on technical issues. Their proficiency provides a clear direction, helping to alleviate uncertainties and streamline the team's efforts towards the project goals (Shenhar & Dvir, 2007). Overseeing technical quality checks is another essential competency. Through this, project managers ensure adherence to defined quality standards, preventing scope creep, schedule slippage, and budget overruns (Leach, 1999). Staying abreast of the latest technical advancements is also critical. The ever-evolving nature of technology necessitates project managers to continuously update their knowledge to ensure the implementation of best practices and innovative solutions (Bredillet, 2008). The skill to solve complex technical problems is crucial in managing inherent project risks and uncertainties. The ability to swiftly and effectively address technical issues prevents

the escalation of problems and minimises their potential impact on the project (Thomas & Mengel, 2008).

Finally, the ability to communicate technical complexities in simple terms is vital. It ensures that all stakeholders, including those without a technical background, understand the project's nuances and progress, promoting transparency and better stakeholder engagement (Zwikael & Globerson, 2006). Even though technical proficiency brings challenges, such as managing intricate project details and addressing unexpected external influences (Pinto, 2014), the competence to handle these issues ensures successful project implementation and benefits realisation. As such, the role of a technically proficient project manager becomes critical, considering the interconnected objectives and substantial stakes involved (Crawford, 2005). Consequently, this study develops the following hypothesis:

Hypothesis 10: Project manager's technical proficiency on the project will significantly influence the positive perception.

3.4 Project Performance in Project Delivery

The multifaceted nature of project performance in project delivery has drawn extensive scholarly attention, leading to a rich, albeit complex, discourse that is continually evolving. Encompassing cost, time, quality, stakeholder satisfaction, and beyond, project performance is influenced by an intricate web of interconnected elements. With its trinity of cost, time, and quality constraints, the Iron Triangle has traditionally been the cornerstone of project performance measurement (Atkinson, 1999). However, researchers have increasingly questioned its sufficiency, exploring additional dimensions that add to the richness of the project performance landscape. The prominence of cost performance must be recognised; it is the lifeblood that fuels project activities, and overshooting the budget can jeopardise not only the project but also the financial stability of the entire organisation (Kerzner, 2009). Yet, despite its pivotal importance, cost overruns are an all-too-common occurrence, as empirical evidence from Flyvbjerg et al. (2002) starkly illustrates.

Similarly, time performance, intertwined with cost, holds considerable weight in the project performance equation. Delays can spiral into increased costs and erode

stakeholder satisfaction, underscoring the centrality of effective time management in project success (Söderlund, 2004). Yet, industry-wide studies such as the one conducted by the CIOB (2008) highlight the pervasiveness of delays, underlining a gap between theoretical ideals and practical realities. Quality, the final vertex of the Iron Triangle, is a determinant of project success, measured against the yardstick of required standards and specifications (Crosby, 1979). A convergence of thought between luminaries like Juran and Godfrey (1999) and pioneers like Pinto and Slevin (1987) attests to the significance of quality in successful project outcomes. While the Iron Triangle continues to wield influence, stakeholder satisfaction has emerged as a crucial, albeit more elusive, dimension of project performance (Yang et al., 2011). Turner and Zolin's (2012) work unravels the multifaceted nature of stakeholders' perception of success, showing how effective management can enhance project performance by aligning expectations and building trust.

Contemporary academic literature has shifted towards evaluating project performance from two primary perspectives: the process and product perspectives. The process perspective, focusing on the mechanisms and procedures of project execution, highlights the importance of project management techniques, time efficiency, cost-effectiveness, risk management, stakeholder engagement, and leadership skills (Pinto & Slevin, 1988). The process approach emphasises the journey towards the end goal, with successful performance determined by how well these operational elements are managed (Baccarini, 1999). On the other hand, the product perspective evaluates project performance based on the result – the delivered product or service. This perspective prioritises factors such as functional performance, quality adherence, user satisfaction, and the project's impact on the organisation and broader society (Shenhar, Dvir, Levy, & Maltz, 2001). Thus, the product perspective posits that project success transcends the constraints of the project's life cycle, extending into the longer-term usefulness and impact of the delivered product (Baccarini, 1999).

Both these perspectives are integral to a comprehensive understanding of project performance. The process perspective emphasises the importance of efficient and effective project management practices, whilst the product perspective underscores the relevance of the project's outcomes in meeting stakeholder expectations and providing value to the organisation and society. Both perspectives are sufficient in

collaboration; instead, they complement each other to offer a holistic view of project performance. This review will delve deeper into these perspectives in subsequent sections, investigating their essential components and how they contribute to overall project performance. As part of this exploration, hypotheses will be developed for each perspective, providing a theoretical foundation for empirical validation.

3.4.1 Process-based Perspective and Hypothesis Development

Process management is defined as a systematic series of activities directed towards causing a result such that one or more inputs will be acted upon to create one or more outputs (Jeston & Nelis, 2008). Scholars argue that efficient process management has a significant role in influencing project performance by ensuring the smooth execution of tasks, effective resource utilisation, and timely completion of projects (Kerzner, 2017). Lechler and Thomas (2015) argue that effective process management positively influences project performance as it enables the timely identification of project bottlenecks, ensures the alignment of project tasks with the overall project objectives, and facilitates the optimal utilisation of project resources. Similarly, Shenhar et al. (2001) suggest that effective process management enhances the adaptability of the project team, ensuring their ability to handle unforeseen changes and challenges, consequently enhancing project performance. However, some researchers argue that the relationship between process management and project performance is complex and mediated by various factors, such as the project manager's competence, the organisation's culture, the project's nature, and the external environment (Turner & Muller, 2005).

Central to efficient process management is a thorough understanding of project processes. As Pinto (2016) suggested, in-depth comprehension is the foundation for strategic planning and execution, establishing the groundwork for successful project management. Turner (2014) affirms this notion, arguing that proficient project execution—rooted in comprehensive process understanding—directly bolsters project performance, thereby contributing to project reputation. Nonetheless, the benefits of process understanding are contingent upon effective process planning and execution skills, as Kerzner (2017) outlined. A study by Munns and Bjeirmi (1996) presents a compelling argument supporting this, suggesting that projects underpinned by well-

planned and executed processes are more likely to meet their objectives, thereby enhancing project performance and reputation. However, the gains derived from effective process planning and execution can be significantly amplified by deploying process optimisation techniques such as Lean Six Sigma. As per Pyzdek and Keller (2009), these techniques streamline processes, eradicating inefficiencies and non-value-adding activities. This synergistic effect of process planning and optimisation enhances process efficiency and project outcomes (Hahn et al., 2000), indirectly contributing to project reputation.

Process audits and improvements strengthen this effect by enabling timely corrections and continuous refinement. Harrington (1991) emphasises the pivotal role of regular audits in ensuring project alignment, while Anand et al. (2009) demonstrate how such continuous improvements enhance project outcomes. Consequently, combining process optimisation and regular audits can further bolster project performance and reputation. This performance enhancement is further reinforced by strict adherence to process standards and guidelines, ensuring consistent quality. According to Zeng et al. (2005), conformance to standards such as ISO and PMI assures superior performance outcomes, strengthening project reputation. Finally, as Lechler and Gemünden (1997) highlighted, the efficient coordination of process steps integrates these components seamlessly, enabling a holistic approach to project management. Efficient coordination ensures alignment of all project activities towards the objectives, thus optimising project performance and indirectly contributing to an enhanced project reputation. Therefore, it is imperative to consider these interactions while managing processes in a project. Drawing on the above perspectives, this study posits the hypothesis:

Hypothesis 11: Efficient process management on a project will positively influence the perception of the project's reputation.

3.4.2 Product-based Perspective and Hypothesis Development

A project's product management effectiveness is a critical pillar of modern project management paradigms (Elton & Roe, 2023). This paradigm shift, often referred to as the product-oriented view, is primarily focused on the final deliverable of the project rather than the processes that lead to its completion (Olawale et al., 2020b; Ika, 2009).

This shift aligns with the concept of product management, which denotes the efficient administration of a project's core output, including its design, development, and value proposition, with an ultimate focus on enhancing the customer experience (Cagan & Vogel, 2002; Willett, 2015). Advocates of this perspective, such as the PRINCE2 Body of Knowledge, argue that the value of a project predominantly lies in the final product or service delivered to the stakeholder (Olawale et al., 2020b). They posit that the project's reputation is determined by the quality, functionality, and adherence of the final deliverable to predefined specifications (Hyväri, 2006). This perspective is particularly prevalent among project investors, clients, and users, who are generally more interested in the final product than the processes leading to its creation (Baccarini, 1999). In their view, the project's reputation is intimately tied to whether the product matches or exceeds their existing or perceived quality expectations.

A clear understanding of product requirements is fundamental to product management. It dictates the planning and execution of all product-related activities and sets the direction for product development (Leffingwell, 2010). This understanding can significantly enhance project performance when combined with the capability to manage the product development lifecycle (Cooper, 2014). By understanding requirements and navigating the lifecycle, product managers can anticipate challenges and opportunities, positively influencing the project's outcomes and reputation. Moreover, effective coordination with design and production teams is essential in ensuring that the developed product aligns with the stipulated requirements (Pugh, 1991). Ulrich and Eppinger (2015) found that successful product management relies heavily on this coordination, which aids in delivering a product that meets both quality and functional expectations. This positive impact on product quality and functionality can, in turn, enhance project performance and reputation.

Product management also requires the ability to manage product-related risks and issues. Risk management has been identified as a critical determinant of project success (Kerzner, 2017). By proactively identifying and mitigating potential risks, product managers can prevent disruptions and ensure smooth product development, thus enhancing project performance and positively influencing project reputation. The practice of quality assurance and control for product outputs further complements risk management. By enforcing stringent quality standards, product managers can ensure

that the final product aligns with the initially defined requirements and stakeholder expectations (Deming, 1986). This alignment improves project performance and contributes to a positive project reputation. Lastly, regular product updates and stakeholder communication are essential to efficient product management. Regular updates ensure all stakeholders know the product's status, facilitating transparency and trust (Müller and Turner, 2007). This transparency can lead to improved stakeholder satisfaction, positively influencing project reputation. Therefore, building upon the above analysis, this study develops the hypothesis:

Hypothesis 12: Efficient product management on a project will positively influence the perception of the project's reputation.

Table 2: List of Twelve (12) Theoretical Hypothesis Formulated from Project Management Literature

List of Hypothesis	Propositions
Client Satisfaction	**Hypothesis 1:** *Better engagement of clients throughout the project delivery lifecycle will positively enhance the perception of project reputation.*
	Hypothesis 2: *Meeting or exceeding client's project delivery expectations positively influences perceived project reputation.*
Innovation	**Hypothesis 3:** *Implementing innovative ideas on projects on an incremental basis will positively enhance the perception of a project's reputation.*
	Hypothesis 4: *Implementing radical innovative ideas on a project can enhance positive perception of project reputation.*
	Hypothesis 5: *Implementing innovative aesthetics and designs in a project will result in a favourable perception of a project's reputation.*
	Hypothesis 6: *Improving and refining existing components within a project can enhance positive perception of project reputation.*
Competency	**Hypothesis 7:** *Efficient communication among project teams and stakeholders will positively impact the project's reputation.*
	Hypothesis 8: *Project manager's competency in efficient project delivery and operations will positively influence the perception of a project's reputation.*
	Hypothesis 9: *Effective leadership competencies of project manager can positively influence the perception of a project's reputation.*
	Hypothesis 10: *Project manager's technical proficiency on the project will significantly influence the positive perception.*
Project Performance	**Hypothesis 11:** *Efficient process management on a project will positively influence the perception of project reputation.*
	Hypothesis 12: *Efficient product management on a project will positively influence the perception of project reputation.*

Table 3: Latent variables/measures and observed variables/measures for preliminary model development.

Observed Variables/Measures	References
Hypothesis 1: Better engagement of clients throughout the project delivery lifecycle will positively enhance the perception of project reputation.	
▪ Open and honest interactions with clients.	Dainty, Moore, and Murray (2007); Wong et al., 2008; Berenger and Agumba (2016); Bageis and Alshehri (2019).
▪ Proactive assessment of client concerns or issues throughout the project lifecycle.	Bal et al., (2013); Ashokkumar (2014); Bennett and Mayouf (2021).
Hypothesis 2: Meeting or exceeding client's project delivery expectations positively influences perceived project reputation.	
▪ Active involvement of the client in key decision-making processes.	Häkkinen and Belloni (2011); Sebastian (2011); Bal et al., (2013).
▪ Regular and clear communication with the client.	Yu et al., (2010); Doloit et al., (2012); Meng (2012); Ye et al., (2015).
▪ Ability to adapt to client requirements.	Akadiri, Chinyio and Olomolaiye (2012); Chen et al., (2012).
▪ Regular risk identification, reporting, and mitigation.	Pinto, Nunes, and Ribeiro (2011); Nwang and Ng., (2013); Serrador and Pinto (2015).
▪ Effective change management process	Papke-Shields, Beise, and Quan (2010); Mir and Pinnington (2014); Siebert, Paton, and McCalman (2015).
Hypothesis 3: Implementing innovative ideas on projects on an incremental basis will positively enhance the perception of a project's reputation.	
▪ Effective planning and strategic execution of incremental innovations.	Andrews et al., (2011); Gambatese and Hallowell (2011).
▪ Continuous learning and adaptability of the project team.	Khosrowshahi and Frayici (2012); Mir and Pinnington (2014); Serrador and Pinto (2015).
▪ Proactive risk management for new implementations.	Zhao, Hwang, and Low (2013); Serpell et al., (2015); Zou, Kiviniemi and Jones (2017).
▪ Regular stakeholder communication about innovation updates.	Bos-Brouwers (2010); Ghaffarianhoseini et al., (2017).
▪ Consistent feedback and evaluation mechanisms.	Zhang (2022); Bhaskaran (2006); Büschgens et al. (2013)
▪ Building an innovation-friendly project culture.	Jamrog et al. (2006) ; Costantiello et al. (2021) ; Job and Bhattacharyya (2007)

Hypothesis 4: Implementing radical innovative ideas on a project can enhance positive perception of project reputation.	
▪ Strong leadership to drive radical changes.	Miller (2001); McIntosh and Taylor (2013); Hartge et al (2019)
▪ Thorough market and feasibility analysis.	Li et al (2005), Halil et al (2016); Osei-Kyei and Chan (2017)
▪ Skilled project team with high risk tolerance.	Harvey et al (2018), Ullah et al (2021); Jiang et al., (2021)
▪ Availability of resources for substantial innovation.	Nitithamyong and Skibniewski (2021)
▪ Stakeholders buy-in and acceptance of major changes.	Hubbart (2022)
▪ Robust change management and contingency plans.	Motawa et al (2007), Bröchner & Badenfelt (2011); Siebert, Paton, and McCalman (2015).
Hypothesis 5: Implementing innovative aesthetics and designs in a project will result in a favourable perception of a project's reputation.	
▪ Competent design team with a creative approach.	Bushuyeva et al. (2018)
▪ Understanding of end-user preferences and trends.	Lipp et al. (2023); Zhao et al (2010)
▪ Clear communication of design objectives and expectations.	Chen and Chen (2007); Thyssen et al (2010); Akinade et al. (2018)
▪ Efficient implementation of design changes.	Divakar & Jebin (2018); Bhirud & Revatkar (2016)
▪ Regular design reviews and quality checks.	Park & Kim (2015)
▪ Customer involvement in design feedback and iterations.	Sakikhales & Stravoravdis (2017)
Hypothesis 6: Improving and refining existing components within a project can enhance positive perception of project reputation.	
▪ Thorough analysis of current project components.	Meredith et al. (2017); Müller and Turner (2007); Lipp et al. (2023);
▪ Clear identification of areas requiring improvement.	Shibani & Sukumar (2015)
▪ Efficient planning and execution of improvement actions.	bt Zakaria et al., (2015)
▪ Regular monitoring and evaluation of improvements.	Lipp et al. (2023); Zhao et al (2010)
▪ Transparent communication about refinements with stakeholders.	Kerzner (2017)
▪ Maintenance of a continuous improvement culture within the project team.	Kahvandi et al. (2019); Davis (2011)

Hypothesis 7: Efficient communication among project teams and stakeholders will positively impact the project's reputation.	
▪ Clear and concise communication processes.	Motawa et al (2007), Bröchner & Badenfelt (2011);
▪ Active listening and feedback mechanisms.	Li et al (2005), Halil et al (2016);
▪ Usage of appropriate communication channels.	Davis (2011); Potter et al. (2018)
▪ Regular communication scheduling.	Zou, Kiviniemi and Jones (2017).
▪ Timely response to queries and issues.	Kerzner (2017; Davis (2011); Potter et al. (2018)
▪ Transparent sharing of project status and updates.	Kerzner (2017); Davis (2011); Potter et al. (2018)
Hypothesis 8: Project manager's competency in efficient project delivery and operations will positively influence the perception of a project's reputation.	
▪ Effective project planning and execution skills.	Potter et al. (2018); Kukah et al. (2022)
▪ Deep understanding of project operations.	Casini (2021) ; Müller and Turner (2007)
▪ Ability to identify and mitigate risks.	Serpell et al., (2015); Zou, Kiviniemi and Jones (2017).
▪ Strong decision-making capabilities.	bt Zakaria et al., (2015)
▪ Proven track record of successful project deliveries.	Ika (2009); Meredith et al. (2017); Müller and Turner (2007)
▪ Effective delegation and resource allocation skills.	Shibani & Sukumar (2015)
Hypothesis 9: Effective leadership competencies of project manager can positively influence the perception of a project's reputation.	
▪ Visionary and strategic thinking abilities.	Ram and Dolla (2023); Nuntamanop et al (2013)
▪ Strong interpersonal and influence skills.	Hashim et al. (2021) ; Casini (2021) ; Davis (2011)
▪ Ability to inspire and motivate the team.	Davis (2011)
▪ Conflict resolution and problem-solving skills.	Kahvandi et al. (2019); Davis (2011)
▪ Capacity to foster a positive and productive project culture.	Ghorbani (2023)
▪ Emotional intelligence to manage team dynamics.	Davis (2011); Potter et al. (2018); Kukah et al. (2022)
Hypothesis 10: Project manager's technical proficiency on the project will significantly influence the positive perception.	
▪ Adequate knowledge of project-specific technical aspects.	Leseure & Brookes (2004)
▪ Ability to guide the team on technical issues.	Patanakul & Milosevic (2008)
▪ Capability to oversee technical quality checks.	De Wit (1988), Kerzner (2017)
▪ Staying updated with latest technical advancements.	Hashim et al. (2021); Casini (2021)

▪ Skills to solve complex technical problems.	Alshammari et al., (2020)
▪ Communication of technical complexities in simple terms.	Kahvandi et al. (2019)
Hypothesis 11: Efficient process management on a project will positively influence the perception of project reputation.	
▪ Thorough understanding of project processes.	Arayici (2009)
▪ Effective process planning and execution skills.	Batson (2009); Ahmed et al. (2021)
▪ Use of process optimisation techniques.	Abioye et al., (2021); Venkrbec et al., (2018); Bilal et al. (2016)
▪ Regular process audits and improvements.	Delgado-Hernandez & Aspinwall (2008); Egbu (2004)
▪ Adherence to process standards and guidelines.	Lu et al., (2022)
▪ Efficient coordination among different process steps.	Hai et al. (2012)
Hypothesis 12: Efficient product management on a project will positively influence the perception of project reputation.	
▪ Clear understanding of product requirements.	Streule et al. (2016); Doran & Giannakis (2011)
▪ Capability to manage product development lifecycle.	Annunen et al. (2022)
▪ Strong coordination with design and production teams.	Harvey et al (2018), Ullah et al (2021); Jiang et al., (2021)
▪ Ability to manage product-related risks and issues.	Kuitert et al., (2019)
▪ Quality assurance and control for product outputs.	Mazher et al. (2015); Langford et al. (2000)
▪ Regular product updates and communication with stakeholders.	Ahmed et al. (2021), Kahvandi et al. (2019); Davis (2011)

4 Chapter Four: Theoretical Framework

4.0 Chapter Overview

This chapter explores the theoretical construct of organisational reputation, illuminating its significant underpinnings in diverse disciplines such as psychology, sociology, and management studies. The chapter starts by exploring the complexity of organisational reputation, identifying its influence on stakeholders' perceptions, evaluations, and the overall prosperity of an organisation. It elaborates on the potential benefits of a favourable reputation, including heightened trust, loyalty, credibility, and superior financial performance, while noting the adverse consequences of a tarnished reputation. This chapter intricately explores three major theoretical frameworks of reputation: Evaluative, Impressional, and Relational Organisational Theories. Recognising the strengths and limitations of these theories, the chapter proposes an integrative multi-theoretical construct, combining insights from all three theories, providing a more nuanced and holistic understanding of reputation in the construction sector. This construct acknowledges the unique nature of Project-Based Organisations (PBOs) and presents a comprehensive strategy for reputation management within such organisations, emphasising the significance of client satisfaction and successful project delivery.

4.1 What is Organisational Reputation Theory

The theoretical construct of Organisational Reputation emerges as a robust multidisciplinary area of inquiry, drawing upon diverse intellectual territories, including psychology (Yang & Grunig, 2005; Kanu et al., 2022; Behera et al., 2022), sociology (Hahn et al., 2007; Piranfar & Matthews, 2008), and management studies (Aladwan & Alshami, 2021; Adanlawo & Chaka, 2022). Scholars like Yang & Grunig (2005) and Behera et al. (2022) suggest that this theory investigates how organisations create and maintain a good reputation and how this impacts their relationships with key groups such as customers, employees, shareholders, and the community. Organisational reputation is intricately complex, encapsulating stakeholder perceptions and evaluations of an organisation and their collective inferences about its historical behaviour, projected intentions, and overall value proposition. This interpretive process greatly affects the prosperity and survival of an organisation.

A favourable reputation can garner significant advantages including heightened trust, augmented loyalty, enhanced credibility, superior financial performance, and promising avenues for growth. Conversely, a tarnished reputation can engender serious detrimental effects, including a mass exodus of customers, employees, and partners, a debilitating loss in competitive standing, and financial instability. Multiple theoretical frameworks have been proposed to unravel the intricate essence of organisational reputation, notably the Evaluative, Impression Management, and Relational Theories. In the following subsections, each of these theories will be discussed in detail to understand better their relevance and implications in studying organisational reputation. The purpose is to uncover the core concepts of these theories and how they help in decoding the intricacies of building and maintaining a reputable organisation in a competitive environment.

4.1.1 Evaluative Organisational Theory

Evaluative reputation theory, fundamentally rooted in economics and strategic management, primarily addresses the immediate financial repercussions of reputation, including financial performance and organisational value. This theory captures the attention of direct stakeholders, such as shareholders, chief executive officers, and investment consultants (Chun, 2005). The crux of this theoretical framework is that reputation is an aggregate appraisal of an organisation's proficiency, moral probity, and overall performance. Many factors encompassing past behaviour, future intentions, and perceived value can shape this appraisal process. The Evaluative Reputation Theory presents reputation as a multifaceted construct, encapsulating numerous dimensions of an organisation's public image, such as the quality of its offerings, reliability, trustworthiness, and adherence to ethical standards. The burgeoning acknowledgement of a favourable reputation as an 'intangible asset' (Grant, 1995; Dowling, 1993) and a precursor to 'competitive advantage' (Hall, 1992) within a competitive market has exponentially amplified the relevance of this perspective.

Subsequently, methodologies such as brand valuation and media reputation rankings converge with this theoretical standpoint by quantifying and evaluating the fiscal

implications of an organisation's reputation. This perspective reinforces the pivotal role of performance in sculpting reputation, suggesting that organisations can forge and sustain a positive reputation by consistently providing superior products and services and demonstrating integrity, transparency, and accountability in their actions and decision-making processes. Moreover, the theory recognises the role of perception in moulding reputation, implying that organisations can augment their reputation through strategic image management and the careful dissemination of information.

4.1.2 Impressional Organisational Theory

The impressional reputation theory, firmly anchored in the academic realms of marketing (Bromley, 1993; Dowling, 1993) and organisational behaviour (Gioia & Thomas, 1996), diverges from the evaluative framework by contending that reputation is contingent upon stakeholder perceptions rather than financial implications (Chun, 2005). This perspective argues that these perceptions are shaped by the organisation's strategic use of public communications, symbolic actions, and physical markers, which influence 'implicit' stakeholders' impressions of organisational performance, including customers and employees. Impressional Reputation Theory offers a unique lens to view organisational reputation, underscoring the creation of a reputation originating from stakeholders' impressions. According to this theory, reputation is not solely anchored in objectively appraising an organisation's performance; it also rests on stakeholders' subjective interpretations and perceptions. This theory postulates that reputation is a multifaceted and fluid construct, sculpted by the interplay between actual organisational behaviour and stakeholders' interpretation.

As such, an organisation's non-financial attributes, including image, identity, and personality (Balmer, 1997; Dutton et al., 1994; Bromley 1993), align seamlessly with this theoretical framework. The Impressional Reputation Theory articulates that reputation accrues through an amalgamation of impressions, wherein stakeholders collate and process information about an organisation, consequently forming judgments regarding its overall quality, value, and appeal. Recognising the influence of an array of factors on reputation, including organisational actions and behaviours, available information, and the social, cultural, and psychological variables shaping stakeholder perception, this theory argues that organisations can construct and uphold

a positive reputation by managing their behaviour, information dissemination, and ensuring alignment between actions and stakeholder values and expectations.

4.1.3 Relational Organisational Theory

The relational reputation theory is entrenched in the scholarly domains of sociology, psychology, and management. Hatch and Schultz (2001) posited that this theory frames reputation as a dynamic and relational entity shaped by the intricate interplay between organisational behaviour and stakeholder perceptions. The theory embraces the intricacy and heterogeneity inherent in the perspectives of both internal and external stakeholders when sculpting an organisation's reputation. Subsequently, Carter and Deephouse (1999) propose that a negative reputation can influence a positive one, or inversely, given the divergent viewpoints of internal and external stakeholders regarding an organisation. This divergence births 'relational differences' (Hatch and Schultz, 2000) or 'gaps' (Hatch and Schultz 2001; Davies and Miles, 1998) between external and internal stakeholders, which assume a pivotal role in determining an organisation's reputation.

As a result, the theory underscores the importance of interpersonal relationships, communication, and reputation dynamics in shaping behaviours and outcomes vital for building and safeguarding a positive reputation. The Relational Reputation Theory posits that reputation is erected on a bedrock of trust and reciprocal advantage and is shaped by the interactions and exchanges between organisations and their stakeholders. According to this theory, organisations ought to cultivate relationships founded on mutual trust, comprehension, and advantage. This can be achieved by demonstrating honesty, fairness, and reliability in behaviours and by effectively communicating with stakeholders to foster trust and understanding.

4.1.4 Integrative Multi-Theoretical Construct

The evaluative theory of reputation suggests that reputation arises from the evaluative judgment's stakeholders form about an organisation. However, this theory is often viewed as too simplistic, neglecting the influence of complex social and cultural elements such as norms, values, and expectations. In contrast, the impression theory of reputation revolves around the impressions that stakeholders create about an

organisation. Although it significantly underscores the role of communication and image, critics argue that it pays excessive attention to surface impressions at the expense of organisational realities. The relational theory posits that reputation is derived from the quality of relationships an organisation cultivates with its stakeholders. However, it has been argued that this theory focuses too much on stakeholder interactions, overlooking the quality of an organisation's services or products. Each theory holds unique strengths and weaknesses, yet none sufficiently encapsulates project reputation within construction organisations. Consequently, this study proposes an integrative multi-theoretical construct, weaving insights from all three theories to offer a more well-rounded perspective of reputation within the construction sector.

This integrative construct considers evaluative, impression, and relational factors, providing a more holistic understanding of how construction organisations shape and maintain their reputations over time. It recognises that stakeholder evaluations, shaped by performance, quality, and ethical behaviour, can influence an organisation's reputation. Impression elements, such as communication, image, and branding, are acknowledged for their power to shape perceptions. At the same time, relational factors like stakeholder engagement and trust can directly impact the organisation's reputation. Project-Based Organisations (PBOs) are unique, operating differently than conventional business organisations. With a focus on delivering successful projects to satisfy clients rather than merely generating revenue through services or products, PBOs are driven by project outcomes that facilitate business change and innovation. Given the distinctive nature of PBOs, existing reputation theories do not adequately address their reputational intricacies. This necessitates a fresh theoretical approach, capable of encapsulating the significance of client satisfaction in PBO reputation measurement. The proposed integrative multi-theoretical construct goes beyond traditional reputational theories to fully represent PBOs' reputation management.

5 Chapter Five: Research Methodology

5.0 Chapter Overview

This chapter embarks on a comprehensive exploration of the research methodologies that underpin this study. Initially, the importance of research methodology is scrutinised, highlighting its indispensable role in the study. Following this, an analysis of the research philosophy unfolds, culminating in a justification of this thesis's ontological and epistemological foundations. Subsequently, the chapter navigates through an evaluation of the research paradigms, providing a compelling argument for adopting critical realism as the cornerstone paradigm for this investigation. A discussion on inductive and deductive reasoning emerges next, revealing the merits of retroduction as the chosen research approach for this enquiry. Further into the chapter, the lens is shifted towards assessing research choices, leading to a robust case for employing mixed methods in this study. The overview of many research strategies is then scrutinised, unveiling the rationale behind adopting phenomenology and survey as the apt research strategies for this investigation. The chapter concludes with a detailed examination of various sampling strategies, shedding light on the specific strategies chosen for this research's qualitative and quantitative aspects.

5.1 What is Research?

Research refers to systematically investigating a specific topic or problem to generate new knowledge or confirm existing knowledge (Walliman, 2015). It is a process of inquiry that involves collecting, analysing, interpreting, and presenting data to answer questions, solve problems, or generate new insights. According to Walliman (2021), research is typically conducted in academic, scientific, or professional settings and is often characterised by a rigorous and systematic approach. To conduct a research study effectively, authors such as Saunders et al. (2007), Creswell (2014) and Walliman (2015) and argue that it is often necessary to develop a research methodology, which is a plan for collecting and analysing data. A commonly adopted framework for developing a research methodology is the "research onion" proposed by Saunders et al. (2007) (see Figure 5 below). However, this research model has been criticised for overlooking the "research philosophy", which refers to the philosophical questions of ontology and epistemology that underlie a research study. While Saunders et al. (2007) categorise positivism, realism, interpretivism, and

pragmatism as "philosophies", several researchers prefer to classify them as "research paradigms" (e.g., Guba and Lincoln, 1994).
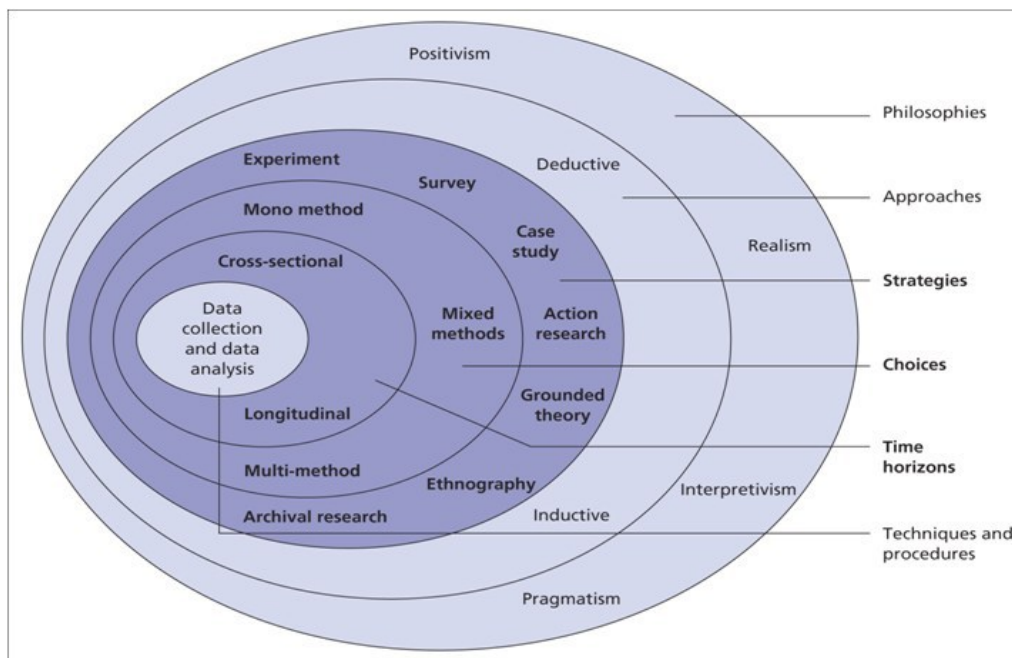
Figure 5: Saunders et al. (2007) research onion

The use of different terminologies reflects a contemporary issue within the field of research methodology which can create confusion; hence, it is vital for researchers to clearly define the terms they will be using in their studies. In line with this perspective, the research methodology for this study encompasses several interrelated components: research philosophy (ontology and epistemology), research paradigm (positivism, interpretivism), research approach (inductive, deductive), research choice (qualitative, quantitative, mixed methods), research strategy (case study, experimental), sampling strategy (snowball, stratified), and research methods (literature review, interviews, questionnaire survey). These components will be discussed in subsequent sections, in which the sub-components of each component will be identified, and the reason for choosing approaches over others will be justified. A comprehensive research methodology process has been developed as a guide for formulating an effective methodology for this doctoral thesis (see Figure 6 below).
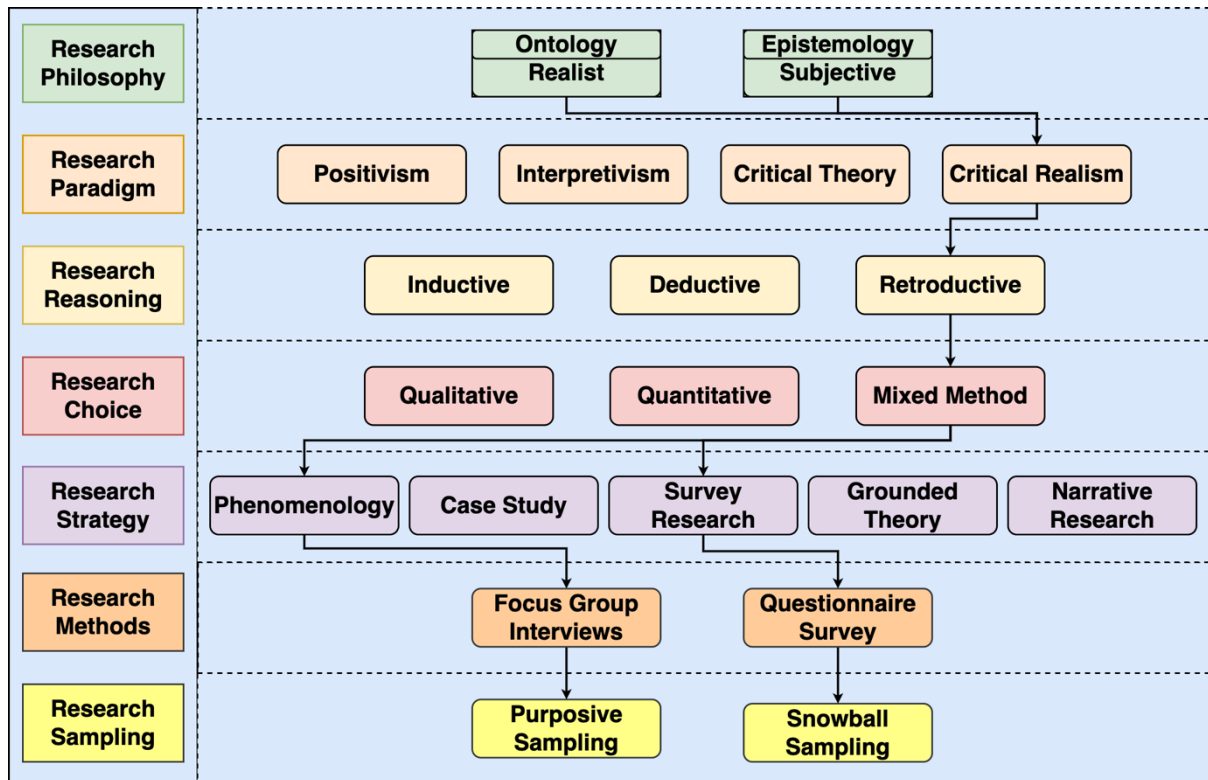
Figure 6: Research methodology flow chart of the thesis

5.2 Research Philosophy

Research philosophy refers to the underlying assumptions and beliefs that guide research. It also refers to the perspective or approach a researcher takes towards understanding the world and the methods they use to study it. Research philosophy is an important aspect of the research process because it determines the lens through which a study is approached, and the methods used to collect and analyse data. These assumptions and beliefs relate to the nature of reality (ontology) and knowledge (epistemology). Every research study is based on assumptions about the nature and existence of reality (Crotty, 1998). These assumptions are often the subject of inquiry to understand how the reality in question can be studied and how the approach to knowledge acquisition can be justified. Smith (1998) argues that this inquiry process can lead to confusion and instability in our assumptions and encourage in-depth thinking. Easterby-Smith & Thorpe. (1997), on the other hand, suggests that this inquiry process helps researchers evaluate different methodologies and methods and avoid inappropriate use or unnecessary work by identifying the limitations of approaches early on. Therefore, it is important to consider philosophical research questions related to ontology (the nature of reality) and epistemology (what can be

known) at the beginning of a research study, as suggested by Symon and Cassell (2012), Guba and Lincoln (1994), and Guba (1990). In line with this perspective, the following sections will address issues of ontology and epistemology.

5.2.1 Ontology

Ontology, a fundamental branch of philosophy, concentrates on the essence of reality and the nature of existence (Crotty, 1998). Ontology encapsulates the foundational assumptions of a researcher concerning the true nature of the phenomenon under study. These premises encompass beliefs about the existence or non-existence of the phenomena, intricate interrelationships between diverse components of the phenomena, and viable methodologies for studying or understanding the phenomena (Blaikie, 2000). As Rosenborg (1980) articulates, ontological perspectives are predominantly split into two distinct yet contradicting perspectives. Realist ontology is premised on the conviction that reality exists independent of the observer's cognition and can be studied and comprehended objectively (Blumer, 1984). This school of thought posits that reality remains objective and remains impervious to individual perceptions or interpretations. Proponents of realist ontology typically presuppose that the phenomena under scrutiny exist independent of the researcher's perceptions and can be objectively scrutinised employing empirical methodologies such as experimentation, observations, and quantitative measurements.

Contrastingly, the second perspective aligns with a constructivist ontology. It propounds the notion that reality is a social construct and can be discerned only through the lens of subjective experiences and interpretations (Bulmer, 1984; Archer, 2013). This paradigm posits that reality is far from being an objective entity but is sculpted by individual or collective interpretations and perceptions of the world. Researchers subscribing to constructivist ontology often posit that social, cultural, and historical contexts undeniably influence the phenomena under study, and a true understanding can only be derived by interpreting subjective experiences. Therefore, they often adopt qualitative research methodologies like participant observation and interviews to investigate these phenomena.

5.2.2 Epistemology

As a significant branch of philosophy, epistemology fundamentally centres on the nature and validity of knowledge and the means through which it is acquired (Gall, Gall, and Borg, 2003). This term epitomises a researcher's inherent suppositions about knowledge acquisition and various methodologies' credibility. Such assumptions can encapsulate beliefs about the origins of knowledge, the reliability and precision of different knowledge-gathering techniques, and the approaches for validating or scrutinising knowledge (Patton, 2002; Dancy et al., 2010). One prominent epistemological standpoint is the objectivist perspective, positing that knowledge can be impartially obtained through empirical observations and precise measurements (Guba and Lincoln, 1994). Subscribers to this perspective believe in the separation between the observer and the world, asserting that knowledge can be objectively garnered through rigorous experimentation, direct observation, and quantitative measurements. This objectivist perspective is closely tied to the principles of the scientific method, an empirical, logical, and systematic approach towards gaining insight into natural phenomena. It affirms the notion that reality exists independently of our perception, and it is the task of the researcher to discover this objective reality through careful, unbiased observation and rigorous, replicable experimentation.

Conversely, subjectivist epistemology propounds that knowledge is a product of individual experiences and interpretations (Crotty, 1998; Collis and Hussey, 2009). Advocates of this approach posit that knowledge is individually constructed, being influenced significantly by personal experiences, inherent biases, and cultural contexts. This perspective finds alignment with qualitative research methodologies that explore subjective experiences and interpretative phenomena. Lastly, a constructionist epistemology posits that knowledge is intricately woven by individuals and significantly influenced by sociocultural and historical contexts (Berger and Luckmann, 1967). Adherents of this view assert that knowledge is neither objective nor universal but is a dynamic construct influenced by individual and collective interpretations of the world. This standpoint is strongly associated with critical theory and postmodernist perspectives and is often used to scrutinise power dynamics, social justice issues, and the complex interplay of societal constructs.

5.2.3 Ontological & Epistemological Justification

Embracing a realist ontological stance, this study is predicated on the premise that the constructs of reputation, alongside its drivers and constituent theories, possess an objective reality that transcends subjective perception. This realist perspective is pivotal for the investigation, given that it asserts the existence of reputation as an empirical entity that can be observed, measured, and analysed in the construction industry context. Under this ontological framework, reputation is not merely a subjective interpretation subject to individual or collective construct; it is a discernible element influenced by tangible conditions and variables that are invariant to personal biases. The realist ontology endorses the notion that project reputation is governed by objective truths that are amenable to empirical inquiry. This standpoint is instrumental for the development of a value-free hypothesis that conjectures a factual and measurable relationship between identified variables and the project's reputation. Such an approach facilitates the extraction of quantifiable data, enabling the validation of existing theories and potentially unveiling novel insights into the mechanics of project reputation.

In alignment with the ontological perspective, the study adopts a subjective epistemology, positioning the research within a framework that values the rich, nuanced experiences and perceptions of contractors in the construction industry. This epistemological approach accepts the complexity and intangibility inherent in the concepts of project performance and organizational reputation. It asserts that the knowledge of these constructs is best gleaned through the interpretative lenses of those intimately involved with the phenomena under study. Subjective epistemology allows the research to delve into the interpretative domain, where understanding is shaped by the context-specific experiences and perspectives of individuals. This approach underscores the variable and contextual nature of knowledge, particularly relevant in the construction industry where project reputation is influenced by a confluence of socio-cultural, economic, and environmental factors. It grants a platform for contractors' voices to articulate their subjective truths, providing a depth of understanding that objective measures alone may overlook.

The juxtaposition of a realist ontology with a subjective epistemology in this research presents a methodological paradox that is both deliberate and strategic. On one hand, the research is anchored in the belief that certain aspects of project reputation are objective and can be empirically measured. On the other hand, it acknowledges the importance of subjective human experiences and insights in interpreting these aspects. This dualistic approach enables the study to traverse the continuum from objective reality to subjective interpretation, capturing both the measurable attributes of project reputation and the complex, lived experiences that colour its perception in the construction industry. By employing this integrated ontological and epistemological framework, the study aspires to contribute to the extant body of knowledge with a nuanced, multi-dimensional understanding of project reputation. It aims to reinforce established theoretical constructs while also embracing the subjective intricacies that characterize the contractor's viewpoint in the construction industry. The resultant evaluative framework is thereby enriched, offering a comprehensive, balanced, and logical articulation of project reputation that is both empirically grounded and contextually resonant.

5.2.4 Critical Realism as the Research Philosophy for this Study

This study embraces critical realism as its guiding philosophy, a nuanced approach to research pioneered by Roy Bhaskar. Critical realism offers a sophisticated means to bridge the gap between the objective and the subjective, recognizing multiple strata of reality: the empirical, the actual, and the real. The empirical domain comprises the observable phenomena that we discern through our senses and technologies. The actual encompasses the underlying processes and structures, like natural laws and social system causalities, which govern the empirical. The real delves deeper, pointing to the foundational structures and mechanisms that shape both the empirical and the actual domains. Critical realism, thus, distinguishes itself from positivism, which posits a single, observable reality, and interpretivism, which embraces multiple, subjective realities. Positivism focuses on observable, quantifiable facts to generate knowledge, whereas interpretivism seeks understanding through the subjective interpretation of human experiences. Critical realism, in contrast, acknowledges a reality independent of human cognition, akin to positivism, but it also concedes that our perception of this

reality is socially constructed and influenced by individual experiences, thus aligning with interpretivist epistemology.

The suitability of critical realism for this thesis stems from its commitment to uncovering the mechanisms that influence project reputation within the construction industry. The research is conducted in two phases: the first involves deep, interpretive engagement with construction stakeholders to capture the multifaceted concept of project reputation, its dimensions, drivers, and impacts. The second phase seeks to empirically verify whether these subjective insights hold true across a broader population and within a confined timeframe. Neither interpretivism with its deep subjectivity nor positivism with its rigid objectivity could singularly serve both aspects of this study. Critical realism, however, with its dual acceptance of subjective experiences and objective realities, provides a comprehensive framework to address the full spectrum of the research aims. As Sayer (2010) suggests, critical realism can begin with an intensive, subjective phase and progress to an extensive, objective inquiry. This study mirrors such an approach, starting with a focused analysis through qualitative methods and expanding to a broader quantitative examination to validate the framework developed.

In this light, critical realism is selected as the most fitting paradigm for this study. It not only allows for a detailed conceptualization of project reputation from the subjective experiences of stakeholders but also accommodates the validation of these concepts against an objective reality. This dual capacity is essential for constructing a robust evaluative framework for project reputation in the construction industry, with the overarching aim to mitigate negative perceptions that could impact organizational reputation detrimentally. The critical realist paradigm, therefore, provides the flexibility and depth necessary for the multifaceted exploration this thesis undertakes.

5.3 Research Reasoning Approach

Research reasoning approaches serve as the methodological backbone of scholarly inquiry, laying out the logical pathway's researchers employ to generate, evaluate, and test hypotheses or theories. These approaches constitute the roadmap for researchers, guiding them to draw meaningful and justifiable conclusions from their data. They are the cognitive tools that researchers use to engage with their data

critically, assess the validity and reliability of their findings, and justify their conclusions. Such approaches employ different methods of reasoning, each with its distinct implications for the outcomes of a study. Therefore, selecting an appropriate research reasoning approach has a significant bearing on the integrity of the research process and the validity of its conclusions. Consequently, evaluating these reasoning techniques is an integral step in formulating a robust research design. Among the most adopted reasoning techniques in scientific research are inductive reasoning, deductive reasoning, and retroductive reasoning. Each represents a unique path of logical inference and is suited to different research contexts and objectives. These reasoning techniques will be evaluated in subsequent sub-sections to present an informed justification for this thesis's appropriate reasoning technique.

5.3.1 Inductive Reasoning

Inductive reasoning, deeply rooted in the philosophical underpinning of empiricism, posits that knowledge is primarily derived from sensory experience (Bendassoli, 2013). This reasoning approach represents a flexible and explorative method, enabling researchers to commence with specific observations and subsequently gather data to discern patterns, correlations, and relationships intrinsic to the data. Through this process, researchers can construct a hypothesis or a set of generalisations that encapsulate the phenomenon's characteristics under investigation. The methods for data collection in inductive reasoning are diverse, ranging from interviews and focus groups to surveys and direct observations. Following data collection, researchers analyse the data meticulously, identifying recurring patterns and trends that shed light on the research question (Bendassoli, 2013). Inductive reasoning is prevalent in fields such as sociology, psychology, and anthropology, which emphasise understanding human experiences and behaviours.

However, the use of inductive reasoning is not without philosophical contention. The problem of induction, a long-standing philosophical dilemma, emerges from the foundational assumption that future instances will uniformly resemble past ones (Hume, 1740). This assumption, although crucial to inductive reasoning, is inherently unverifiable, introducing an element of uncertainty (Carnap, 1950). Consequently, inductive reasoning can never yield absolute knowledge (Popper, 1959), and the

possibility always looms that future observations might refute our current hypotheses or theories (Goodman, 1954). Despite these limitations, inductive reasoning remains a powerful tool for hypothesis generation and theory development (Thagard, 1997). Its capacity to detect patterns and uncover relationships in observed data offers valuable insights into complex phenomena (Johnson, 2014). However, its inherent limitations imply that it may not be as dependable for testing specific hypotheses or drawing definitive conclusions (Salmon, 1998), thus necessitating the integration of other research reasoning approaches, such as deduction or abduction, to strengthen the overall research design (Lipton, 2003).

5.3.2 Deductive Reasoning

Deductive reasoning, rooted in the philosophy of logical positivism, hinges on the idea that knowledge and understanding stem from established logical and mathematical principles (Goswami, 2011). This approach manifests in research as starting with a hypothesis or set of assumptions, which are then rigorously tested through observations and experiments. This contrasts with inductive research, which moves from specific observations to broader generalizations. Data collection in deductive research happens through various means like experiments, surveys, or observations, followed by meticulously analysing the gathered data to evaluate the initial hypotheses. Deductive reasoning has proven valuable in fields like the natural sciences, where understanding and predicting physical systems behaviour is paramount. However, its application, particularly when it comes to philosophical validity, isn't without its challenges.

The 'problem of induction', a major philosophical concern, arises from the core assumption of deductive reasoning that the laws of logic apply universally (Hume, 1740). Though vital to this approach, this assumption is inherently unverifiable and hence uncertain (Carnap, 1950). Consequently, there's always the possibility that the laws of logic might not hold true universally, introducing an element of uncertainty into the deductive reasoning process. Despite these philosophical quandaries, the deductive approach offers significant advantages for testing specific hypotheses and drawing definitive conclusions due to its logical and systematic structure. However, it might lack the flexibility and exploratory nature of the inductive approach. This

limitation implies that while deductive reasoning excels at theory testing and validation, it might be less suited for generating new theories or exploring novel phenomena. Hence, choosing between inductive and deductive reasoning should be guided by the specific research objectives and context.
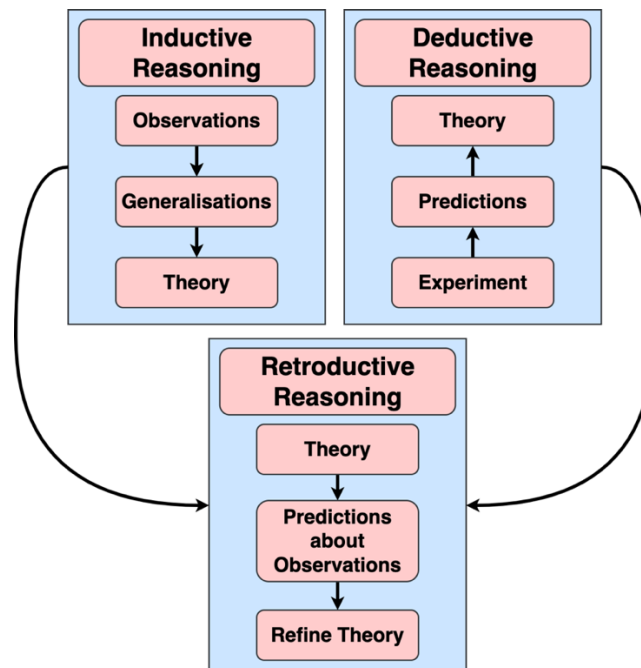
Figure 7: Distinctions between inductive, deductive and retroductive reasoning approaches

5.3.3   Retroductive Reasoning as the Research Approach for this study

Interpretivism involves inductive reasoning, while positivism involves deductive reasoning (Berger and Luckmann, 1967). Retroductive reasoning is a hybrid research approach combining inductive and deductive reasoning elements. It combines the idea that knowledge and understanding can be derived from sensory experience (empiricism) and that knowledge and understanding can be derived from logical and mathematical principles (logical positivism). It involves starting with a hypothesis or theory and using it to make predictions about observations and then using those observations to test and refine the original hypothesis or theory based on the evidence (Sæther, 1998). According to Mearman (2006), this approach allows researchers to explore and understand complex or poorly understood phenomena that may not be amenable to purely inductive or deductive approaches. As such, retroductive research has been frequently used in fields such as philosophy, where researchers are

interested in understanding the underlying principles and concepts that govern the world. It has also been used in other fields, such as physics, biology, and psychology, where researchers are interested in understanding complex systems and phenomena. Based on the philosophical underpinning of this study, the reasoning research approach follows a retroductive pattern. During the early stage, this study follows an inductive reasoning pattern that will assist in generating theories and assumptions. In contrast, at the later stage, the study would then revert to a deductive reasoning pattern whereby the theories and assumptions of the study would be refined and redeveloped. By doing so, retroduction builds upon the epistemological weakness of induction and deduction by encouraging the triangulation of qualitative and quantitative methods (Sæther, 1998).

5.4 Research Choice

When designing research, researchers are usually spoilt for choosing between a qualitative or a quantitative approach to data collection and analysis (Creswell, 2014). However, recent studies that combine both approaches have become standard (Saunders et al., 2009; Tashakkori and Teddlie, 2010). Neither of these three methods are better than the other, however, the reality that the researcher seeks to uncover determines the research choice. In a bid to adopt the most suitable research choice for this doctoral thesis, efforts will be made to provide an account of a qualitative, quantitative and a mixed method research.

5.4.1 Qualitative Research

Qualitative research is a method of inquiry that seeks to explore, understand, and interpret social phenomena from the participants' perspective (Creswell, 2003; Denzin and Lincoln, 2011). It is often used to delve into complex social issues and gain a rich understanding of people's experiences, perspectives, and motivations. Qualitative research typically involves collecting and analysing words, images, or sounds rather than numerical data. According to Guba and Lincoln (1994), qualitative research is deeply rooted in the interpretivist research paradigm, which posits that knowledge is socially constructed and can only be understood through subjective interactions. As a result, qualitative research examines the behaviour and reactions of participants, and the researcher becomes a key research instrument (Creswell, 2014). Researchers

who employ qualitative research often use interpretive approaches such as ethnography, phenomenology, grounded theory, in-depth interviews, and focus group discussions (Bryman, 2006), which are typically recorded and subsequently analysed through techniques such as content analysis, discourse analysis, domain analysis, and thematic analysis to derive meaning.

Qualitative research has faced several criticisms over the years. One major criticism is that it is subjective, as it often relies on subjective interpretation of data, which can lead to biases and inconsistencies in data analysis and compromise the validity and reliability of findings (Lincoln and Guba, 1985). Another criticism is that it often involves small, non-representative samples, which limits the ability to generalise findings to a larger population (Bryman, 2006). This can be a significant limitation, as the results of qualitative research may only apply to some groups or people. Qualitative research raises ethical concerns around confidentiality and privacy, often involving collecting sensitive or personal data from individuals. Researchers must be careful to protect the confidentiality of research participants and handle data ethically. Qualitative research can also be time-consuming and resource-intensive, as it often involves an in-depth analysis of large amounts of data. This can challenge researchers working under time or budget constraints (Creswell, 2014). Despite these criticisms, qualitative research remains a valuable research method that can provide valuable insights and understanding of complex social and psychological phenomena (Denzin and Lincoln, 2011).

5.4.2 Quantitative Research

Quantitative research is a method of inquiry that involves collecting and analysing numerical data. It tests hypotheses and answers research questions by collecting data from a large sample of subjects and using statistical methods to analyse the data (Cohen et al., 2007). Quantitative research is often used to investigate relationships between variables and identify data patterns and trends. It is typically objective, systematic, and based on statistical analysis, which allows researchers to draw more generalisable conclusions from the data. On the other hand, qualitative research relies on numerical instruments designed independently of the research subjects (Creswell, 2014). Therefore, in contrast to qualitative research, where the researcher is

immersed, the researcher in quantitative research must be distanced from the research instrument to avoid any form of dilution of the research, such as theoretical or cultural biases (Crotty, 1998). Researchers who employ quantitative research often use positivist methods such as surveys, experiments, and observational studies.

Quantitative research has faced several criticisms over the years. One major criticism is that it often involves reducing complex phenomena to measurable variables, which can oversimplify the research question and ignore important contextual factors (Lincoln and Guba, 1985). This reductionist approach can limit the ability to fully understand the complexity of the research question and the context in which it occurs. Another criticism is that it is often conducted in controlled environments, which can limit the ability to understand the real-world context in which the research is relevant (Bryman, 2006). This can be a significant limitation, as the quantitative research findings may not accurately reflect the context in which the research question is applicable. Quantitative research often relies on large, representative samples, making the findings more generalisable (Cohen et al., 2007). However, the findings may not apply to other groups or populations not represented in the sample. Despite these criticisms, quantitative research remains a valuable research method that can provide valuable insights and understanding of complex phenomena (Denzin and Lincoln, 2011).

5.4.3 Mixed Method as the Research Choice for this Study

Mixed methods research is an approach that combines quantitative and qualitative research methods in a single study (Saunders et al., 2009; Teddlie & Tashakkori, 2010). It involves collecting and analysing numerical and non-numerical data to answer a research question. In the past, this method of research has also been referred to as "multi-method" (Saunders et al., 2009) and "integrating" and "synthesis" (Creswell, 2014). Some authors, such as O'Cathain et al. (2010) and Johnson and Onwuegbuzie (2006), have questioned the practicality and validity of research findings generated through a mixed methods approach. However, Denzin and Lincoln (2011) argue that combining or synthesizing qualitative and quantitative data and analysis increases the richness and rigour of the study. This is because a mixed methods approach combines the strengths of both qualitative and quantitative methods to

compensate for their inherent weaknesses (Creswell, 2014). Mixed methods research is often used to triangulate data, meaning that the findings from different methods are compared to provide a more complete understanding of the research question (Bryman, 2006). It can be a useful approach for researchers who want to explore a research question in depth and gain a more nuanced understanding of the topic (Denzin and Lincoln, 2011), or for addressing complex research questions that cannot be fully explored using a single research method (Cohen et al., 2007).

Since the adopted paradigmatic approach of this study is critical realism, it follows logically to adopt the mixed methods approach due to the nature of its aim and objectives. As discussed, the first phase of the study can only be unravelled through interpretive approaches such as archival analysis, focus group interviews, and observations (Creswell, 2014), while the second phase can only be unravelled through positivist approaches such as a questionnaire (Cohen et al., 2007). Therefore, a mixed methods approach is necessary to provide a holistic solution to the aim and objectives of the study (Saunders et al., 2009). This method allows the study to utilise the strengths of a qualitative study (i.e., in-depth exploration of the phenomenon) whilst complementing and triangulating it with the strengths of a quantitative study (i.e., large sample and generalisability). According to Tashakkori and Teddlie (2010), the variation of mixed methods depends on the research questions and can take several forms, including concurrent, sequential, and transformational designs. Concurrent designs involve collecting and analysing quantitative and qualitative data simultaneously, while sequential designs involve collecting and analysing one type of data first and then the other (Creswell, 2014). Transformational designs involve using the findings from one type of data to inform the collection and analysis of the other type of data (Johnson and Onwuegbuzie, 2006). Since the aim is to use the best approach that would explain the observed phenomena best, this study will adopt an exploratory sequential mixed method design, which will involve the study commencing with qualitative data collection and analysis (Denzin and Lincoln, 2011) and culminating with quantitative data collection and analysis (Cohen et al., 2007). By doing so, the study will use the results of the qualitative research (first phase) to develop/inform the quantitative research (second phase).

5.5 Research Strategy

Research strategy is an essential element of research that determines the overall direction of the study. There are many research approaches, and the specific research strategy used will depend on the nature of the research question, the resources available, and the research context (Saunders et al., 2009). The most common research strategies include phenomenology, case study, survey, grounded theory, and narrative. By adopting the most appropriate research strategy, Walliman and Baiche (2005) contend that researchers can increase the likelihood that their research will be successful and produce useful and meaningful results. To adopt the most appropriate research strategy for this doctoral thesis, the following sub-sections evaluate the above-stated common research strategies.

5.5.1 Phenomenology

Phenomenology is a research strategy or approach used in the social sciences and humanities to study the subjective experiences of individuals. It is based on the idea that the meaning of human experiences is subjective and that the experiences themselves, rather than external events or objective reality, are the focus of the study (Van Manen, 1990). In phenomenological research, the researcher aims to understand the essential features or structure of the studied experience rather than trying to explain or predict behaviour. This is typically done through in-depth, open-ended interviews or other qualitative methods, such as observations or document analysis (Smith, Flowers, and Larkin, 2021). The researcher may also use their personal experiences as a data source. Phenomenological research is often used to explore complex or abstract concepts like emotions, values, or beliefs. It is particularly useful for studying subjective experiences that are difficult to quantify or measure using more traditional research methods.

5.5.2 Case Study

Case study research is a research strategy that involves an in-depth, detailed analysis of a single case or a small number of cases. Case studies are often used to explore complex issues or phenomena in a real-world context and can be particularly useful for studying rare or unusual events or situations (Eisenhardt, 1989; Yin, 2011). In a case study, the researcher may collect data through various methods, including

interviews, observations, documents and other written materials, and archival records (Merriam, 2009; Creswell, 2014). The data collected is analysed in detail to identify patterns, trends, and relationships and to develop a comprehensive understanding of the case or cases being studied. According to Yin (2011), there are several types of case studies, including explanatory case studies, which aim to identify the underlying causes of a particular phenomenon or event; descriptive case studies, which aim to provide a detailed account of a particular case or situation; and exploratory case studies, which are used to explore and generate new insights about a particular issue or phenomenon. Some advantages of case study research include the ability to study complex issues in depth, the ability to explore real-world situations, and the potential to generate new insights and ideas. However, case studies may be limited in generalisability, as they typically focus on a single case or a small number of cases rather than a larger population (Yin, 2011).

5.5.3 Survey Research

Survey research is a common method of enquiry in the social sciences used to study various topics, including behaviours, and opinions. Survey research involves collecting data from a sample of individuals using structured questionnaires or interviews (Lavrakas, 2008). In survey research, the researcher develops a set of questions, or a questionnaire designed to gather the desired information from the study participants. The questions may be open-ended, requiring written responses, or closed-ended, with predetermined response options (Fowler Jr, 2013). The questions are typically administered to a sample of individuals, who may be selected using various sampling methods, such as random or stratified sampling. Surveys may be conducted in person, by phone, or online, depending on the study's nature and available resources. Once the data have been collected, the researcher analyses the responses to identify patterns, trends, and relationships and to draw conclusions about the population of interest. Survey research is a useful approach for studying behaviours and opinions and can be particularly useful for gathering data from large samples of people (Lavrakas, 2008; Fowler Jr, 2013). However, survey research may be limited in terms of the depth and complexity of the data that can be collected, as the responses are typically restricted to the specific questions asked.

5.5.4 Grounded Theory

Grounded theory is a research strategy that involves developing a theory or explaining a phenomenon through the systematic collection and analysis of data. It is a qualitative research approach used to identify data patterns, themes, and relationships and develop a comprehensive understanding of the phenomenon being studied (Charmaz, 2006; Morse et al., 2016). In grounded theory research, the researcher collects data from various sources, such as interviews, observations, or documents. The data are then analysed in an iterative process, with the researcher continually revising and refining their theory as new data are collected and analysed. The goal of grounded theory research is to develop a theory grounded in the data and accurately reflects the experiences and perspectives of the people being studied (Charmaz, 2006). The theory should be descriptive and explanatory, providing a detailed account of the phenomenon being studied and explaining the underlying causes or mechanisms contributing to it (Morse et al., 2016). Grounded theory research is often used in fields such as sociology, psychology, and education, and can be particularly useful for studying complex or abstract concepts. However, grounded theory research may be limited regarding the generalizability of the findings, as it is typically based on a small sample of cases or data.

5.5.5 Narrative Research

Narrative research is a research strategy that involves collecting and analysing stories or accounts of personal experiences (Reissman, 2008). It is a qualitative research approach used to explore and understand the meanings and interpretations individuals attach to their experiences. In narrative research, the researcher collects data through interviews, observations, or written accounts, such as diaries or memoirs (Butina, 2015). The data are then analysed to identify common themes, patterns, and trends and comprehensively understand the studied experiences. Narrative research explores complex or abstract concepts, such as identity, meaning, or social relationships. It can be particularly useful for studying the experiences of marginalised or disadvantaged groups, as it allows the researcher to capture these individuals' rich, subjective accounts and explore how they make sense of their experiences (Polkinghorne, 1988). According to Reissman (2008), there are several different approaches to narrative research, including life history research, which involves

collecting and analysing the life stories of individuals; autoethnography, which involves the researcher using their own experiences as a source of data; and cultural storytelling, which involves studying the shared stories and cultural traditions of a particular group or community.

5.5.6 Research Strategies for this Study

Having evaluated a wide range of research strategies, two chosen strategies due to their huge relevance for this study were phenomenology and survey research. As discussed above, phenomenology is a research strategy that aims to understand and describe the lived experiences of individuals in relation to a particular phenomenon. In this study, phenomenology was chosen as a research strategy because it allows the researcher to explore and understand the concept, dimensions, key drivers, and impacts of project reputation on construction Organisations from the practitioners' perspective without any preconceived notions or assumptions. This is particularly relevant to the study, as the approach is well-suited to situations where a significant phenomenon has been poorly or wrongly conceptualised (van Manen, 1990). Using phenomenology, the researcher can gain insight into practitioners' subjective experiences and perspectives, providing a more nuanced and comprehensive understanding of project reputation.

While phenomenology offers invaluable insights into subjective experiences and nuances, it also has limitations inherent to its qualitative nature. Although phenomenology focuses on rich, in-depth case studies of a small sample and allows for detailed understanding of individual experiences, however, it raises concerns about the generalizability of findings to a wider population. Similarly, phenomenology relies heavily on the researcher's interpretations of participants' data. This can introduce potential subjectivity and bias. To address the limitations of phenomenology, this thesis complimented phenomenology with survey research which involves collecting data from a sample of individuals through self-report measures, such as questionnaires. In this study, survey research was chosen as a complementary research strategy because it allows the researcher to elicit the opinions of a large population on the findings of the phenomenological research. By collecting data from a representative sample of individuals, survey research can provide a comprehensive perspective on project reputation. It can help to identify trends, patterns, and

relationships that may not be apparent from a smaller or more selective sample. It enables the data collection from a large sample to be analysed using descriptive or inferential statistics to explain relationships between variables or produce relationship models.

5.6 Research Sampling Strategy

Sampling strategy refers to the plan or method used by a researcher to select a group of individuals or units from a larger population to study the characteristics of that population (Bryman, 2006). Some commonly used sampling strategies include stratified sampling, convenience sampling, snowball sampling, random sampling, and purposive sampling. According to Neyman (1992), stratified sampling involves dividing the population into subgroups or "strata" based on certain characteristics and selecting a sample from each stratum in proportion to the stratum's size. This method is often used when the characteristics of the population vary widely, as it allows for a more representative sample to be selected. Convenience sampling involves selecting a sample based on ease of access to the population of interest (Etikan, Musa and Alkassim, 2016). This method may not be as representative as other sampling strategies but is often used when resources or time are limited. Snowball sampling involves recruiting initial participants who are then asked to refer other potential participants to the study (Parker et al., 2019). This method is often used when it is difficult to access a particular population, such as rare or hard-to-reach groups (Atkinson and Flint, 2001).

Random sampling involves giving every member of the population an equal chance of being selected, typically using a random number generator or other randomisation methods (Emerson, 2015). This method is often used to ensure that the sample is representative of the population. Purposive sampling involves selecting a sample based on the specific research question (Etikan, Musa and Alkassim, 2016). This method is often used when the goal is to gain an in-depth understanding of a particular phenomenon or group, rather than to generalise the findings to the wider population (Tongco, 2007). However, it is important to note that each sampling strategy has benefits and drawbacks. When choosing an appropriate sampling strategy, it is

important to consider a study's specific goals and objectives and the available resources and constraints.

5.6.1 Qualitative Sampling Strategy

A purposive sampling strategy was adopted to select information-rich participants for the qualitative stage of this doctoral thesis. This strategy was deemed relevant for this study because it allows the researcher to focus on specific groups or individuals likely to have relevant knowledge or expertise on the explored phenomenon (Creswell, 2014). By focusing on the most appropriate group of individuals, the researcher can gain a more nuanced and comprehensive understanding of project reputation and its various dimensions and impacts.

5.6.2 Quantitative Sampling Strategy

As the quantitative stage of this study aimed to confirm the wider applicability or generalizability of the qualitative findings using survey research, this study adopted a random and snowball sampling strategy. These strategies were deemed necessary for this doctoral thesis because the population of interest (i.e., information-rich participants on project reputation) was difficult to access or identify. As such, the researcher randomly picked participants from the directories of eight UK professional bodies as well as the referrals of various existing contacts within the UK design, engineering, and construction industry to recruit respondents and build a large sample of questionnaire respondents over time.

6 Chapter Six: Qualitative Study and Development of Hypothesized Model

6.0 Chapter Overview

This chapter provides a thorough overview of the initial phase of the research, which primarily focuses on a qualitative study. It begins by defining the research population and explaining the sampling techniques. Following that, the chapter details the data collection methods, including the types and mediums used and the process implemented. The discussion then shifts to the data analysis methods used in the study. Key elements like trustworthiness and ethical considerations within the research are also discussed to ensure the study's credibility. Finally, the chapter integrates prior systematic literature review findings with the qualitative study's results. This synthesis forms a conceptual framework that sets the stage for further analysis.

6.1 Qualitative Study

This doctoral thesis's qualitative study involved a multi-modal strategy comprising a theoretical review of extant literature and Focus Group Interviews (FGIs). The extensive examination of the extant literature established a solid foundation for the research by facilitating the identification of relevant theoretical data, while the FGIs provided an avenue for the study to corroborate the literature review findings.

6.1.1 Literature Review

The literature review explored the concept of project reputation within the construction industry, closely examining the wealth of knowledge currently available while probing various reputation theories. The objective of this research necessitates an investigation into the factors that influence project reputation within the construction industry. This task is carried out meticulously via an expansive review of pertinent literature. The review goes beyond a cursory overview to dissect reputation theories, including evaluative, impressional, and relational, culminating in a multi-theoretical construct that integrates these diverse theories. This construct provides an illuminating perspective into the composite nature of project reputation in the construction industry. Upon further examination of the literature, the review identifies four key elements that significantly influence the reputation of construction projects: client satisfaction,

innovation, competency, and project performance. A more profound exploration of these elements using the existing literature led to identifying 12 distinct constructs, each of which can be measured using various factors. The review unveiled 56 factors, offering a comprehensive picture of the variables influencing the project reputation of construction organisations. These 12 constructs and their corresponding measures (totalling 56 factors) were put forth for further validation through Focus Group Interviews (FGIs), which involved public and private sector subject matter experts with experience in delivering construction projects in the UK.

6.1.2 Focus Group Interviews

Following an extensive literature review that identified 12 distinct constructs and 56 associated measures about the reputation of construction projects, the subsequent phase of this qualitative study sought to validate these theoretical findings in a practical setting. The goal was to ensure that the identified elements held academic merit and were applicable and relevant to real-world scenarios within the construction industry. To accomplish this, the research design incorporated Focus Group Interviews (FGIs) as a method of qualitative inquiry. The FGIs were instrumental in bridging the gap between theory and practice as it was designed to create a dynamic and interactive platform where ideas and experiences could be shared, and the theoretical constructs and measures could be critically examined. The rationale for selecting FGIs over other options is described in section 6.3.

6.2 Population and Sampling Techniques for FGI

The primary objective of this study is to develop a comprehensive, multi-dimensional evaluative framework for examining project reputation from the perspective of contractors within the construction industry. Consequently, the target population for this research consists of contractors operating in the construction sector. As detailed in Section 5.7.1, the study adopts the purposive, or judgemental, sampling technique, which mandates the establishment of pre-determined criteria to identify information-rich participants. Such a sampling methodology is particularly well-suited to qualitative research, as it equips researchers to selectively pinpoint and interact with participants who profoundly understand the subject matter under scrutiny. This sampling strategy has been well adopted in studies exploring social concepts within the construction

industry, such as Ajayi and Oyedele (2017), Owolabi et al. (2020), Flannery et al. (2021) and Olawumi et al. (2023). For this study, the carefully devised criteria stipulate that ideal participants are individuals whose professional roles coincide with or entail working as architects, civil or structural engineers, contractors, subcontractors, construction project managers, or health and safety managers. An additional requirement is that the participants should have been engaged in the construction industry for a significant duration to ensure their status as information-rich subjects for this study. Considering this, a minimum of five years of experience benchmark was established to guarantee that all selected participants boast a requisite level of industry knowledge and insight. Ultimately, participants who met two or more of the predetermined criteria were selected for inclusion in the study.

6.3 Qualitative Data Collection

While conducting exploratory data collection for qualitative research, employing in-depth interviews with individual participants or focus group interviews (FGIs) can prove highly valuable (Creswell, 2014). These approaches are particularly pertinent in exploratory research, as they facilitate the emergence of novel concepts (Wimpenny and Gass, 2000), in contrast to confining researchers to rank predefined factors that may not be comprehensive. For this study, FGIs were selected as the primary data collection method, as they enable the exploration of inter-subjective opinions among research participants, ultimately leading to a shared understanding. Furthermore, FGIs were preferred over individual interviews, allowing participants to build upon one another's opinions throughout the discussion (Kvale, 1996). The FGI outline was developed based on the key issues that emanated from the extant literature review. The fundamental need to confirm or disprove the ideas and related factors identified from the extant literature was foremost among these issues. After a series of modifications, the FGI outline covered themes such as the background and experience of the respondents, validation, or invalidation of the 12 distinct constructs and their associated factors, and the opportunity for respondents to add more constructs and associated factors influencing the already established constructs based on their experiential opinion.

Prior to the FGIs, ethics approval was sought from the Faculty of Business and Law Research Ethics Committee (FBL FREC) at the University of the West of England (UWE Bristol). The ethics application (FBL.21.11.015) was subsequently approved (refer to Appendix 1). Upon receiving approval, participants were extended a formal written invitation. Accompanying this invitation was a participant information sheet (refer to Appendix 2), which detailed the study's objectives and gave insight into the depth and breadth of the discussions. Additionally, a privacy notice was provided (refer to Appendix 3), elucidating how UWE manages, collects, and utilises their personal data both during and after their participation in the study. A consent form (Appendix 4) was also included for their acknowledgement and signature. A total of 33 participants were involved in four cross-disciplinary focus group discussions. The cross-disciplinary nature of these discussions provided an opportunity to establish a common understanding among professionals involved in various stages of the construction process, from design to completion. Bringing together these diverse perspectives in a focus group setting facilitated the critical examination of inter-subjective opinions and the formation of consensual viewpoints. The participants were selected from design and construction firms across the UK, encompassing small to large organisations with varying years of experience. The participants were asked to validate/invalidate which of the 12 distinct constructs and their associated factors were relevant and applicable within the construction projects they have been involved. This was made possible through consistent prompting, including following up on specific issues. The researcher moderated the ensuing FGIs, with each discussion lasting between 107 and 125 minutes. To facilitate qualitative data analysis, the discussions were recorded with the permission of the research participants.

Table 4: Overview of the focus group interviews and the participants.

FGI	Categories of the participants	Total number of experts	Years of experience	Duration (minutes)
1	• 2 architects • 1 civil engineer • 1 structural engineer • 2 project managers • 1 health & safety manager • 1 construction site manager	8	6 – 26	125
2	• 2 civil engineers • 2 structural engineers • 1 project manager	8	7 – 21	110

	• 1 design manager • 1 health & safety manager			
3	• 2 architects • 1 civil engineer • 1 structural engineer • 2 project managers • 1 health & safety manager • 1 construction site manager	8	8 – 23	114
4	• 2 civil engineers • 1 structural engineer • 2 project managers • 1 health & safety manager • 1 design manager • 1 construction site manager	9	11 – 28	107

6.4 Qualitative Data Analysis

According to Braun and Clarke (2014), when conducting a qualitative data analysis, the first step is reading and exploration of the data to ensure adequate familiarisation. To analyse the qualitative data, particularly the applicability or otherwise of the twelve (12) constructs and the 66 associated factors identified from the literature, the study adopted a content-driven thematic analysis consistent with the procedure of Braun and Clarke (2014). This involved data familiarisation, data coding, themes development, and grouping of interrelated themes. Accordingly, with the aid of NVivo 12, the FGI's voice-recorded data were transcribed into written statements and read several times to identify central themes (factor identification) that emanated from the discussions. The thematic analysis was then conducted using a structured coding scheme of four labels. This includes source (identification of the respondent), discipline (categorisation of the respondent), context (circumstances informing the transcript - New, Response, Build-up, and Moderator) and keywords (summary of the theme raised within a statement). An excerpt from the qualitative analysis coding scheme is shown in Table 5. Upon concluding the thematic data analysis, it was discerned that all four FGIs lent validation to all the identified twelve constructs and their associated factors, as presented in Table 6. However, the qualitative data analysis brought additional insights, uncovering six (6) distinct factors that influence the project reputation of construction businesses. These factors, not previously identified in the literature review, are detailed in Table 7. Findings from the literature review and the FGIs were combined into a single list of factors, totalling seventy-two

(72). This data was then used to develop a quantitative data collection instrument, which is explained in the next chapter.

Table 5: Sample of classification based on the coding scheme.

No	Quotation	Source	Context	Keywords
1.	*"……., let me state that **change management is the lifeblood of any construction project**. It's a cornerstone of our operations, and without a **robust and efficient change management process**, I don't think any project could maintain a good reputation. When discussing changes in construction projects, we're referring to design, cost, or timeline modifications. These changes are almost inevitable, given the complexity and length of most construction projects. However, **how these changes are managed is what sets apart the reputable projects from the others**."*	FGD-2	Response	Robust and efficient change management process
2.	*"…., construction projects often involve significant investments, both in terms of money and time. Clients entrust us with these resources and expect a well-built structure and a process that's clear, transparent, and in line with their expectations. **Openness and honesty from the get-go set the tone for the entire project**. They help us manage client expectations realistically and honestly. We've all heard stories of projects that promised the world but delivered much less. That's a sure-fire way to harm a project's reputation. When we are forthright with our clients, when we share the good and bad news, when we ensure they are always in the loop about developments - **that's when we cultivate trust**. And trust is the bedrock of a strong reputation. **Clients appreciate being part of the process**, being aware of challenges and how we plan to overcome them".*	FGD-4	Response	Open and honest interactions with clients
3.	*"….. construction projects are complex undertakings, with every project having its own unique blend of challenges and opportunities. They are rarely, if ever, one-size-fits-all affairs. Hence, it is crucial for those managing these projects to possess not just a broad understanding of construction techniques **but also a specific, nuanced understanding of the individual project's technical aspects**. Why, may you ask? Well, when a project team has a firm grasp on the project-specific technicalities, **they are more likely to anticipate potential obstacles and plan accordingly**. This proactive approach can minimize project delays, control costs, and enhance the quality of the final deliverable".*	FGD-4	Response	Adequate knowledge of project-specific technical aspects

4.	*"You see, the construction industry is increasingly demanding radical changes in processes, technologies, and overall approaches to ensure better outcomes. However, introducing these changes is no small task - **it requires strong and courageous leadership. Leaders with vision and determination are the ones who can navigate through resistance, manage uncertainty, and successfully implement radical changes**. It is their influence and direction that can foster a culture of innovation and receptivity to change within the team. Such decisive leadership and successful implementation of radical changes are seen and appreciated by clients and stakeholders. They signify a team that is forward-looking, capable, and not afraid of challenges. In my experience, nothing strengthens a project's reputation more than demonstrating resilience and adaptability in the face of change".*	FGD-3	Response	Strong leadership to drive radical changes

Table 6: Factors confirmed through qualitative study.

Label	Constructs and Associated Indicators	Focus Group Interviews (FGIs)			
		FGI-1	FGI-2	FGI-3	FGI-4
Client Satisfaction					
BE	**Better Engagement of Clients Throughout Project Delivery Lifecycle**				
BE-1	Open and honest interactions with clients.	—			
BE-2	Proactive assessment of client concerns or issues throughout the project lifecycle.				
MEC	**Meeting or Exceeding Clients Project Delivery Expectations**				
MEC-1	Active involvement of the client in key decision-making processes.				
MEC-2	Regular and clear communication with the client.				
MEC-3	Ability to adapt to client requirements.				
MEC-4	Regular risk identification, reporting, and mitigation.				
MEC-5	Effective change management process.		—		—
Innovation					
II	**Incremental Innovation**				
II-1	Effective planning and strategic execution of incremental innovations.				

II-2	Continuous learning and adaptability of the project team.				
II-3	Proactive risk management for new implementations.				
II-4	Regular stakeholder communication about innovation updates.				—
II-5	Consistent feedback and evaluation mechanisms.				
II-6	Building an innovation-friendly project culture.	—			
RI	**Radical Innovation**				
RI-1	Strong leadership to drive radical changes.				
RI-2	Thorough market and feasibility analysis.				
RI-3	Skilled project team with high risk tolerance.				
RI-4	Availability of resources for substantial innovation.				
RI-5	Stakeholders buy-in and acceptance of major changes.				
RI-6	Robust change management and contingency plans.				
AI	**Architectural Innovation**				
AI-1	Competent design team with a creative approach.				
AI-2	Understanding of end-user preferences and trends.				
AI-3	Clear communication of design objectives and expectations.		—		
AI-4	Efficient implementation of design changes.				
AI-5	Regular design reviews and quality checks.				
AI-6	Customer involvement in design feedback and iterations.				
MI	**Modular Innovation**				
MI-1	Thorough analysis of current project components.				
MI-2	Clear identification of areas requiring improvement.				
MI-3	Efficient planning and execution of improvement actions.				—
MI-4	Regular monitoring and evaluation of improvements.				
MI-5	Transparent communication about refinements with stakeholders.				
MI-6	Maintenance of a continuous improvement culture within the project team.				
Competency					
ECA	**Efficient Communication Among Project Teams and Stakeholders**				
ECA-1	Clear and concise communication processes.				
ECA-2	Active listening and feedback mechanisms.				
ECA-3	Usage of appropriate communication channels.				

Code	Description				
ECA-4	Regular communication scheduling.		—	—	
ECA-5	Timely response to queries and issues.				
ECA-6	Transparent sharing of project status and updates.				
PMC	**Project Manager's Competency in Efficient Project Delivery**				
PMC-1	Effective project planning and execution skills.				
PMC-2	Deep understanding of project operations.				
PMC-3	Ability to identify and mitigate risks.	—			
PMC-4	Strong decision-making capabilities.				
PMC-5	Proven track record of successful project deliveries.			—	
PMC-6	Effective delegation and resource allocation skills.				
ELC	**Effective Leadership Competencies of Project Manager**				
ELC-1	Visionary and strategic thinking abilities.				
ELC-2	Strong interpersonal and influence skills.	—			
ELC-3	Ability to inspire and motivate the team.				
ELC-4	Conflict resolution and problem-solving skills.		—	—	
ELC-5	Capacity to foster a positive and productive project culture.				
ELC-6	Emotional intelligence to manage team dynamics.				
PMT	**Project Manager's Technical Proficiency**				
PMT-1	Adequate knowledge of project-specific technical aspects.				
PMT-2	Ability to guide the team on technical issues.				
PMT-3	Capability to oversee technical quality checks.		—		
PMT-4	Staying updated with latest technical advancements.				
PMT-5	Skills to solve complex technical problems.				
PMT-6	Communication of technical complexities in simple terms.				
Project Performance					
EP	**Efficient Process Management**				
EP-1	Thorough understanding of project processes.				
EP-2	Effective process planning and execution skills.				
EP-3	Use of process optimization techniques.				
EP-4	Regular process audits and improvements.				
EP-5	Adherence to process standards and guidelines.				

EP-6	Efficient coordination among different process steps.				
EPM	**Efficient Product Management**				
EPM-1	Clear understanding of product requirements.				
EPM-2	Capability to manage product development lifecycle.				
EPM-3	Strong coordination with design and production teams.				
EPM-4	Ability to manage product-related risks and issues.				—
EPM-5	Quality assurance and control for product outputs.				
EPM-6	Regular product updates and communication with stakeholders.				

Table 7: Additional factors identified during Focus Group Interviews (FGIs)

Label	Constructs and Associated Indicators	Focus Group Interviews (FGIs)			
		FGI-1	FGI-2	FGI-3	FGI-4
Client Satisfaction					
BE	**Better Engagement of Clients Throughout Project Delivery Lifecycle**				
BE-3	Tailored communication to suit client preferences	—	—	—	
BE-4	Empathetic understanding of the client's vision and concerns.	—		—	—
MEC	**Meeting or Exceeding Clients Project Delivery Expectations**				
MEC-6	Continual improvement based on past project experiences.		—	—	—
MEC-7	Ensuring safety standards and regulations are strictly adhered to.		—	—	—
Innovation					
RI	**Radical Innovation**				
RI-7	Regular training and skill development for project team members.		—	—	—
RI-8	Active monitoring and evaluation of implemented ideas.	—	—	—	

6.5 Ethical Considerations

Following the principles articulated by Walker (2007), safeguarding the welfare of research participants, and respecting their rights is a paramount ethical responsibility permeating every facet of academic research. In this vein, the current study has conscientiously adhered to all applicable ethical guidelines to ensure the respectful and responsible conduct of the research. Before data collection, the study obtained the requisite ethical approvals from the institution's research ethics committee, ensuring the proposed research methods were ethically sound. Once approved, the study meticulously adhered to established ethical protocols. A cornerstone of these protocols was the acquisition of informed consent from all participants. This entailed clearly articulating the purpose of the study, the nature of the participants' involvement, potential risks, and the measures put in place to safeguard their rights and welfare. This commitment to transparency ensured that each participant was fully apprised of their role in the study and willingly agreed to participate.

In adherence to the ethical guidelines, the study also placed high importance on preserving the privacy and confidentiality of the participants. Measures were adopted to ensure that personal identifiers were removed or masked in data storage and reporting, thereby maintaining the anonymity of the participants. In addition, precautionary measures were implemented to safeguard participants from any potential distress or harm during the research process by ensuring they were fully informed of their right to withdraw from the interview at any given time. The study did not engage vulnerable populations, such as minors or individuals with disabilities. The focus was squarely on the perceptions of construction practitioners, a group that does not fall within the definition of "vulnerable" as per the university's ethics committee guidance document. As such, the ethical concerns often associated with research involving vulnerable populations were not pertinent to this study. The research did not involve soliciting sensitive information or documents that could raise privacy concerns. Data collection was conducted in a manner that was respectful and considerate of the participants' rights, with a steadfast commitment to informed consent as the guiding principle.

6.6 Qualitative Research's Hypothesised Model

Based on the literature review results and Focus Group Interviews (FGIs), a conceptual framework of the influencing factors of project reputation in construction organisations is presented in Figure 8.
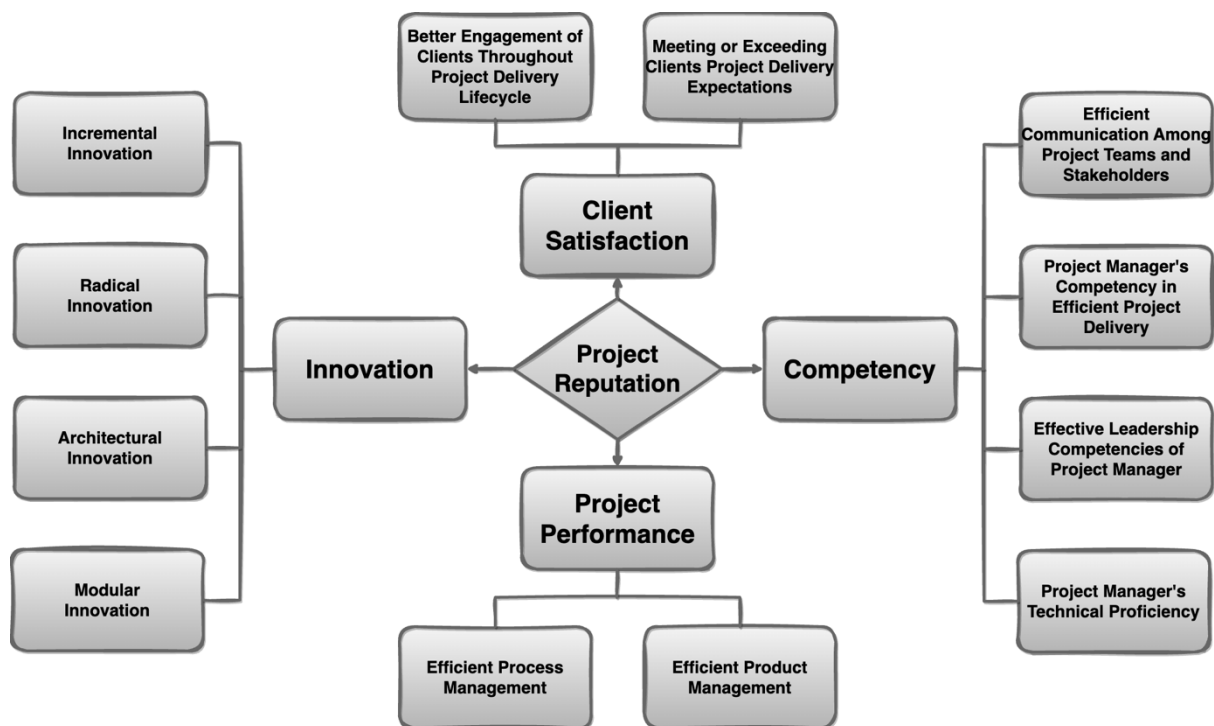
Figure 8: Hypothesised Model of the influencing factors of project reputation in construction organisations

6.7 Trustworthiness and Dependability

Ensuring quality in qualitative research often necessitates applying various measures intended to enhance the credibility of the research. However, the extent to which these measures are implemented can substantially differ, depending on the methods used for data collection in the research (Schwartz-Shea and Yanow, 2013). To ensure that the study's qualitative phase results are trustworthy and dependable, the research design of this study was carefully crafted on an empirically informed foundation that included a detailed account of the data (also known as "thick description") and transparency in the analysis process. The thick description and transparency concepts are integral to the qualitative research process and involve an intricate, in-depth

recounting of events or interactions that form part of the research process. This strategy helps to ensure that the researcher's interpretations are supported by a wealth of evidence, thus promoting their validity (Schwartz-Shea, 2006; O'Connor and Joffe, 2020).

To this end, this study's focus group interview (FGI) analysis provides extensive quotes from interview transcriptions (refer to Table 5). This approach allows readers to trace the roots of the analysis and understand how the conclusions have been drawn from the data. To also maintain a transparent representation of data, all relevant incidents that occurred during the interviews, which could potentially impact the analysis, are meticulously reported. Additional subtle elements, such as extended pauses before a response or instances of laughter, were diligently noted during the transcription process. These subtle cues often yield deeper insights into the thoughts and emotions of the participants, thus adding richness to the analysis. Any incidents that contributed meaningfully to the analysis were duly incorporated into the study's findings.

7 Chapter Seven: Quantitative Study
7.0 Chapter Overview

This chapter delves into the quantitative facet of the study, building upon the qualitative examination detailed in the preceding chapter. It systematically presents the methodology used for accumulating and interpreting quantitative data. The chapter commences with an in-depth overview of the research population and a rationale for the chosen sampling techniques. Following this, the development of the quantitative research instrument is delineated, aligning it with the objectives of this study. Subsequently, the data collection and analysis approach are discussed, providing a well-grounded explanation behind each procedure. Lastly, the findings derived from the statistical analysis are showcased, drawing meaningful connections between the numeric outcomes and the research context.

7.1 Population and Sampling Techniques

Following the research objectives, verifying the broader applicability and generalizability of the study's findings through a large sample survey was crucial. This approach aimed to accomplish two essential goals for the research: (1) to validate the 12 theoretical hypotheses derived from the qualitative study and (2) to investigate contractors' perspectives on project reputation, thus developing a multi-dimensional evaluative framework. Given the specific nature of the research, it was imperative to identify suitable and information-rich participants. As detailed in Section 5.7.2, this doctoral thesis employed two sampling techniques to engage the research participants. Random sampling was utilised to select participants to mitigate potential bias in the study (Gravetter and Wallnau, 2013). Utilising directories from eight UK professional bodies and a list of the top 100 construction companies as a sampling frame, 392 questionnaires were distributed to randomly chosen respondents via email and postal services. The eight professional bodies include the Association of Project Managers (APM), the Chartered Institute of Building (CIOB), the Royal Institute of British Architects (RIBA), the Chartered Institute of Architectural Technologists (CIAT), the Institution of Civil Engineers (ICE), Institution of Structural Engineers (IStructE), and the Royal Institute of Chartered Surveyors (RICS). This sampling strategy has also been effectively employed in studies examining social concepts within the

construction industry, such as Olawale et al (2020a), Owolabi et al. (2020), Ahmed, Hossain, and Haq (2021) and Oyegoke et al. (2022).

The researcher then employed a snowball sampling strategy to expand the pool of respondents. This approach, known as a chain referral sampling process, is a simple yet effective technique for accessing hard-to-reach populations (Naderifar et al., 2017). The strategy was considered suitable for this doctoral thesis due to the difficulty in accessing the target population, which consisted of information-rich participants on project reputation. This sampling strategy has also been effectively employed in studies examining social concepts within the construction industry, such as Konanahalli & Oyedele (2016), Chan et al. (2022), and Olawumi et al. (2023). Consequently, the researcher leveraged referrals from various existing contacts within the UK design, engineering, and construction industry to enlist respondents and incrementally establish a more extensive sample of questionnaire respondents. By utilising this sampling technique, the researcher reached out to an additional 72 contacts for data collection, ultimately resulting in a total of 464 invitations for quantitative data collection.

7.2 Questionnaire Design and Formulation

Within this study, the principal criterion guiding the selection of an appropriate data collection modality is its capability to engage a substantial cohort of participants within a constrained time frame, utilising a uniform research instrument. To this end, this doctoral research adopted a questionnaire as its preferred data collection tool, capitalising on its inherent ability to gather data from many respondents efficiently and objectively (Taherdoost, 2016). As a tool, the questionnaire serves a dual purpose in this study. Firstly, it is deployed to verify the wider applicability of factors previously identified through exhaustive literature review and focus group discussions. This descriptive function comprehensively explains these factors' prevalence and relevance across the broader construction industry. Secondly, it provides an analytical lens through which the reasons behind the manifestation of these factors in certain forms can be elucidated (Buckingham and Saunders, 2004). This explanatory function is critical in delving beneath the surface of observable phenomena to uncover the underlying dynamics.

The questionnaire, thus designed, is a bespoke instrument, integrating constructs influencing project reputation, as discerned through the comprehensive literature review and focus group discussions. This tool is divided into four salient sections, each addressing different facets of project reputation and the factors that underpin it. By employing a meticulously structured questionnaire underpinned by sound methodological principles, the study aims to illuminate the intricate interplay between project performance, innovation, managerial competencies, client satisfaction and project reputation within the construction industry. This approach enables the collection of robust and reliable data and provides an analytical framework to interpret this data meaningfully.

7.2.1 Sections of the Questionnaire

During the development of the questionnaire, the comprehensive list of factors (i.e., the combination of factors in Tables 6 and 7) identified was carefully examined and subsequently operationalised into the design of the research instrument, resulting in seven major sections. Section A introduced the research for respondents, clearly outlining the research aims and objectives and explaining the role of the questionnaire survey in achieving the study's goals. Section B focused on the respondents' demographic data, collecting information such as the industry or sector in which the respondent worked, their job role, years of experience in their current position, and years of experience specifically related to delivering construction projects within the UK. The following four sections (i.e., Sections C, D, E, and F) were organised under the four broad constructs identified from the study, encompassing (1) client satisfaction, (2) innovation, (3) managerial competencies, and (4) project performance. Each category included the corresponding constructs and associated factors. Seventy-two (72) questions were employed to explore contractors' perspectives on the factors influencing positive project reputation.

7.2.2 Measurement Scale

In this study, a Likert measurement scale was employed as the measurement scale. Named after its inventor, Rensis Likert, the Likert scale was designed to measure opinion and belief by requiring respondents to indicate their level of agreement with a statement or topic on a continuum from "strongly agree" to "strongly disagree"

(Croasmun & Ostrom, 2011). Likert scales are highly valued in research due to their ability to facilitate the summing and averaging of responses for each participant or question and their reliability in assessing various constructs such as self-efficacy (Croasmun & Ostrom, 2011). Likert scales typically offer a balanced set of positive and negative responses to minimise response bias and errors (Willits et al., 2016). They can range in categories from three to seven. However, the most used scale is the 5-point scale (Joshi et al., 2015; Subedi, 2016). In this study, a 5-point Likert scale was adopted, where 1 = "Not important," 2 = "Less important," 3 = "Moderately important," 4 = "Important," and 5 = "Most important," to represent the degree of importance of the identified set of measures. Respondents were asked to indicate the extent to which they agreed or disagreed with each identified factor and mechanism influencing project reputation. This allowed for calculating the average rank of all participants' ratings across the variables, thereby generating the overall importance of each variable.

7.2.3 Pilot Study and its Evaluation Techniques

Given that the identification of the constructs underpinning the questionnaire was derived from an extensive review of the existing literature, it was crucial to evaluate the instrument's meaning, content, and construct validity (Mir and Pinnington, 2014). Ensuring these aspects of validity is vital for obtaining accurate and reliable information through the research tool (Tashakkori and Teddlie, 2010). As Singleton et al. (1993) emphasised, pre-testing questionnaires enable researchers to scrutinise how respondents interpret and comprehend questions while determining if adequate alternative responses have been offered. Previous research has recommended varying recommendations for pilot study sample sizes, ranging from 10 (Van Belle, 2002; Mooney and Duval, 1993) to 30 participants (Isaac and Michael, 1995). Specifically, Van Belle (2002) proposed a sample of 10 participants, Mooney, and Duval (1993) suggested up to 30, while Isaac and Michael (1995) contended that a sample size between 10 and 30 could suffice.

In this study, the survey was piloted to10 information-rich professionals who were conveniently sampled to assess the clarity, layout, depth, and logic of the questions, as well as to perform a preliminary examination of the proposed statistical analysis

(Creswell, 2014; Buckingham and Saunders, 2004). This group comprised four industry experts and six academics with extensive experience in construction projects (refer to Table 8 for the demographics of the pilot study respondents). The input from the pilot study participants proved invaluable, as they recommended rephrasing certain factors and redesigning the questionnaire layout to produce a clear and representative instrument tailored to the target population. Consequently, the suggestions provided by the pilot study participants were incorporated into the design of the final draft questionnaire.

Table 8: Demographics of the questionnaire's pilot study respondents

Groups/Label	Job Title	Experience (years)
Academic	Professor of Digital Innovation	23
	Associate Professor of Construction Management	12
	Senior Lecturer in Construction Project Management	8
	Lecturer in Civil and Structural Engineering	4
	Research Fellow in BIM and Digital Construction	5
	Assistant Professor in Construction Project Management	11
Industry Experts	Senior Construction Project Manager	13
	Delivery Manager	8
	Sustainability Consultant	11
	Project Director	16

7.3 Data Collection

After integrating the feedback from the pilot study to enhance the research instrument, the questionnaire was disseminated through face-to-face, postal, and online channels to engage a wider array of participants. Studies by Agnoli et al. (2011) and Szolnoki and Hoffmann (2013) suggest that the face-to-face approach is particularly favoured due to its accuracy and representativeness of the research population. By employing the interviewer-administered technique (face-to-face), questionnaires were distributed to respondents who subsequently completed and returned them immediately or later. Recognising the constraints faced by some respondents in completing the questionnaire on the spot, a postal distribution method was also deemed necessary. Some respondents were provided with return envelopes, while others received the questionnaire by mail and were supplied with prepaid return envelopes. An online

system was utilised to supplement the face-to-face and postal data collection methods because it can access a broader audience and cost-effective implementation (Duffy et al., 2005; Collins, 2010).

The online questionnaire was developed using Qualtrics, a robust online survey platform enabling researchers to design, distribute, and analyse surveys. Qualtrics was chosen over other online survey platforms (e.g., Survey Monkey, Google Forms) due to its comprehensive array of question types, customisable templates, and advanced data analysis and visualisation features. Participants were provided with a link to the questionnaire through their email addresses and social media channels (i.e., LinkedIn and Twitter). Respondents were sometimes sent the questionnaire in Microsoft Word format, which they completed by selecting suitable options within the research instrument. Several reminder emails were sent to some respondents to encourage responses. This study's stage spanned eleven months, from December 2021 to November 2022. By the conclusion of the data collection process, 154 respondents had participated in the study. The combination of face-to-face, postal, and online data collection methods increased the number of participants. It also ensured a diverse and representative sample, enhancing the study findings' validity and reliability.

7.4 Response Rate

After several follow-up communications through telephone calls, email, and private messages on social media platforms, 154 responses were received from the 256 distributed questionnaires. This corresponds to a response rate of 60.1%, which is considered impressive, given the demanding job roles of the target population. Of the 154 responses, 13 questionnaires were deemed unsuitable for preliminary analysis due to their incompleteness (i.e., a response was registered when the respondent opened the questionnaire but failed to complete it satisfactorily). Consequently, 141 out of the 256 distributed questionnaires, representing 55%, were deemed usable and utilised for statistical analysis. As suggested by Oyedele (2013), this return rate indicates the study's suitability for analysis, as any survey return rate lower than 30 to 40% might be considered biased and of limited significance. A further preliminary analysis was conducted on the respondents' information (i.e., section B of the

questionnaire) to determine the distribution of the respondents. Table 5 presents the distribution of the 141 respondents whose responses were utilised for data analysis.

As illustrated in Table 5, 31.9% of the respondents are project managers, 16.3% are design managers, 26.9% are civil/structural engineers, 14.8% are architects, and 9.9% belong to other categories, including health and safety managers, sustainability experts, among others. The respondents' years of experience also range from 1-5 to over 25 years of industry experience, with 39.7% of respondents possessing between 11 and 15 years of experience. This diverse distribution of respondents ensures that the study captures various perspectives and insights from professionals with different industry roles and levels of expertise. These diverse backgrounds and experiences of the participants help to enrich the data, providing a more comprehensive understanding of the research questions being investigated. This, in turn, enhances the validity and reliability of the study's conclusions, making them more relevant and applicable to the wider industry context.

Table 9: Overview of questionnaire survey respondents

Variables	Groups/Labels	Frequency	Percentage
Questionnaire Distribution	▪ Distributed Questionnaires ▪ Returned Questionnaires ▪ Discarded Questionnaires ▪ Usable Questionnaires	256 154 13 141	100% 60.1% 5.07% 55.07%
Job Roles/Titles	▪ Project Managers ▪ Design Managers ▪ Civil/Structural Engineers ▪ Architects ▪ Others	45 23 38 21 14	31.9% 16.3% 26.9% 14.8% 9.9%
Years of Experience	▪ 1-5 ▪ 6-10 ▪ 11-15 ▪ 16-20 ▪ 21-25 ▪ Above 25	16 41 56 18 7 2	11.3% 29.0% 39.7% 12.7% 4.9% 1.41%

7.5 Preliminary Data Screening and Analysis

As an integral part of any rigorous research process, screening and cleaning ensure the data's accuracy, reliability, and validity, enhancing the credibility of the subsequent statistical analysis. In line with this practice, this study conducted a thorough data

screening and cleaning process, encompassing missing value analysis, detection of unengaged respondents, identification of outliers, and evaluation of multicollinearity. One key stage in this process was the examination of respondent engagement. This was achieved by calculating the standard deviation for each respondent's data set. A close-to-zero standard deviation value suggests limited response variation, indicative of unengaged or disinterested respondents. From the analysis, two respondents exhibited such characteristics and, as a result, were deemed unengaged and subsequently excluded from further data analysis.

Further, the Mahalanobis distance (D) statistic, as recommended by Kline (2010), was employed within the context of the structural equation modelling to identify any influential outliers within the data set. The absence of any output with a P1 value less than 0.05 suggested the non-existence of significant outliers, which further substantiated the reliability of the data set. Preliminary data screening and analysis of the questionnaire data concluded with an evaluation of multicollinearity, which involved scrutinising the dataset to determine if there were substantial correlations among the variables. Multicollinearity can cause issues in deriving precise estimates in regression analysis and other statistical methods. However, the results of the data screening conducted in this study assured that no such multicollinearity existed in the data set. The absence of significant outliers and multicollinearity, as well as the removal of unengaged respondents, substantially enhanced the reliability and accuracy of the data set, laying a solid foundation for the ensuing stages of the research.

7.5.1 Missing Value Analysis

The integrity of questionnaire data analysis is frequently compromised by incomplete data, an issue often attributable to respondents intentionally overlooking or unintentionally missing certain questions (Bryman, 2006). The ramifications of such incomplete data are typically significant, often distorting accurate statistical computations and necessitating the application of missing value analysis to rectify this shortcoming (Little and Rubin, 2014). Such analysis serves three primary functions: identifying and characterising patterns of missing values, estimating mean and other descriptive values, and substituting missing values with their corresponding estimates (Husson and Josse, 2013; Singh et al., 2015). Researchers have identified three

prevalent types of missing value scenarios: Missing at Random (MAR), Missing Completely at Random (MCAR), and Missing Not at Random (MNAR). The MAR scenario, considered to exhibit a systematic pattern, arises when the likelihood of a data point's absence is related to the observed variable rather than the missing data (Husson and Josse, 2013).

Conversely, the MCAR scenario is characterised by an absence of systematic missingness, where the probability of a missing variable bears no connection to either the observed or the missing variables in the dataset (Little and Rubin, 2014). This randomness offers a statistical advantage, as the analysis remains unbiased even when the missing value is substituted with the variable's average. The third scenario, MNAR, is the most complex. It represents a situation where the missingness of a value is inherently related to the value itself, independent of other variables (Cheema, 2014). This non-random missingness cannot be predicted by any other observed variable in the data, often prompting researchers to either excise the data along with the missing value or resort to modelling (Kaiser, 2014). Despite these complexities, researchers often opt for ad hoc solutions to manage missing values, such as substituting the missing values or discarding the entire survey containing the missing variable, typically via a listwise approach. However, after conducting the appropriate analyses in this study, there were no missing values, thereby circumventing these challenges.

7.5.2 Reliability Analysis

According to Santos (1999), reliability analysis is essential in assessing the internal consistency or average correlation of constructs emerging from questionnaire survey results. It establishes confidence in the coherence and dependability of the collected data. In this study, the questionnaire responses were subjected to reliability analysis to determine the constructs' internal consistency and verify the data's suitability for further examination. This approach aligns with the prevailing consensus among social scientists (Field, 2009) and is critical to ensuring the validity of the research outcomes. Hence, Cronbach's alpha (α) reliability coefficient was calculated using Eq. (1). Based on the above equation, N represents the total number of factors, COV is the average covariance between factors, and $S2i$ and $COVi$ are the variance and covariance of factor 'i' respectively. Field (2009) postulates that the higher the value of Cronbach's

alpha reliability coefficient, the greater the internal consistency of the data. This assertion is reflected in the scale ranging from 0 to 1, where a coefficient below 0.5 is unacceptable, one between 0.5 and 0.6 is poor, between 0.6 and 0.7 is questionable, between 0.7 and 0.8 is acceptable, between 0.8 and 0.9 is good, and anything 0.9 or above is considered excellent.

Equation 1: Formula for reliability analysis

$$\alpha = \frac{N^2 \overline{COV}}{\sum_{i=1}^{N} S_i^2 + \sum_{i=1}^{N} COV_i}$$

In addition to determining the overall Cronbach's alpha for different constructs, this study examined another measure of internal consistency called "Cronbach's Alpha if Item Deleted". This was estimated for all the measures evaluated. Field (2009) states that any factor or measure that does not contribute to the data's reliability will have a higher reliability coefficient than the evaluated construct's overall reliability coefficient. This suggests that such a factor with a higher value if deleted, would increase the overall reliability of the entire data set (Santos, 1999). Using these rules as yardsticks, Cronbach's alpha coefficients for the 12 constructs are presented in Tables 10 – 13. The coefficients for the 12 constructs were 0.721, 0.792, 0.880, 0.858, 0.857, 0.884, 0.871, 0.902, 0.963, 0.921, 0.734, and 0.888, respectively. All these coefficients surpassed the acceptable threshold of 0.7 posited by Pallant (2020).

7.6 Descriptive Statistics

Descriptive statistical analysis describes the fundamental characteristics of data collected in a research study (Fisher & Marshall, 2009). This type of analysis utilises numerical, tabular, and graphical methods for summarising, analysing, and presenting data. Insights can be drawn from the data using descriptive measures, such as means, standard deviations, and frequency distributions. One of the main advantages of descriptive statistics is its ability to condense a vast amount of data into concise statistical measures, graphs, or tables, thereby providing a more transparent view of the research findings (Holcomb, 2016). This study analysed the questionnaire data descriptively to derive the mean values and standard deviations for each factor influencing the positive reputation of construction projects. Using mean values is

particularly effective in identifying top-ranking factors, as it is well-suited for analysing large sample datasets (Vogt & Barta, 2013). Often considered the most frequently used measure of central tendency, mean values come into play when evaluating the relative importance of variables within a dataset (Sahoo & Riedel, 1998). These factors were ranked according to their mean values to identify the key factors influencing the positive reputation of construction projects. The results of this descriptive analysis are presented in Tables 10 through 13, displaying the factors' mean, standard deviation, group-specific rankings, and overall rankings.

7.6.1 Descriptive Statistics for Client Satisfaction

As stated earlier in this study, two constructs influencing client satisfaction were operationalised along with their indicators. These constructs included "better engagement of clients throughout the project delivery lifecycle" and "meeting or exceeding clients' project delivery expectations". Descriptive data analysis was conducted to determine the key factors contributing to these constructs. With the aid of IBM SPSS version 22, the study derived each factor's mean and standard deviations. All eleven (11) factors associated with these constructs were ranked based on their contribution towards the positive reputation of construction projects. According to this mean-based ranking, the top five factors significantly enhancing the reputation of construction projects were:

1. Effective change management process - 4.70.
2. Open and honest interactions with clients - 4.70.
3. Tailored communication to suit client preferences - 4.61.
4. Active involvement of the client in key decision-making processes - 4.60.
5. Ability to adapt to client requirements - 4.60.

Table 10 succinctly presents the mean values and standard deviations of all factors pertinent to the two constructs of client satisfaction, featured in columns three and four. Additionally, the table's fifth and sixth columns disclose the mean ranking for each factor and the group mean for the client satisfaction constructs. To evaluate the internal consistency of the factors, the study deployed Cronbach's alpha reliability test across all factors within the two client satisfaction constructs. The results indicated

commendable internal consistency across all factors, as evidenced by the Cronbach's alpha coefficients ranging between 0.721 and 0.792, as represented in the seventh column of the table.

Furthermore, the study examined whether each factor genuinely contributes to the constructs they purport to measure. Consequently, an additional measure, "Cronbach's Alpha If Item Deleted", was employed to test all factors for internal consistency. As per the guidelines proposed by Field (2009), any factor exhibiting a Cronbach's alpha coefficient higher than the overall Cronbach's alpha is deemed not to be contributing to the construct, and its removal would enhance the internal consistency of the remaining dataset. In adherence to this principle, it was ascertained that all factors possessed Cronbach's alpha coefficients lower than their overall in-group coefficients (refer to Table 10), thus establishing their criticality in measuring their corresponding constructs. As a result, all the factors were retained for further analysis.

7.6.2 Descriptive Statistics for Innovation

A descriptive analysis was also conducted to determine the key innovation factors influencing the positive reputation of construction projects. The study calculated the mean and standard deviations of twenty-five (25) distinct contributing factors. These were subsequently ranked according to the influence they exert across four innovation constructs (incremental, radical, architectural, and modular) on the positive reputation of construction projects. The topmost five factors, as determined by the mean ranking method and distributed across the four innovation constructs, were identified as follows:

1. Strong leadership to drive radical changes - 4.61.
2. Regular design reviews and quality checks - 4.51.
3. Clear communication of design objectives and expectations - 4.50.
4. Stakeholders buy-in and acceptance of major changes - 4.43.
5. Regular stakeholder communication about innovation updates - 4.41.

The results depicted in Table 11 present the respective factors' mean and standard deviation values under each of the four innovation constructs in columns three and

four. Columns five and six elucidate the ranking within each group and the overall ranking of these factors, correspondingly. Subsequently, a reliability analysis was conducted using Cronbach's alpha coefficients to ensure that the innovation factors genuinely reflected the constructs they purported to measure. As the overall in-group Cronbach's alpha coefficients for all the factors lay between the acceptable range of 0.857 and 0.884, these factors were considered reliable. Moreover, the internal consistency of the contributing factors was substantiated using the measure "Cronbach's Alpha If Item Deleted". Since none of the individual factors had a higher Cronbach's alpha coefficient than their respective overall in-group coefficients, as illustrated in Table 11, it was determined that all the factors were integral for accurately measuring their corresponding constructs and, thus, were retained.

7.6.3 Descriptive Statistics for Competency

In line with the foregoing, the study also undertook descriptive statistical analysis to identify the key competency factors influencing the positive reputation of construction projects. To this end, means and standard deviations were calculated for twenty-four (24) unique contributing factors. These factors were subsequently ranked across four competency constructs according to their individual contributions to the positive reputation of the construction projects. Following the mean ranking, the five principal contributory factors were determined and are listed below:

1. Capacity to foster a positive and productive project culture - 4.82.
2. Transparent sharing of project status and updates - 4.08.
3. Visionary and strategic thinking abilities - 4.11.
4. Ability to identify and mitigate risks - 3.92.
5. Usage of appropriate communication channels - 3.91.

As displayed in Table 12, the mean and standard deviation values for each factor across the five competency constructs are documented in the third and fourth columns, respectively. Furthermore, the fifth column exhibits the in-group ranking of each factor's mean, whereas the overall mean ranking for all the factors is depicted in the sixth column. The internal consistency of the contributory factors was subsequently assessed by determining Cronbach's alpha coefficient for all the factors within each group. This assessment showed that all factors were deemed reliable, with the overall

Cronbach's alpha coefficients ranging from 0.871 to 0.963 across the groups. A construct validity test, namely "Cronbach's Alpha if Item Deleted," was employed to verify if all the 24 factors across the four constructs were true measures of what they purported to measure. This analysis revealed that all factors were contributing to their constructs except for three factors: PMC-4 (strong decision-making capabilities), PMC-2 (deep understanding of project operations) and PMC-5 (proven track record of successful project deliveries). These three factors demonstrated higher Cronbach's alpha coefficients (*0.904, *0.908, *0.903) than their groups' overall Cronbach's alpha. Based on these findings, these three factors were excluded from the dataset. Deleting these factors from their groups (i.e., PMC) ultimately boosted the group's overall Cronbach's alpha from 0.902 to 0.937.

7.6.4 Descriptive Statistics for Project Performance

Similar to prior subsection analyses, a descriptive statistical examination was carried out to identify the key project performance factors that weigh on the positive reputation of construction projects. The analytical process involved the calculation of mean and standard deviations for twelve (12) distinctive contributory factors, subsequently ranked across two project performance constructs. Using the mean ranking, the five factors with the highest ranks include:

1. Effective process planning and execution skills - 4.38.
2. Strong coordination with design and production teams - 3.81.
3. Efficient coordination among different process steps - 3.79.
4. Clear understanding of product requirements - 3.38.
5. Use of process optimisation techniques - 3.30.

Table 13 provides the mean and standard deviation values for each factor in the third and fourth columns respectively, while the fifth and sixth columns present the in-group mean ranking and the overall mean ranking for each factor, respectively. For ascertaining the reliability of the factors, Cronbach's alpha reliability coefficients were computed, revealing that all the factors were within the acceptable reliability range with in-group overall reliability coefficients of 0.734 and 0.888. To assess internal consistency, the metric "Cronbach's Alpha if Item Deleted" was employed. This test

helps to identify factors that, despite their presence within a group, are not making significant contributions to their respective accountability mechanisms. Such factors exhibit a higher Cronbach's alpha coefficient than the overall coefficients for their groups. In this analysis, all factors were deemed as true measures.

Overall, out of the initial cohort of seventy-two (72) factors posited to influence the positive reputation of construction projects, only sixty-nine (69) made it through statistical testing. They were deemed sufficiently reliable to be incorporated into the subsequent phase of structural equation modelling. As mentioned in the preceding subsections, the three unreliable factors lacking the requisite consistency were deleted from the dataset to bolster its overall reliability.

7.7 Kruskal-Wallis Test for Significant Difference

After examining the reliability and the descriptive statistics of the questionnaire data, it became essential for this study to examine whether the factors posited to influence the positive reputation of construction projects were perceived similarly or differently by the respondents according to their job roles as architects, civil/structural engineers, design managers, project managers and others (health and safety managers, sustainability experts). This was achieved through the Kruskal-Wallis's test, a non-parametric test used to determine the significant statistical difference between more than two independent groups of respondents (Field, 2009). This test was measured in line with the recommendation of Field (2009) that at a 95% confidence level, any p-value below 0.05 indicates a significant difference, while a p-value above indicates a non-significant difference among the groups of respondents.

7.7.1 Test for Significant Difference on Client Satisfaction

The Kruskal-Wallis's test for significant differences was carried out on client satisfaction factors to determine whether job positions affect the perception of each of the factors towards influencing the positive reputation of construction projects. As such, respondents' job positions were used as grouping variables, while the client satisfaction factors were used as testing variables. As demonstrated in the ninth column of Table 10, the Kruskal-Wallis's coefficient indicated that only a single factor out of the remaining eleven client satisfaction factors was perceived differently by the

respondents (p<0.05), corresponding to 90.91% concordance on the factors. The remaining factors exhibited a p-value exceeding 0.05, suggesting that aggregating the responses from all respondents does not compromise the comprehensive reliability of the results. However, the sole factor perceived diversely is MEC-4 = "Regular risk identification, reporting and mitigation", having a p-value of 0.046. Upon delving deeper into the mean of the varying groups, it was revealed that this factor was accorded a high rank by civil/structural engineers, design managers, project managers and others (including health and safety managers and sustainability experts). In contrast, architects deemed this factor to bear less significance.

7.7.2 Test for Significant Difference on Innovation

The Kruskal-Wallis non-parametric test was applied to the innovation factors to assess whether respondents' job roles impacted their perception of each factor's contribution to the positive reputation of construction projects. The test was performed under the null hypothesis that the distribution of all factors is consistent across different job positions. The test results indicated no significant differences in perceptions of any factors at the 95% confidence level, as indicated by p-values greater than 0.05 for all factors. This outcome supports the null hypothesis for all factors, confirming that job position does not significantly alter the perception of these innovation factors. The Kruskal-Wallis's coefficients for the construction factors resulting from this non-parametric test are reported in the final column of Table 11.

7.7.3 Test for Significant Difference on Competency

The Kruskal-Wallis non-parametric test was utilised to evaluate the competency factors, investigating whether there are significant differences in the perception of each factor's role in enhancing the positive reputation of construction projects based on respondents' job roles. The null hypothesis for the test asserted that the distribution of responses for all factors is homogeneous across different job titles. The test results revealed no discernible differences in the perceptions of the competency factors at a 95% confidence level, denoted by p-values exceeding 0.05 for all factors. This finding corroborates the null hypothesis for all factors, suggesting that the respondents' job roles do not considerably influence their perception of the competency factors. The

resultant Kruskal-Wallis's coefficients for the competency factors derived from this non-parametric test are outlined in the final column of Table 12.

7.7.4 Test for Significant Difference on Project Performance

Similar to prior subsections, a non-parametric analysis utilising the Kruskal-Wallis's test was conducted on project performance factors to ascertain if different job roles influenced perceptions of each factor's impact on the positive reputation of construction projects. The applied null hypothesis was that all factor distributions remained consistent across various job positions. The test results displayed no significant variances in perception across different job positions at the 95% confidence level, evidenced by p-values of greater than 0.05 for all factors. This outcome substantiates the null hypothesis for each factor, implying that job roles do not significantly sway perceptions concerning the project performance factors. The resulting Kruskal-Wallis's coefficients from this non-parametric analysis for each project performance factor are included in the final column of Table 13.

Table 10: Descriptive and non-parametric analysis of client satisfaction factor

Label	Client Satisfaction	Mean	SD	Rank within group	Overall Rank	Cronbach's Alpha	Cronbach's Alpha if Item Deleted	Kruskal-Wallis Coeff.
BE	**Better Engagement of Clients Throughout Project Delivery Lifecycle**							
BE-1	Open and honest interactions with clients	4.71	.462	1	1		0.714	0.851
BE-2	Proactive assessment of client concerns or issues throughout the project lifecycle	4.30	.781	3	8		0.720	0.742
BE-3	Tailored communication to suit client preferences	4.61	.663	2	3	0.721	0.715	0.853
BE-4	Empathetic understanding of the client's vision and concerns	4.28	.636	4	10		0.703	0.944
MEC	**Meeting or Exceeding Clients Project Delivery Expectations**							
MEC-1	Active involvement of the client in key decision-making processes	4.60	.672	2	4		0.743	0.725
MEC-2	Regular and clear communication with the client.	4.08	.708	7	11		0.755	0.836
MEC-3	Ability to adapt to client requirements.	4.60	.492	3	5		0.764	0.927
MEC-4	Regular risk identification, reporting, and mitigation.	4.49	.672	4	6		0.778	***0.046
MEC-5	Effective change management process.	4.70	.462	1	2	0.792	0.791	0.819
MEC-6	Continual improvement based on past project experiences.	4.40	.664	6	9		0.747	0.881
MEC-7	Ensuring safety standards and regulations are strictly adhered to.	4.49	.492	5	7		0.760	0.832

Table 11: Descriptive and non-parametric analysis of innovation factor

Label	Innovation	Mean	SD	Rank within group	Overall Rank	Cronbach's Alpha	Cronbach's Alpha if Item Deleted	Kruskal-Wallis Coeff.

II	**Incremental Innovation**						
II-1	Effective planning and strategic execution of incremental innovations.	4.29	.639	2	10		0.865	0.903
II-2	Continuous learning and adaptability of the project team.	4.21	.742	3	12		0.838	0.954
II-3	Proactive risk management for new implementations.	4.10	.839	5	20	0.880	0.847	0.735
II-4	Regular stakeholder communication about innovation updates.	4.41	.655	1	5		0.874	0.776
II-5	Consistent feedback and evaluation mechanisms.	4.20	.600	4	13		0.829	0.687
II-6	Building an innovation-friendly project culture.	3.58	1.036	6	23		0.857	0.788
RI	**Radical Innovation**						
RI-1	Strong leadership to drive radical changes.	4.61	.488	1	1		0.810	0.799
RI-2	Thorough market and feasibility analysis.	4.39	.491	5	8		0.837	0.941
RI-3	Skilled project team with high risk tolerance.	4.41	.663	3	6		0.854	0.882
RI-4	Availability of resources for substantial innovation.	4.40	.665	4	7		0.822	0.833
RI-5	Stakeholders buy-in and acceptance of major changes.	4.43	.539	2	4	0.858	0.847	0.924
RI-6	Robust change management and contingency plans.	4.30	.643	6	9		0.833	0.725
RI-7	Regular training and skill development for project team members.	4.10	.839	7	19		0.837	0.816
RI-8	Active monitoring and evaluation of implemented ideas.	4.08	.708	8	16		0.858	0.737
AI	**Architectural Innovation**						
AI-1	Competent design team with a creative approach.	4.21	.751	3	11		0.819	0.888
AI-2	Understanding of end-user preferences and trends.	4.09	.712	6	17		0.832	0.929
AI-3	Clear communication of design objectives and expectations.	4.50	.502	2	3	0.857	0.846	0.881
AI-4	Efficient implementation of design changes.	4.11	.946	5	18		0.823	0.902
AI-5	Regular design reviews and quality checks.	4.51	.672	1	2		0.853	0.853
AI-6	Customer involvement in design feedback and iterations.	4.19	.597	4	14		0.837	0.754
MI	**Modular Innovation**						
MI-1	Thorough analysis of current project components.	4.30	.783	1	8		0.867	0.905
MI-2	Clear identification of areas requiring improvement.	3.87	1.152	2	21	0.884	0.829	0.776
MI-3	Efficient planning and execution of improvement actions.	2.51	.938	5	25		0.878	0.917

						Cronbach's		
MI-4	Regular monitoring and evaluation of improvements.	2.80	1.369	4	24		0.843	0.788
MI-5	Transparent communication about refinements with stakeholders.	2.28	.805	6	26		0.825	0.889
MI-6	Maintenance of a continuous improvement culture within the project team.	3.79	.906	3	22		0.861	0.821

Table 12: Descriptive and non-parametric analysis of competency factor

Label	Competency	Mean	SD	Rank within group	Overall Rank	Cronbach's Alpha	Cronbach's Alpha if Item Deleted	Kruskal-Wallis Coeff.
ECA	**Efficient Communication Among Project Teams and Stakeholders**							
ECA-1	Clear and concise communication processes.	3.28	1.293	6	14		0.871	0.862
ECA-2	Active listening and feedback mechanisms.	3.67	1.447	4	8		0.865	0.933
ECA-3	Usage of appropriate communication channels.	3.91	1.062	2	5	0.871	0.829	0.794
ECA-4	Regular communication scheduling.	3.63	1.312	5	9		0.846	0.855
ECA-5	Timely response to queries and issues.	3.70	1.453	3	7		0.852	0.716
ECA-6	Transparent sharing of project status and updates.	4.08	1.172	1	2		0.868	0.727
PMC	**Project Manager's Competency in Efficient Project Delivery**							
PMC-1	Effective project planning and execution skills.	3.79	1.112	2	6		0.890	0.908
PMC-2	Deep understanding of project operations.	3.50	.661	4	12		*0.904	0.819
PMC-3	Ability to identify and mitigate risks.	3.92	.654	1	4	0.902	0.877	0.771
PMC-4	Strong decision-making capabilities.	2.98	1.290	6	19	(**0.937)	*0.908	0.682
PMC-5	Proven track record of successful project deliveries.	3.59	1.315	3	10		*0.903	0.913
PMC-6	Effective delegation and resource allocation skills.	3.48	1.125	5	13		0.899	0.874
ELC	**Effective Leadership Competencies of Project Manager**							
ELC-1	Visionary and strategic thinking abilities.	4.11	1.243	2	3		0.940	0.795
ELC-2	Strong interpersonal and influence skills.	2.63	1.514	3	20	0.963	0.916	0.816
ELC-3	Ability to inspire and motivate the team.	2.01	1.216	5	22		0.901	0.807
ELC-4	Conflict resolution and problem-solving skills.	1.91	1.251	6	24		0.954	0.728

Label		Mean	SD	Rank within group	Overall Rank	Cronbach's Alpha	Cronbach's Alpha If Item Deleted	Kruskal-Wallis Coeff.
ELC-5	Capacity to foster a positive and productive project culture.	4.82	1.199	1	1		0.885	0.949
ELC-6	Emotional intelligence to manage team dynamics.	2.01	1.368	4	23		0.932	0.861
PMT	**Project Manager's Technical Proficiency**							
PMT-1	Adequate knowledge of project-specific technical aspects.	2.00	1.213	6	21		0.915	0.782
PMT-2	Ability to guide the team on technical issues.	2.81	1.270	2	15		0.920	0.893
PMT-3	Capability to oversee technical quality checks.	3.57	1.457	1	11	0.921	0.919	0.804
PMT-4	Staying updated with latest technical advancements.	2.40	1.453	4	16		0.906	0.885
PMT-5	Skills to solve complex technical problems.	2.30	1.127	5	18		0.917	0.776
PMT-6	Communication of technical complexities in simple terms.	2.50	1.053	3	17		0.868	0.937

Table 13: Descriptive and non-parametric analysis of project performance factor

Label	Project Performance	Mean	SD	Rank within group	Overall Rank	Cronbach's Alpha	Cronbach's Alpha If Item Deleted	Kruskal-Wallis Coeff.
EP	**Efficient Process Management**							
EP-1	Thorough understanding of project processes.	2.19	1.201	6	12		0.725	0.878
EP-2	Effective process planning and execution skills.	4.38	.488	1	1		0.712	0.929
EP-3	Use of process optimisation techniques.	3.30	.774	3	5	0.734	0.752	0.811
EP-4	Regular process audits and improvements.	3.18	.968	4	7		0.703	0.682
EP-5	Adherence to process standards and guidelines.	3.08	.820	5	8		0.729	0.898
EP-6	Efficient coordination among different process steps.	3.79	1.107	2	3		0.722	0.914
EPM	**Efficient Product Management**							
EPM-1	Clear understanding of product requirements.	3.38	1.099	2	4		0.875	0.896
EPM-2	Capability to manage product development lifecycle.	2.38	1.099	6	11		0.836	0.782
EPM-3	Strong coordination with design and production teams.	3.81	1.201	1	2	0.888	0.847	0.905
EPM-4	Ability to manage product-related risks and issues.	3.03	1.121	4	9		0.861	0.727
EPM-5	Quality assurance and control for product outputs.	2.50	.946	5	10		0.883	0.929

| EPM-6 | Regular product updates and communication with stakeholders. | 3.21 | 1.006 | 3 | 6 | | 0.824 | 0.682 |

Notes for Tables 10, 11, 12 and 13:

*denotes factors that have "Cronbach's Alpha if item deleted" above their individual groups' Cronbach's Alpha, suggesting that the factors should be deleted to enhance the group's reliability.

**denotes the amended Cronbach's Alpha after unreliable factors with ** were deleted from their respective groups.

***denotes factors having a significant Kruskal-Wallis's coefficient at 95% confidence level. This means respondents differ in their perception of the factor based on their job position. This affected only MEC-4 in Table 10.

7.8 Validity and Reliability

Despite the myriad terminologies in research, the essence of validity and reliability revolves around a meticulous approach that minimises bias. It involves carefully evaluating claim accuracy, reducing errors, and ensuring the logical coherence of processes (Morgan, 2007; Cohen et al., 2013; Jussim et al., 2015). According to Greene (2014), the credibility of any study also depends on the validation of the methodology and interpretation used. Methodological validity is about the appropriateness of the research design and the procedures used in the study, while interpretive validity concerns the plausibility of conclusions drawn using the selected methodology (Greene, 2014; Noble and Smith, 2015). To effectively navigate these complexities, choosing the right research design, methodology, and methods (Maxwell, 1992, Kothari, 2004). In quantitative studies, the reliability and validity of the research instrument are crucial in reducing errors that might arise from measurement issues.

In this study, the stability of the research instrument regarding its face and content validity was ensured through a pilot study with 10 information-rich professionals who were conveniently sampled to assess the clarity, layout, depth, and logic of the questions, as well as to perform a preliminary examination of the proposed statistical analysis (refer to section 7.2.3). Internal (construct) validity evaluates the consistency of responses to closely related questions (Buckingham and Saunders, 2004). It validates the agreement between the measurements and the theoretical entity. The pilot study results assessed the internal (construct) validity of the measurements taken on the Likert scale. After data collection, the reliability of the scale and the data was improved through preliminary analyses such as missing value analysis, Mahalanobis distance statistics, multicollinearity screening, detection of unengaged responses, and reliability analysis (refer to section 7.5). The overall reliability of the data and the study's findings was enhanced by deleting factors that negatively affected the scale's reliability.

8 Chapter Eight: Structural Equation Modelling

8.0 Chapter Overview

This chapter expands upon the statistical analysis previously explored, delving into the development and application of structural equation models. It is designed to confirm the earlier established factor structure and test the correlational and causal relationships between the observed variables and latent factors. The chapter thoroughly justifies using Structural Equation Modelling (SEM), followed by a detailed exploration of various model fitness indices. Subsequently, it takes a deeper dive into Confirmatory Factor Analysis (CFA) for the second-order factors. Ultimately, a structural model is constructed to validate the relationships among the factors influencing the project reputation of construction organisations.

8.1 Use of Structural Equation Modelling

Originating primarily from the work of sociologists and psychologists, Structural Equation Modelling (SEM) has emerged as a significant statistical instrument (Yang & Ou, 2008). SEM can be considered an advanced multivariate technique, a progression of regression modelling, enabling the assessment of interlinked relationships among variables (Hair et al., 2006). One of its distinctive advantages lies in its ability to model constructs while accommodating the measurement errors induced by proxy variables, thus providing valuable insights into the contributing measures of the construct. The fundamental premise of SEM is the concept of latent variables – crucial variables that remain unobservable (Kline, 2015). The complex relationships between these latent and observable (independent) variables are estimated through SEM, furnishing a structured pathway to comprehending the construct. SEM also provides a graphical depiction of the interconnected relationships among variables, thus facilitating a comprehensive understanding of the cause-effect relationships and performance algorithms (Hair et al., 2016).

Given its benefits and versatility, SEM has been extensively utilised in diverse project management research (e.g., Owolabi et al., 2023). For instance, Doloi et al. (2011) employed SEM to gauge the influence of a contractor's performance on the success of a project. Similarly, Chen et al. (2011) leveraged SEM to investigate the complex relationships among critical success factors in construction projects. Moreover, Xiong

et al. (2015) conducted a thorough review of the application of SEM in construction project management research, among several other related studies. Within the SEM framework, the latent variable is evaluated using observed variables. This method consists of two main components: (1) the measurement model and (2) the structural model. The measurement model employs Confirmatory Factor Analysis (CFA) to assess the accuracy with which the observed variables measure the latent construct (Kim et al., 2009). On the other hand, the structural model encompasses multiple regression analysis and path analysis, modelling the relationships among the construct variables (Chen et al., 2011).

When the reliability of observed variables needs to be evaluated, the measurement model is particularly useful as it determines the fitness of the observed variables within the model and verifies their validity (Kline, 2015). This research chose to adopt SEM to uncover the key factors influencing the positive reputation of construction projects. One of the major merits of employing SEM in this study is its ability to reveal the structural path of the measured construct through CFA and establish the relationships between the observed and latent variables. When a construct comprises multiple latent variables, SEM efficiently uncovers the importance and magnitude of each latent variable (Melchers & Beck, 2017).

8.2 Model Fitness

Structural Equation Modelling (SEM) employs model fitness, gauging the degree to which theoretical propositions align with the collected data. Model fitness is a vital prerequisite in the SEM framework, despite the prevailing disagreement concerning the most appropriate model fit indices and their respective cut-off values (Hooper et al., 2008). Recognising its criticality, various criteria delineating the goodness of fit have been constructed, typically falling into three categories: absolute fit, incremental fit, and parsimonious fit (Xiong et al., 2014). A fourth category, termed predictive fit indices, was later introduced by Kline (2010). These indices distinguish themselves from others as they are based on the population rather than on specific samples. To attain a comprehensive evaluation of the model, it is advised to employ fit indices across these categories, each focusing on a distinct facet of the model (Crowley and Fan, 1997). In this context, Hair et al. (2010) advocates the application of alternative

indices from each category, emphasising particularly on Chi Square (X²), Root Mean Square Error of Approximation (RMSEA), and Comparative Fit Indices (CFI). Kline (2010) shares a similar viewpoint and recommends the use of Chi-Square (X²), RMSEA, Global Fit Index (GFI), CFI, PCLOSE, and Standardized Root Mean Square Residual (SRMR). The following sections elucidate the different categories of model fit indices.

8.2.1 Incremental Fit Indices

Incremental fit indices, also known as comparative or relative fit indices (Bentler, 1990), are a group of indices that don't rely on the Chi-Square in its raw form but rather compare the proposed model with the Chi-Square value (Hu & Bentler, 1999). These indices were developed to evaluate the improvement in fit that a hypothesised model brings over a baseline or null model (Ding et al., 1995). The foundational assumption of incremental fit indices is that all variables within the dataset are uncorrelated (Schreiber et al., 2006). The two key indices under this category are the Normed-Fit Index (NFI) and the Comparative Fit Index (CFI). The NFI assesses the model by comparing its Chi-Square value with the independence model. The NFI values generally fall between 0 and 1, and a good fit is indicated by a value closer to 1, typically between 0.90 and 1, as suggested by Bentler and Bonett (1980). Despite its usefulness, the NFI's primary limitation is its sensitivity to sample size. It tends to be less accurate with smaller sample sizes, typically fewer than 200 observations. As such, it has been advised by researchers such as Kline (2005) and Tabachnick and Fidell (2007) not to depend on the NFI for model fit determination solely.

Other indices, like the Tucker-Lewis Index (NNFI), have been proposed to handle smaller samples better. However, the NNFI can exceed 1.0, which may complicate interpretation. For this reason, cut-off values of 0.80 or ≥0.95 are typically suggested. The Comparative Fit Index (CFI) is an improved variant of the NFI and maintains good performance even with small sample sizes. By comparing the covariance matrix of the sample with that of the independent model, CFI operates under the assumption that all latent variables are uncorrelated (Gerbing & Anderson, 1993). The CFI is one of the most frequently reported fit indices in SEM literature, with values ranging from 0.0 to 1.0 - the closer to 1.0, the better the fit. Recommended cut-off values are ≥0.95 (Hu

& Bentler, 1999). Therefore, this study will assess the incremental fit of the model using the CFI, NFI, and NNFI.

8.2.2 Absolute Fit Indices

Absolute fit indices provide insight into the fraction of the covariance in the sampled data matrix that is accounted for by the model, similar to the R^2 statistics in regression analysis, which determines the model's explanatory power (Kline, 2010). An absolute fit index of 0.75 implies that the model accounts for 75% of the covariance. This category includes Chi-Square (χ^2), RMSEA, GFI, AGFI, SRMR, and RMR. The Chi-Square (χ^2) model evaluates the model's overall fit, measuring the degree of divergence between the observed data and the covariance matrices. A well-fitted model yields a non-significant χ^2 at the 95% confidence level, leading to its occasional characterisation as a measure of the "badness of fit" (Hooper et al., 2008). One significant limitation of this test lies in its susceptibility to sample size, which can lead to model rejection in large samples and an inadequate fit for small samples (Kenny & McCoach, 2003). A commonly used alternative to mitigate this issue is the relative or normed Chi-Square (χ^2/df), with an acceptable value range of 2.0 to 5.0 (Hooper et al., 2008).

Another significant fit index is the Root Mean Square Error of Approximation (RMSEA), which estimates the degree of fit the model would have if applied to the population's covariance matrix with an optimally selected but unknown parameter estimates. Acceptable RMSEA values generally fall within the range of 0.05 to 0.10, with 0.08 often serving as an upper limit (Hooper et al., 2008). The Goodness of Fit Index (GFI) operates as an alternative to χ^2, assessing the proportion of variance the estimated population covariance accounts for (Tabachnick & Fidell, 2007). The index ranges from 0 to 1, with 0.9 generally recommended as the lower cut-off point. As its name suggests, the Adjusted Goodness of Fit (AGFI) fine-tunes the GFI based on degrees of freedom. Despite their susceptibility to sample size variations, which renders GFI and AGFI unreliable when utilised in isolation, they are nonetheless considered valuable model fit indices (Hooper et al., 2008). Accordingly, this study incorporates Normed Chi-Square, RMSEA, GFI, and AGFI as indicators of the model's absolute fit.

8.2.3 Parsimonious Fit Indices

Parsimony fit indices are an amendment to previously discussed fit indices (Hu & Bentler, 1999). They emphasise model simplicity, advocating for selecting fewer complex models over their more intricate counterparts and penalising models lacking parsimony (Stenling & Tafvelin, 2014). The operational principle with parsimony indices is such that a more convoluted estimation process results in a diminished fit index (Marsh & Hau, 1996). Mulaik and colleagues (1989) introduced two primary parsimony indices, the Parsimony Goodness-of-fit Index (PGFI) and the Parsimonious Normed Fit Index (PNFI). The PGFI, which considers degrees of freedom, is premised on the Goodness-of-fit Index (GFI), whereas the PNFI, which also considers degrees of freedom, is based on the Normed Fit Index (NFI) (Williams & Holahan, 1994). High cut-off values for parsimony indices are typically recommended to be 0.90 or above (Hu & Bentler, 1999). Mulaik et al. (1989) further advocate for the simultaneous utilisation of parsimony indices alongside other goodness-of-fit indices. In adherence to these analyses, the proposed model of this study was evaluated using both PGFI and PNFI indices. A summary of all fit indices implemented in this study is presented in Table 14.

Table 14: Thresholds for structural model fit indices

Goodness of fit measures	Recommended level of GOF measures	References
X2⁄degree of freedom	<5 (preferably 1 to 2)	Thresholds adapted from Hair et al., (2010), Chen et al., (2012) and Doloi et al., (2012
RMSEA	<0.10 (preferably <0.08)	
Goodness of Fit Index (GFI)	0(no fit) – 1 (perfect fit)	
Adjusted Goodness of Fit Index (AGFI)	0(no fit) – 1 (perfect fit)	
Comparative Fit Index (CFI)	0(no fit) – 1 (perfect fit)	
Normed Fit Index (NFI)	0(no fit) – 1 (perfect fit)	
Tucker-Lewis Index (TLI)	0(no fit) – 1 (perfect fit)	
Parsimonious Goodness of Fit Index (PGFI)	0(no fit) – 1 (perfect fit)	
Parsimonious Normed of Fit Index (PNFI)	0(no fit) – 1 (perfect fit)	

8.3 Validity and Reliability of Constructs

Since the items used to measure the constructs were adapted and modified from previous instruments, it was deemed appropriate to conduct a validity check to assess the constructs' internal consistency, convergent and discriminant validity (Doloi et al., 2012; Kline, 2010). Such assessments determine the model's correctness, thereby discerning to what extent the latent construct is mirrored by the measured variables (Hair et al., 2010). An exhaustive survey of the literature, the execution of focus group discussions, and pilot studies, as detailed in Chapters 3 and 6, have secured the face/content validity of the constructs. The model's convergent validity aims to verify the theoretical expectation that related measures exhibit correlation (Kline, 2010). This type of validity fosters confidence in measuring a latent variable by its indicators. Convergent validity is typically evaluated via standardised factor loading and is deemed satisfactory in a measurement model when factor loading proves significant at the appropriate level (Anderson and Gerbing, 1988).

Additional convergent validity measures include Average Variance Extracted (AVE), which quantifies the shared variance degree between a model's latent variables (Hair et al., 2010). The AVE estimates the variance amount captured by a construct alongside the error-derived variance. A model confronting convergent issues will display variables that correlate poorly with the latent factor. An acceptable AVE value is 0.5, with a value exceeding 0.7 viewed as favourable. According to Fornell & Larker (1981), the Average Variance Extracted (AVE) for a latent variable X, featuring indicators x1, x2, ...xn, is calculated as follows:

Equation 2: Formula for Average Variance Extracted (AVE)

$$AVE = \frac{\sum[\lambda_i^2]Var(X)}{\sum[\lambda_i^2]Var(X)+\sum[Var(\varepsilon_i)]}$$

Where λi denotes the loading of indicator xi on X, Var represents variance, εi designates the measurement error of xi, and Σ symbolises a sum. AVE is generally regarded as a validity measure more reliable than Composite Reliability (Malhotra and Dash, 2011). Discriminant validity, another construct validity measure, gauges the

extent of divergence a measure displays from areas where it is theoretically predicted to deviate. It fundamentally scrutinises whether measures anticipated not to correlate prove unrelated (Sureshchandar et al., 2002). It is commonly assessed via Maximum Shared Squared Variance (MSV) (Hair et al., 2010). The MSV of a latent factor quantifies how much its explanation is better accounted for by external factors outside its construct (Malhotra and Dash, 2011). For a model to be deemed reliable, AVE should surpass MSV, given that a factor's items (indicators) should better elucidate it than the items ascribed to another factor within the model (Hair et al., 2010). These examinations are performed alongside the reliability analyses conducted for all client satisfaction, innovation, competency, and project performance factors, as presented in Tables 10 to 13.

8.4 Confirmatory Factor Analysis

A confirmatory factor analysis was carried out to confirm the key measures underlying the twelve construction project reputation constructs. The sample size (N=141) is congruent with past studies involving structural equation modelling, such as the research conducted by Eriksson and Pesamaa (2007), Jin et al. (2007), Doloi (2009b), Doloi et al. (2011), and Chen et al. (2011), thus underscoring the suitability of the dataset for such modelling. The IBM AMOS 22 SPSS software was utilised to construct the structural models initially conceived from the measures identified earlier. This stage of analysis incorporated only factors deemed statistically reliable for further examination. Following the recommendations of numerous structural equation modelling researchers (Hu and Bentler, 1999; Kline, 2005), this study opted for the 'Maximum Likelihood method' for this research. This method is advantageous in providing the optimal parameter estimate for normally distributed datasets (Qudrat-Ullah and Seong, 2010). The hypothesised model's covariance results were then scrutinised to ascertain the model's suitability using the previously discussed fit indices (see section 8.2.3).

Evaluation of the proposed model revealed the necessity for further refinements to ensure sufficient reliability, validity, and fit with the sample data. To accomplish this, we used two model classification methods. The study relied on Kline's (2010)

recommendation by applying IBM AMOS 22 SPSS modification indices to incorporate covariance and causal relationships between observed variables and respective error terms. This approach, endorsed by Hu and Bentler (1999), facilitates model fitness enhancement. The refinement process verified that all adjustments were theoretically harmonious and accurately illustrated the interconnected relationship between the accountability factors. In addition, the path diagram was examined to identify measures with low correlation with the latent construct and essential measures displaying low correlation coefficients. This iterative refinement continued until satisfactory fit, reliability, and validity levels were obtained.

Due to the multidimensional character of the constructs in this study, it was imperative to employ a Second-Order Confirmatory Factor Analysis (CFA). Consequently, second-order factor analysis was performed for the twelve (12) latent constructs influencing the positive reputation of construction projects. Garver and Mentzer (1999) define a second-order construct as a latent variable explained by three to five other latent variables. Aside from preserving the multifaceted constructs as conceptualised in the study, the second-order factor analysis aids in minimising multicollinearity while also demonstrating how the first-order constructs load on the hypothesised second-order construct (Qudrat-Ullah and Seong, 2010). Accordingly, the study's second-order construct is "Project Reputation of Construction Organisations". As anticipated, the twelve (12) constructs became the first-order factors/constructs directly measured by the observed variables.

8.4.1 Second-Order CFA of Client Satisfaction

A Confirmatory Factor Analysis (CFA) was conducted on two principal constructs associated with client satisfaction that influence the positive reputation of construction projects. These constructs, delineated as "enhanced client engagement throughout the project delivery lifecycle" and "fulfilment or surpassing of clients' project delivery expectations," were modelled as first-order factors (latent factors), with each possessing four and seven predictors, respectively. The primary objective of this analysis was not only to affirm the reliability of these predictors in influencing the constructs, but also to ascertain the degree to which these latent constructs contribute to the positive reputation of construction projects. More specifically, the aim was to

scrutinise how effectively each construct loads on the second-order construct. Adhering to Caplan's (2010) two-step approach recommendation, this study merged the two prevalent models in Structural Equation Modelling (SEM): the measurement and the structural models. The former assesses the efficacy of the various predictors in measuring the first-order constructs, while the latter scrutinises the interrelationship between the first and second-order constructs.

Accordingly, a hypothetical relationship was modelled to investigate the impacts of the two client satisfaction constructs on the positive reputation of construction projects. Thus, a theoretical model was conceived by incorporating the two latent variables with their associated indicators based on theoretical expectations and preliminary qualitative findings (refer to Figure 9). Upon initial evaluation, the model necessitated enhancements, leading to several iterative processes. Adhering to the recommendations proposed by Singhapakdi et al. (1996), indicators exhibiting low standardised factor loadings and insignificant loadings were expunged from the model. This adjustment impacted two indicators under the "meeting or exceeding of clients' project delivery expectations" latent variable, specifically, MEC-1 (active involvement of the client in key decision-making processes) and MEC-6 (continuous improvement based on past project experiences). After these deletions, the model's fit indices substantially improved, reaching desirable levels.

This outcome illuminated the convergence of the two client satisfaction constructs, demonstrating their pronounced influence on construction projects' positive reputation. The Average Variance Extracted (AVE) coefficients of the latent variables ranged between 0.69 and 0.72, surpassing the cut-off threshold of 0.5 proposed by Khosrow-Pour (2008). This indicated that both latent constructs passed the convergence test. The contribution of these constructs towards a positive project reputation in construction organisations is deemed significant, corroborated by highly significant Goodness-of-Fit (GOF) indices. Consequently, these findings confirmed the validity of hypotheses H1 and H2, aligning with theoretical expectations. The final model is portrayed in Figure 10, and Table 15 details the extracted variance and construct reliability for all latent variables.
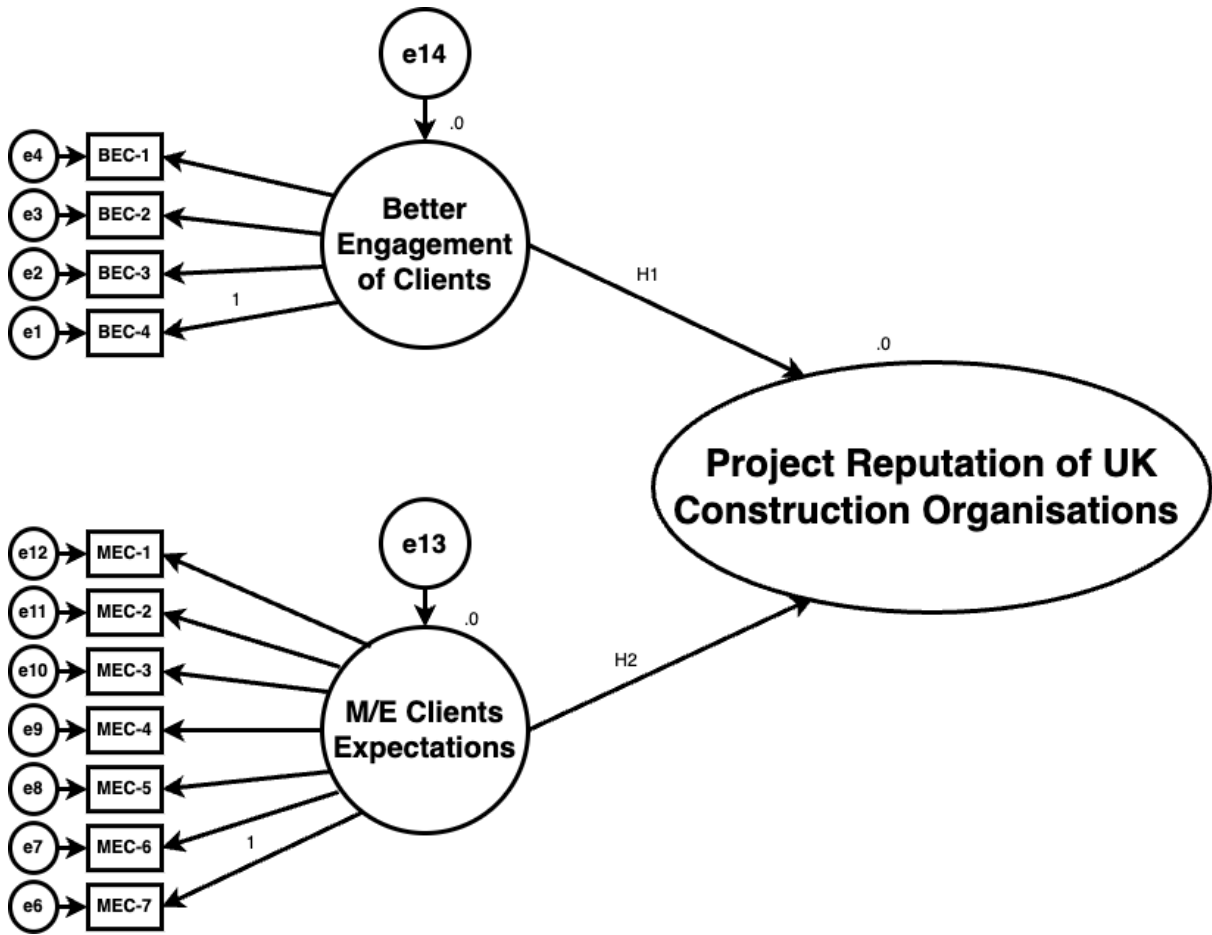
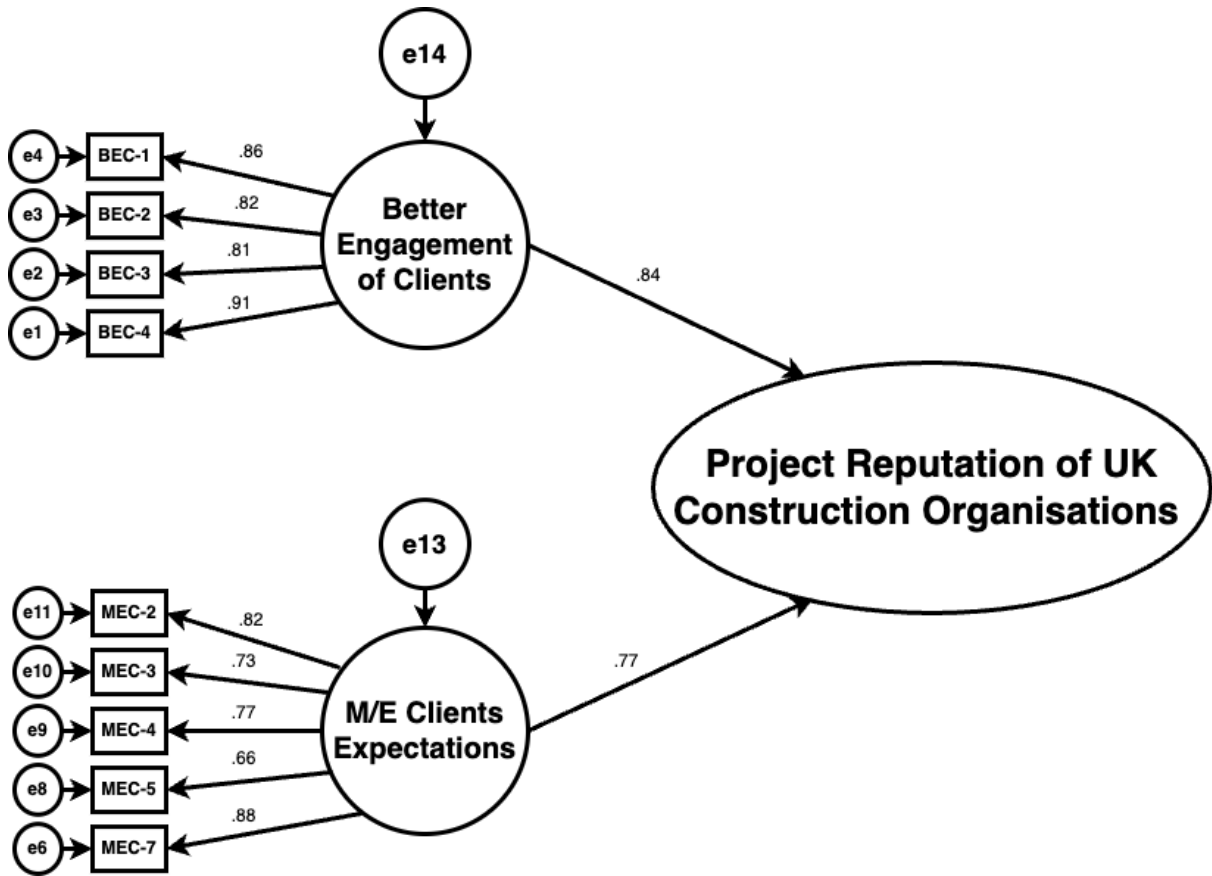*Figure 9: Hypothesized Model of Client Satisfaction*

Figure 10: Final Model of Client Satisfaction

Table 15: Maximum Likelihood Estimate and Value Fit Indices for Client Satisfaction Constructs & Indicators

First-Order Confirmatory Factor Analysis				Second-Order Confirmatory Factor Analysis			
Relationship	*Est.*	*AVE*	*CR*	**Relationship**	*Est.*	*AVE*	*CR*
BE-4 <- Better Engagement of Clients	0.91	0.72	0.83	Better Engagement of Clients<- PR of Construction Firms	0.84	0.79	0.83
BE-1<- Better Engagement of Clients	0.86			Meeting/Exceeding Clients Expectations<- PR of Construction Firms	0.77		
BE-2<- Better Engagement of Clients	0.82			**MODEL FIT INDICES**			
BE-3<- Better Engagement of Clients	0.81			**Indices**	**Hypothetic Model**	**Final Model**	
MEC-7 <-Meeting/Exceeding Clients Expectations	0.88	0.69	0.76	**X2/degree of freedom**	1.794	1.002	
MEC-2 <- Meeting/Exceeding Clients Expectations	0.82			**RMSEA**	0.091	0.090	
MEC-3 <- Meeting/Exceeding Clients Expectations	0.73			**Goodness of Fit Index (GFI)**	0.841	0.961	
MEC-4 <- Meeting/Exceeding Clients Expectations	0.77			**Adjusted Goodness of Fit Index**	0.819	0.912	
MEC-5 <- Meeting/Exceeding Clients Expectations	0.66			**Comparative Fit Index**	0.653	0.851	
				Normed Fit Index	0.692	0.798	
				Tucker-Lewis Index	0.797	0.893	
				Parsimonious GFI	1.821	0.842	
				Parsimonious Normed of Fit Index	0.713	0.731	
				Cronbach's Alpha Reliability	0.825		

Notes for Table 15:
CR denotes composite reliability; AVE denotes average variance reliability.

8.4.2 Second-Order CFA of Innovation

This study examined the four innovation constructs, incremental, radical, architectural, and modular, employing a second-order CFA to validate their structure. These constructs were operationalised as first-order latent variables, while "project reputation of construction organisations" was considered as the overarching second-order construct. Each of these first-order constructs was measured using a set of indicators: six for incremental, eight for radical, six for architectural, and six for modular. Figure 11 presents the initial theoretical model, illustrating the hypothesised interrelationships among the first and second-order constructs. Several iterative processes were undertaken to scrutinise the model's reliability and convergent validity to enhance its fitness. Indicators demonstrating low factor loadings or less significant associations with the latent constructs were expunged from the model. Notably, the first-order construct "Architectural Innovation" fell short of convergent validity and construct reliability thresholds.

In addition, this construct exhibited less significant factor loading on the second-order construct, registering below Kline's (2010) recommended threshold of 0.5. Additionally, two "Architectural Innovation" indicators yielded less than significant loadings. Further compounding these observations, two indicators aligned with the first-order factors "Radical Innovation" and "Modular Innovation" demonstrated poor significance; specifically, these indicators were RI-8 (active monitoring and evaluation of implemented ideas) and MI-5 (transparent communication about refinements with stakeholders). Consequently, "Architectural Innovation", as a first-order factor, along with its associated indicators demonstrating less significant loadings, were excised from the model. Post refinement, the theoretical model in its final form revealed significant factor loadings at P>0.05 for both the first and second-order constructs, as demonstrated in Figure 12. The final model also showed strong performance regarding its fitness, as elucidated in Table 16. Therefore, these findings substantiate three of the four theoretical hypotheses posited in Chapter 3, corroborating hypotheses 3, 4, and 6.
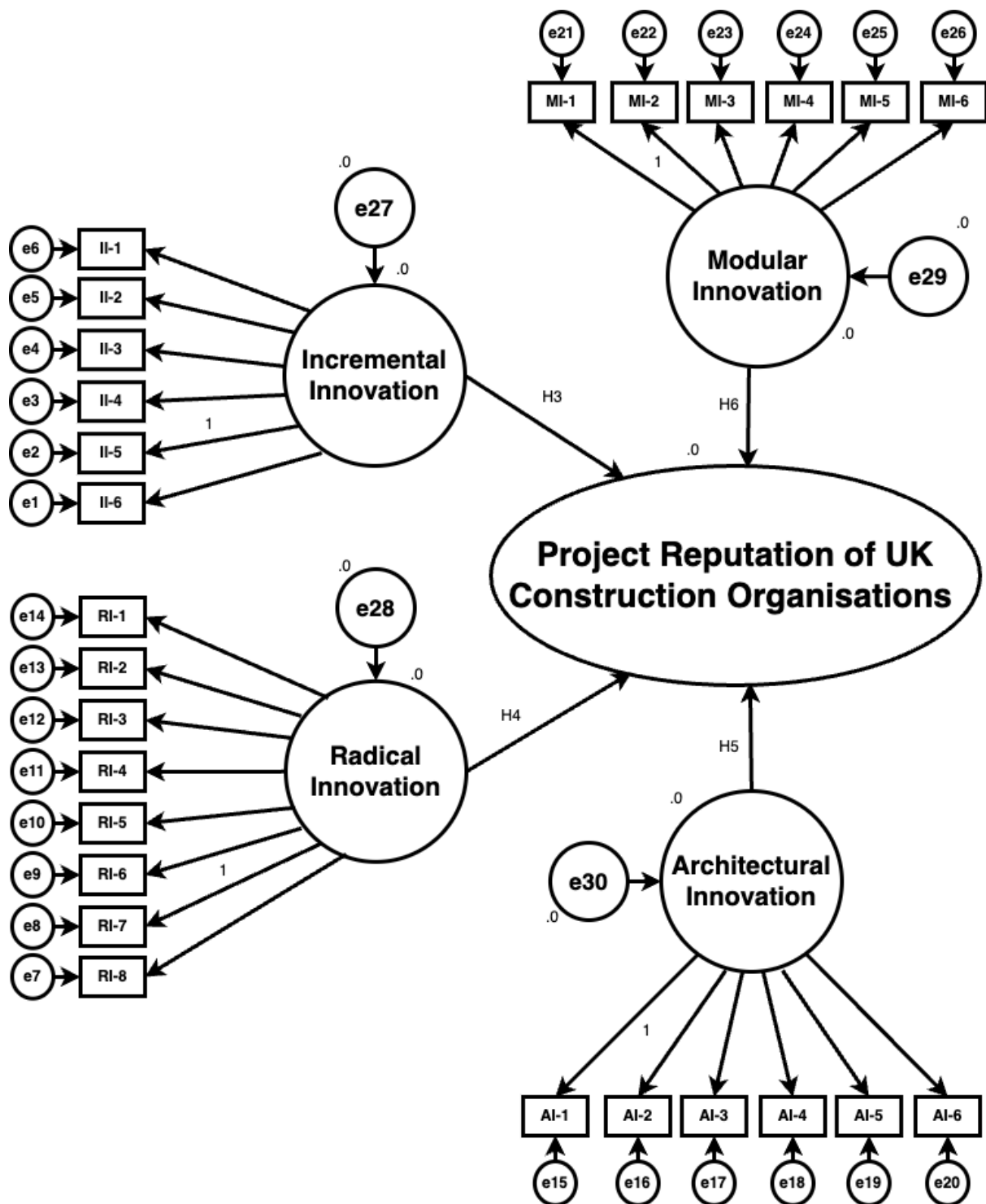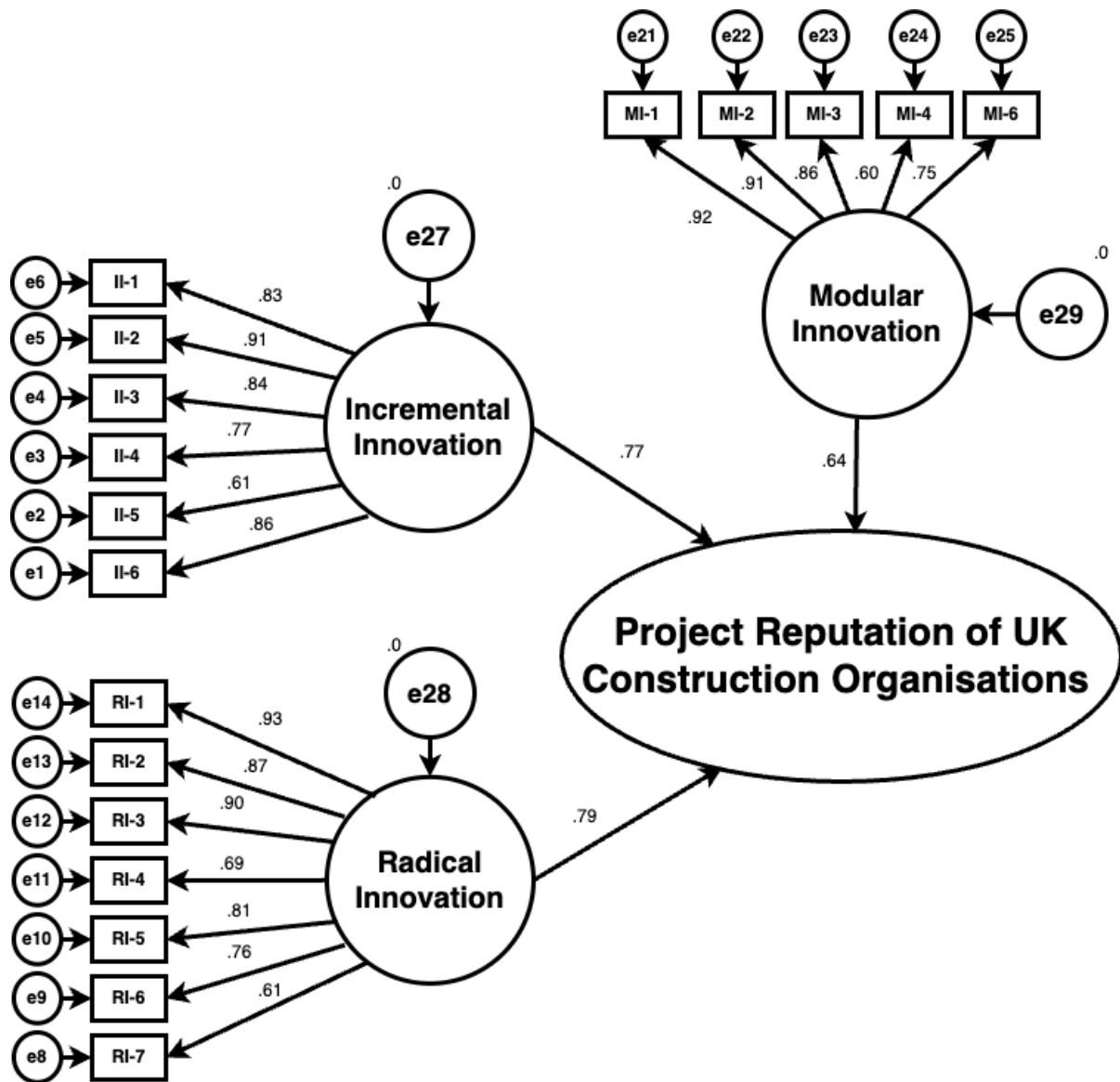
Figure 11: Hypothesized Model of Innovation

Figure 12: Final Model of Innovation

Table 16: Maximum Likelihood Estimate and Value Fit Indices for Innovation Constructs & Indicators

First-Order Confirmatory Factor Analysis				Second-Order Confirmatory Factor Analysis			
Relationship	*Est.*	*AVE*	*CR*	**Relationship**	*Est.*	*AVE*	*CR*
II-2 <- Incremental Innovation	0.91			Radical Innovation <- PR of Construction Firms	0.89		
II-6 <- Incremental Innovation	0.86			Incremental Innovation <- PR of Construction Firms	0.77	0.81	0.87
II-3 <- Incremental Innovation	0.84	0.78	0.81	Modular Innovation <- PR of Construction Firms	0.64		
II-1 <- Incremental Innovation	0.83			**MODEL FIT INDICES**			
II-4 <- Incremental Innovation	0.77			**Indices**	**Hypothetic Model**	**Final Model**	
II-5 <- Incremental Innovation	0.61			**X2/degree of freedom**	1.802	1.012	
RI-1 <- Radical Innovation	0.93			**RMSEA**	0.087	0.085	
RI-3 <- Radical Innovation	0.90			**Goodness of Fit Index (GFI)**	0.834	0.967	
RI-2 <- Radical Innovation	0.87			**Adjusted Goodness of Fit Index**	0.816	0.909	
RI-5 <- Radical Innovation	0.81	0.81	0.85	**Comparative Fit Index**	0.659	0.849	
RI-6 <- Radical Innovation	0.76			**Normed Fit Index**	0.688	0.795	
RI-4 <- Radical Innovation	0.69			**Tucker-Lewis Index**	0.803	0.898	
RI-7 <- Radical Innovation	0.61			**Parsimonious GFI**	1.835	0.838	
MI-1 <- Modular Innovation	0.92			**Parsimonious Normed of Fit Index**	0.709	0.728	
MI-2 <- Modular Innovation	0.91			**Cronbach's Alpha Reliability**	0.821		
MI-3 <- Modular Innovation	0.86	0.69	0.71				
MI-6 <- Modular Innovation	0.75						
MI-4 <- Modular Innovation	0.60						

Notes for Table 16:

CR denotes composite reliability; AVE denotes average variance reliability.

8.4.3 Second-Order CFA of Competency

This investigation scrutinised four competency constructs, deploying a second-order Confirmatory Factor Analysis (CFA) to verify their structural validity. These constructs were conceived as first-order latent variables, whilst the construct of "project reputation of construction organisations" was operationalised as the encompassing second-order variable. The 24 indicators comprising all first-order constructs were measured using a combination of indicators. Figure 13 elucidates the initial theoretical model, positing the hypothesised interrelationships among the first and second-order constructs. To optimise the model's fitness, the model underwent several iterative processes to probe its reliability and convergent validity. Indicators that exhibited low factor loadings or trivial associations with the latent constructs were consequently purged from the model. Notably, the first-order construct of "Project Manager's Competency in Efficient Project Delivery" did not satisfy the criteria of convergent validity and construct reliability.

Further complicating these findings, four indicators associated with the first-order factors of "Efficient Communication Among Project Teams and Stakeholders", "Project Manager's Technical Proficiency", and "Effective Leadership Competencies of Project Manager" demonstrated insufficient significance. These indicators specifically included ECA-2 (active listening and feedback mechanisms), ECA-4 (regular communication scheduling), ELC-2 (strong interpersonal and influence skills), and PMT-5 (skills to solve complex technical problems). Consequently, "Project Manager's Competency in Efficient Project Delivery", as a first-order factor, along with its correlated indicators demonstrating less significant loadings, were excised from the model. Upon reconfiguration, the final theoretical model revealed significant factor loadings at $P>0.05$ for both the first and second-order constructs, as depicted in Figure 14. The optimised model also showcased impressive performance in fitness, as articulated in Table 17. Thus, these findings substantiate three of the four theoretical hypotheses posited in Chapter 3, specifically validating hypotheses 7, 9, and 10.
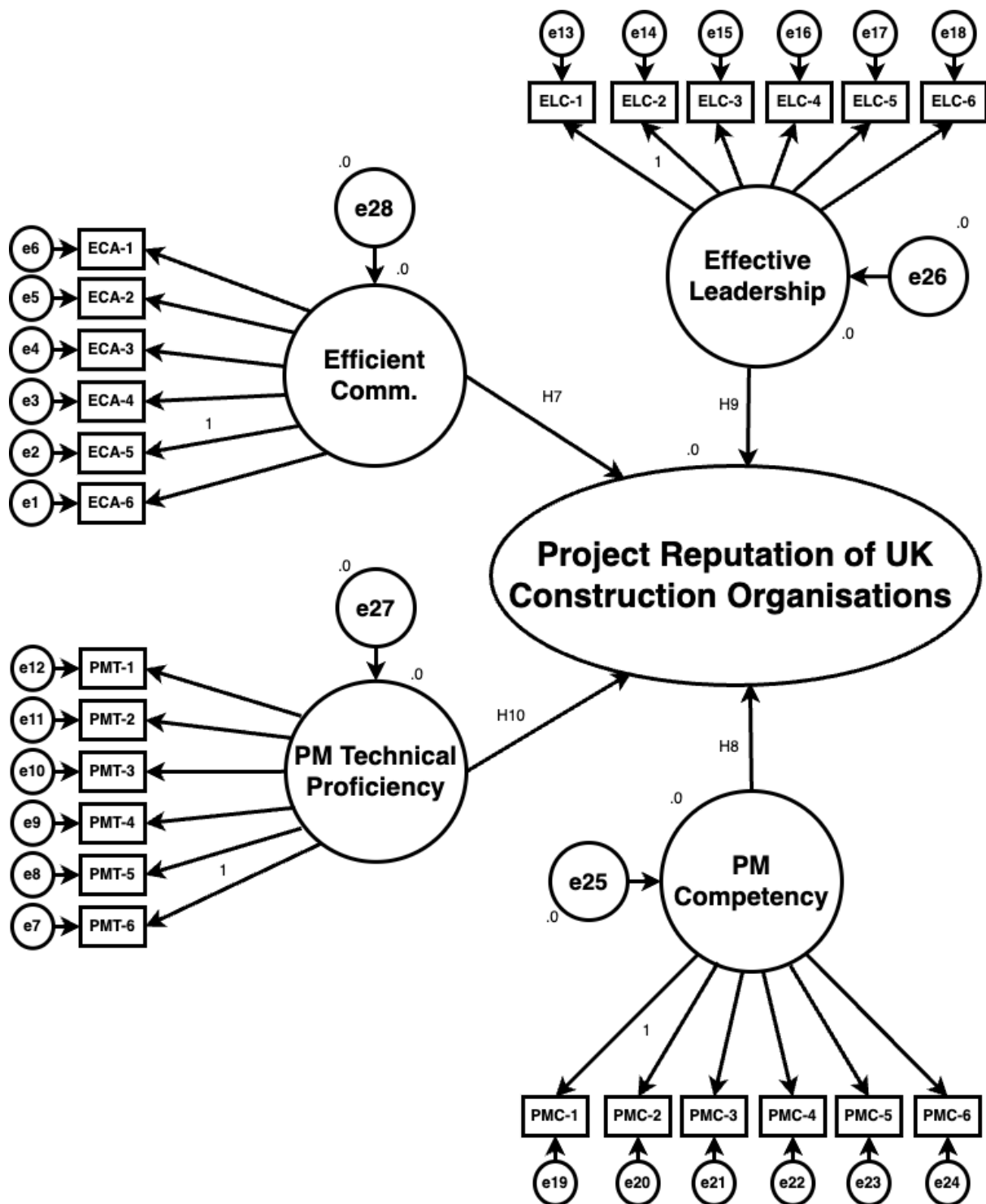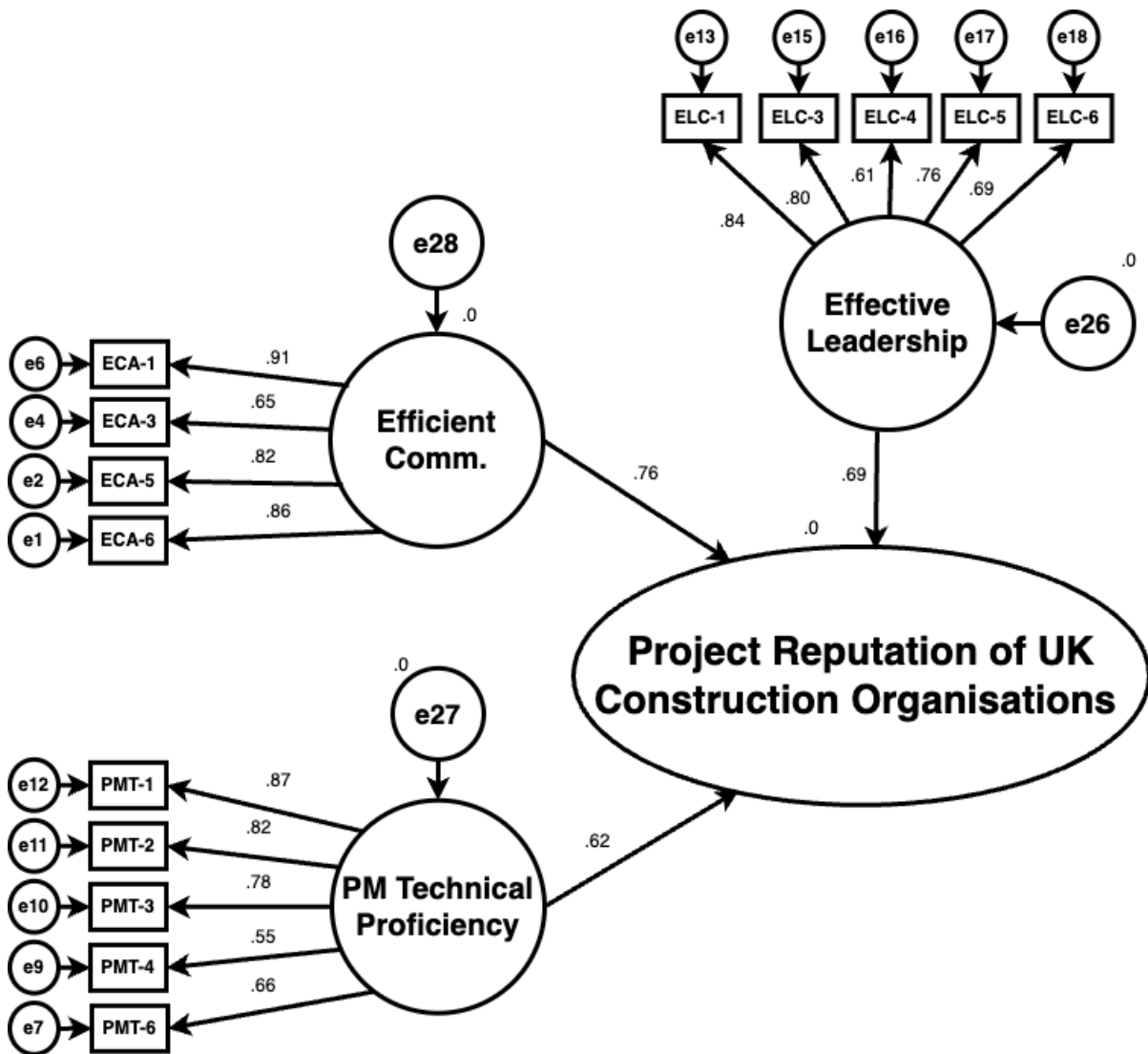
Figure 13: Hypothesized Model for Competency

Figure 14: Final Model for Competency

Table 17: Maximum Likelihood Estimate and Value Fit Indices for Competency Constructs & Indicators

First-Order Confirmatory Factor Analysis				Second-Order Confirmatory Factor Analysis			
Relationship	*Est.*	*AVE*	*CR*	**Relationship**	*Est.*	*AVE*	*CR*
ECA-1 <- Efficient Communication	0.91			Efficient Communication <- PR of Construction Firms	0.76		
ECA-6 <- Efficient Communication	0.86	0.81	0.83	Effective Leadership <- PR of Construction Firms	0.69	0.78	0.82
ECA-5 <- Efficient Communication	0.82			Project Manager Technical Proficiency <- PR of Construction Firms	0.62		
ECA-3 <- Efficient Communication	0.65			**MODEL FIT INDICES**			
ELC-1 <- Effective Leadership	0.84			**Indices**	**Hypothetic Model**	**Final Model**	
ELC-3 <- Effective Leadership	0.80			**X2/degree of freedom**	1.790	1.022	
ELC-5 <- Effective Leadership	0.76	0.73	0.77	**RMSEA**	0.089	0.083	
ELC-6 <- Effective Leadership	0.69			**Goodness of Fit Index (GFI)**	0.828	0.959	
ELC-4 <- Effective Leadership	0.61			**Adjusted Goodness of Fit Index**	0.814	0.903	
PMT-1 <- Project Manager Technical Proficiency	0.87			**Comparative Fit Index**	0.667	0.843	
PMT-2 <- Project Manager Technical Proficiency	0.82			**Normed Fit Index**	0.692	0.789	
PMT-3 <- Project Manager Technical Proficiency	0.78	0.71	0.75	**Tucker-Lewis Index**	0.809	0.888	
PMT-6 <- Project Manager Technical Proficiency	0.66			**Parsimonious GFI**	1.828	0.828	
PMT-4 <- Project Manager Technical Proficiency	0.55			**Parsimonious Normed of Fit Index**	0.705	0.718	
				Cronbach's Alpha Reliability	0.798		

Notes for Table 17:
CR denotes composite reliability; AVE denotes average variance reliability.

8.4.4 Second-Order CFA of Project Performance

The present study employed a second-order CFA to validate the factor structure of the two constructs associated with project performance: process-based and product-based. Both constructs were modelled as first-order latent variables, with the overarching second-order construct being the "project reputation of construction organisations." The hypothetical model, which exhibits the prospective impact of these project performance constructs on the favourable reputation of construction organisations, is depicted in Figure 15. This model was evaluated for its construct reliability, validity, and overall model fit to assess its compatibility with the collected sample data. The evaluation found that one indicator linked to the "process-based" construct and two associated with the "product-based" construct demonstrated less than significant loadings. Specifically, the "process-based" indicator was EP-6 (Efficient coordination among different process steps), and the "product-based" indicators were EPM-2 (capability to manage product development lifecycle) and EPM-5 (quality assurance and control for product outputs). Upon refining the theoretical model, the final version demonstrated significant factor loading at $P>0.05$ for both the first and second-order constructs. This re-specified model is depicted in Figure 16. The final model exhibited strong performance regarding model fitness, as shown in Table 18. Thus, these results validate the two theoretical hypotheses related to project performance as postulated in Chapter 3, thereby corroborating hypotheses 11 and 12.
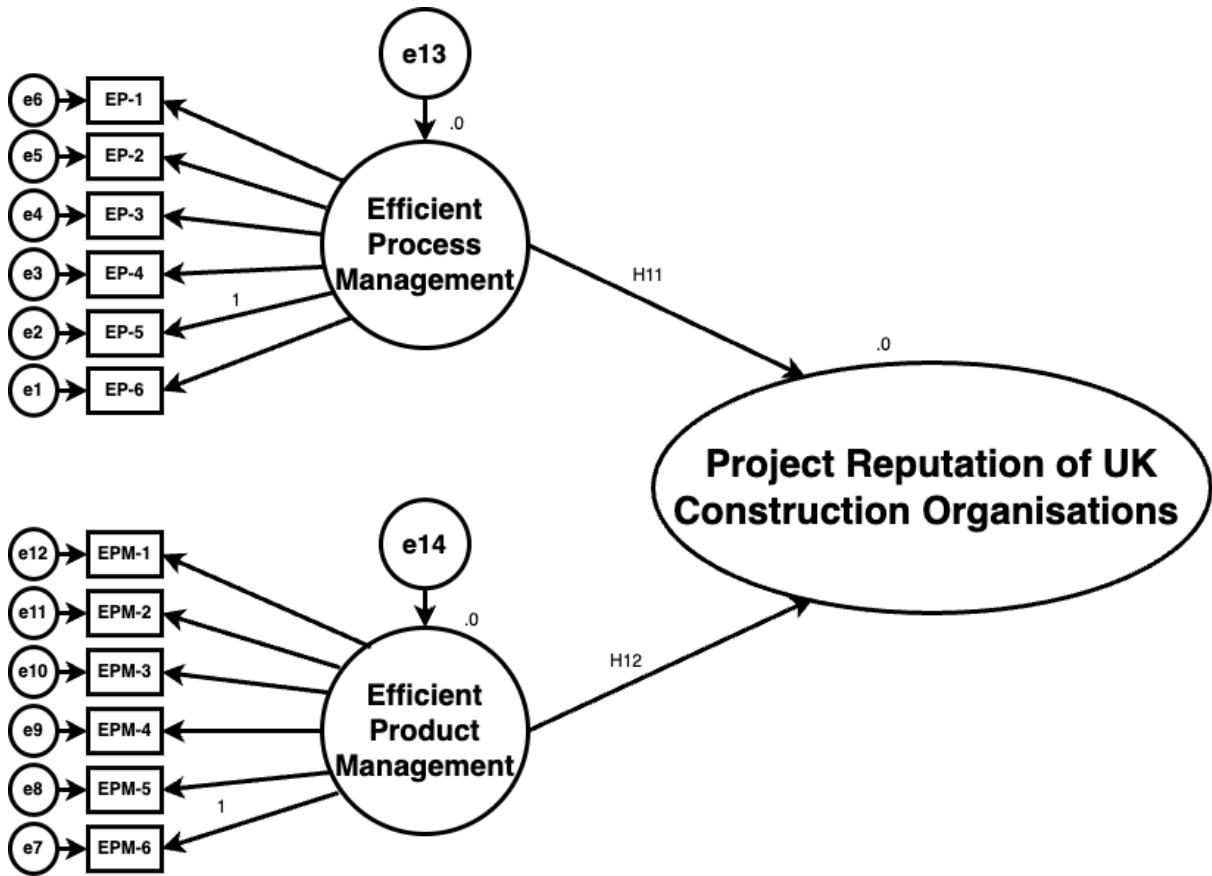
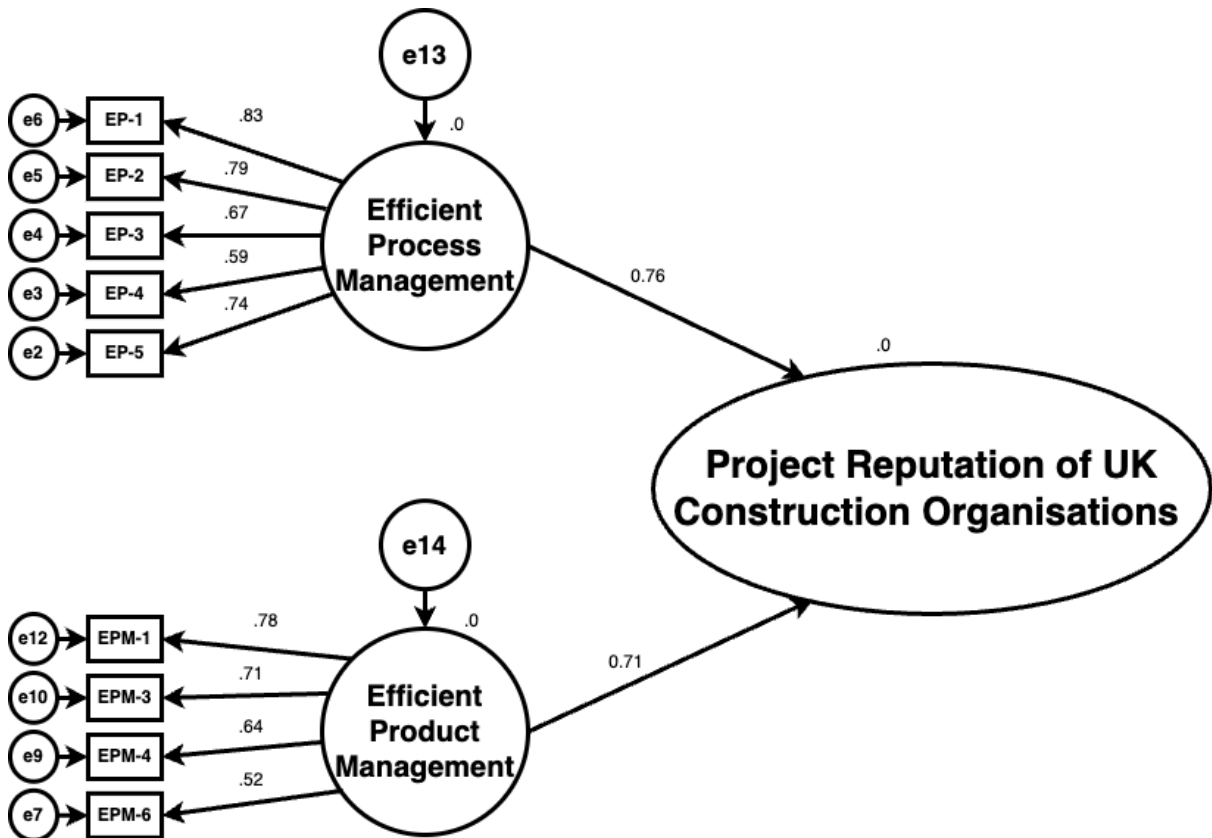*Figure 15: Hypothesized Model for Project Performance*

Figure 16: Final Model for Project Performance

Table 18: Maximum Likelihood Estimate and Value Fit Indices for Project Performance Constructs & Indicators

First-Order Confirmatory Factor Analysis				Second-Order Confirmatory Factor Analysis			
Relationship	*Est.*	*AVE*	*CR*	**Relationship**	*Est.*	*AVE*	*CR*
EP-1 <- Efficient Process Management	0.83			Efficient Process Management <- PR of Construction Firms	0.76	0.72	0.79
EP-2 <- Efficient Process Management	0.79			Efficient Product Management <- PR of Construction Firms	0.71		
EP-5 <- Efficient Process Management	0.74	0.75	0.81				
EP-3 <- Efficient Process Management	0.67			**MODEL FIT INDICES**			
EP-4 <- Efficient Process Management	0.59			**Indices**	**Hypothetic Model**		**Final Model**
EPM-1 <- Efficient Product Management	0.78			**X2/degree of freedom**	1.810		1.021
EPM-3 <- Efficient Product Management	0.71			**RMSEA**	0.085		0.083
EPM-4 <- Efficient Product Management	0.64	0.69	0.72	**Goodness of Fit Index (GFI)**	0.826		0.955
EPM-6 <- Efficient Product Management	0.52			**Adjusted Goodness of Fit Index**	0.806		0.902
				Comparative Fit Index	0.649		0.841
				Normed Fit Index	0.678		0.788
				Tucker-Lewis Index	0.813		0.887
				Parsimonious GFI	1.845		0.828
				Parsimonious Normed of Fit Index	0.699		0.719
				Cronbach's Alpha Reliability	0.761		

Notes for Table 18:
*CR denotes composite reliability; AVE denotes average variance reliability.

8.5 Structural Model of Client Satisfaction, Innovation, Competency and Project Performance Constructs

An integrated final structural model was devised after establishing the robustness of the model's fit indices and verifying the validity of the latent variables encapsulated within the four project reputation constructs (Client Satisfaction, Innovation, Competency, and Project Performance). This comprehensive amalgamation facilitated the affirmation of the model structure, particularly concerning the intricate interplay between all the first-order constructs. Moreover, the synthesis of the model rendered estimations of each first-order construct's influence on the overarching second-order variable, namely the "Project Reputation of Construction Organisations," feasible. The study utilised data imputation via AMOS SPSS to generate values for all first-order variables dispersed across the four project reputation constructs under examination to construct the final model as a second-order structural model. This methodology avoided potential validity criticisms commonly associated with adopting third-order reflective or composite factors, as Wetzels et al. (2009) delineated.

The subsequent evaluation of the final structural model was executed by scrutinising the value of the model fit indices, the Average Variance Extracted (AVE), and the Maximum Shared Square variance. As depicted in Tables 19 and 20, the final model manifest's superior reliability, validity, and model fit statistics, exceeding the respective cut-off thresholds suggested by eminent scholars such as Kline (2010) and Hu and Bentler (1998). For instance, all constructs recorded AVE values surpassing the recommended threshold of ≥0.50, as specified by Walter et al., 2001; Hu and Bentler, 1998; Kline, 2010. Furthermore, given the model's lower MSV value relative to the AVE, the results implied that the indicators of each latent variable exhibited a higher correlation with their associated constructs rather than measures of alternate constructs (refer to Table 19 below). From a macroscopic perspective, the final structural model indicates that most indicators contribute substantially (as inferred from factor loadings) to their associated latent variables at a significance level of P≤0.01. This result reflects the profound influence of all factors on the comprehensive second-order construct, "Project Reputation of Construction Organisations." The final Structural Model is depicted in Figure 17.

Table 19: Standardised coefficient estimate and validity of the overall model.

Constructs	Items	Estimate	Overall ranking	P-value	AVE	MSV
Client Satisfaction	*Better Engagement of Clients*	0.72	2	≤0.000	0.78	0.421
	Meeting or Exceeding Clients Project Delivery Expectations	0.69	5	≤0.011		
Innovation	*Incremental Innovation*	0.63	7	≤0.001	0.64	0.394
	Radical Innovation	0.64	6	≤0.001		
	Modular Innovation	0.51	10	≤0.001		
Competency	*Efficient Communication*	0.74	1	≤0.000	0.69	0.183
	Effective Leadership	0.60	8	≤0.001		
	Project Manager's Technical Proficiency	0.59	9	≤0.011		
Project Performance	*Efficient Process Management*	0.71	3	≤0.000	0.79	0.652
	Efficient Product Management	0.70	4	≤0.000		

Table 20: Results of Goodness of Fit (GOF) measures

Goodness of fit measures	Recommended Cut-offs of GOF Measures	Final Model Fit
X2/degree of freedom	<5 (preferably 1 to 2)	1.48
RMSEA	<0.10 (preferably <0.08)	0.05
Goodness of Fit Index (GFI)	0(no fit) – 1 (perfect fit)	0.98
Adjusted Goodness of Fit Index (AGFI)	0(no fit) – 1 (perfect fit)	0.99
Comparative Fit Index (CFI)	0(no fit) – 1 (perfect fit)	0.97
Normed Fit Index (NFI)	0(no fit) – 1 (perfect fit)	0.99
Tucker-Lewis Index (TLI)	0(no fit) – 1 (perfect fit)	0.97
Parsimonious Goodness of Fit Index (PGFI)	0(no fit) – 1 (perfect fit)	0.98
Parsimonious Normed of Fit Index (PNFI)	0(no fit) – 1 (perfect fit)	0.95

The squared multiple correlations (R^2) estimated as the percentage of variance in each latent variable in the final structural model was also examined (see column three of Table 19 above). Going by the results, among the ten (10) individual constructs influencing the project reputation of construction organisations, Effective Communication, Better Engagement of Clients, Efficient Process Management, Efficient Product Management, and Meeting or Exceeding Clients Project Delivery Expectations explained 74%, 72%, 71%, 70% and 69% of the variation in the model. Other latent variables contributing towards the second-order construct such as Radical

Innovation, Incremental Innovation, Effective Leadership, Project Manager's Technical Proficiency and Modular Innovation also explained 64%, 63%, 60%, 59% and 51% of the variance in the model, respectively. Overall, the model reflected of 0.73, which suggested all the latent variables explained 73% of the variance in the model. Based on the final model results above in Tables 19 and 20, the overall structural model for the study is presented in Figure 17 below. This final structural model was then later used to present a "multi-dimensional conceptual framework for evaluating project reputation for UK construction businesses" as shown in Figure 18 below.
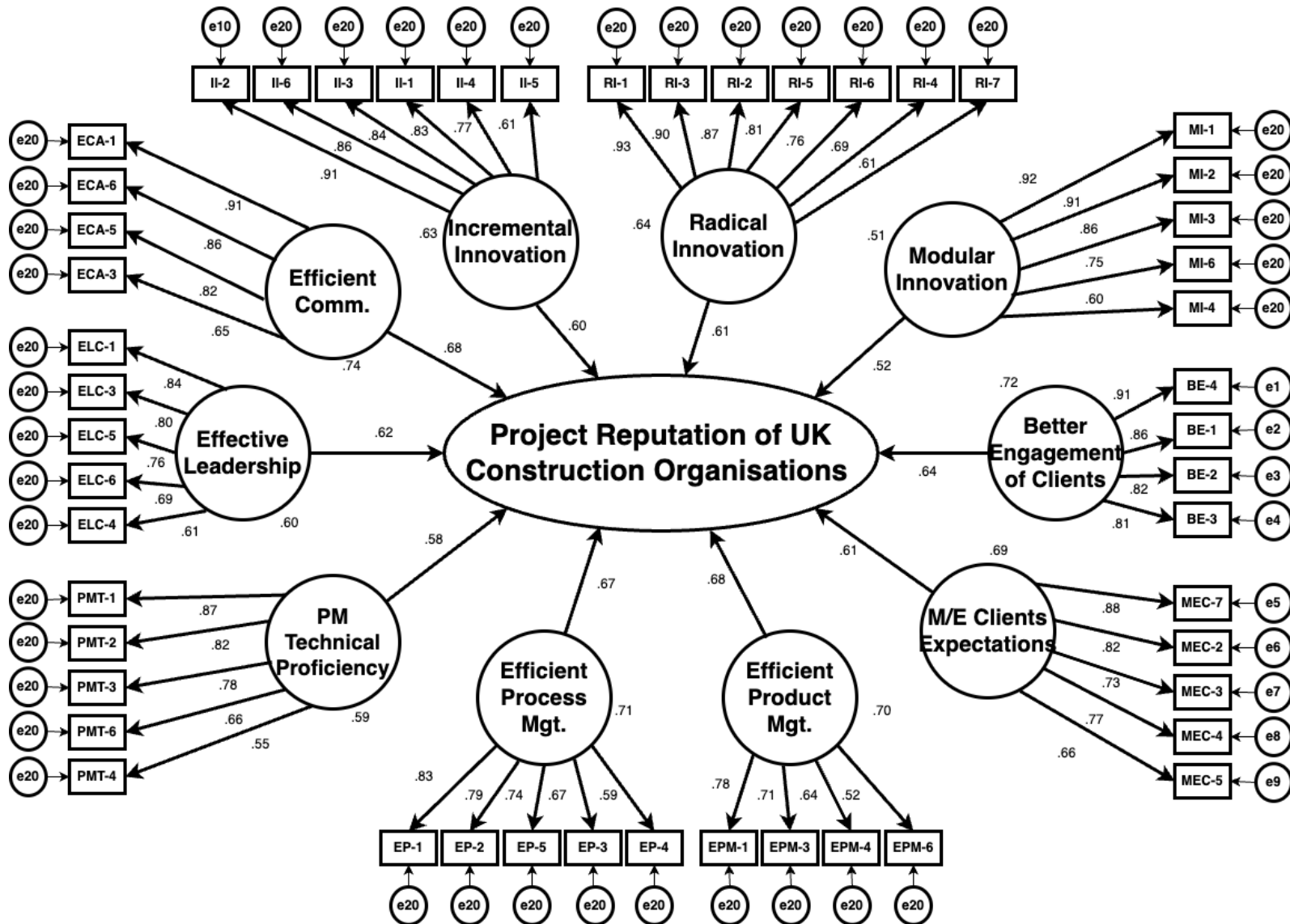
Figure 17: Overall Structural Model for the factors influencing project reputation of construction organisations.
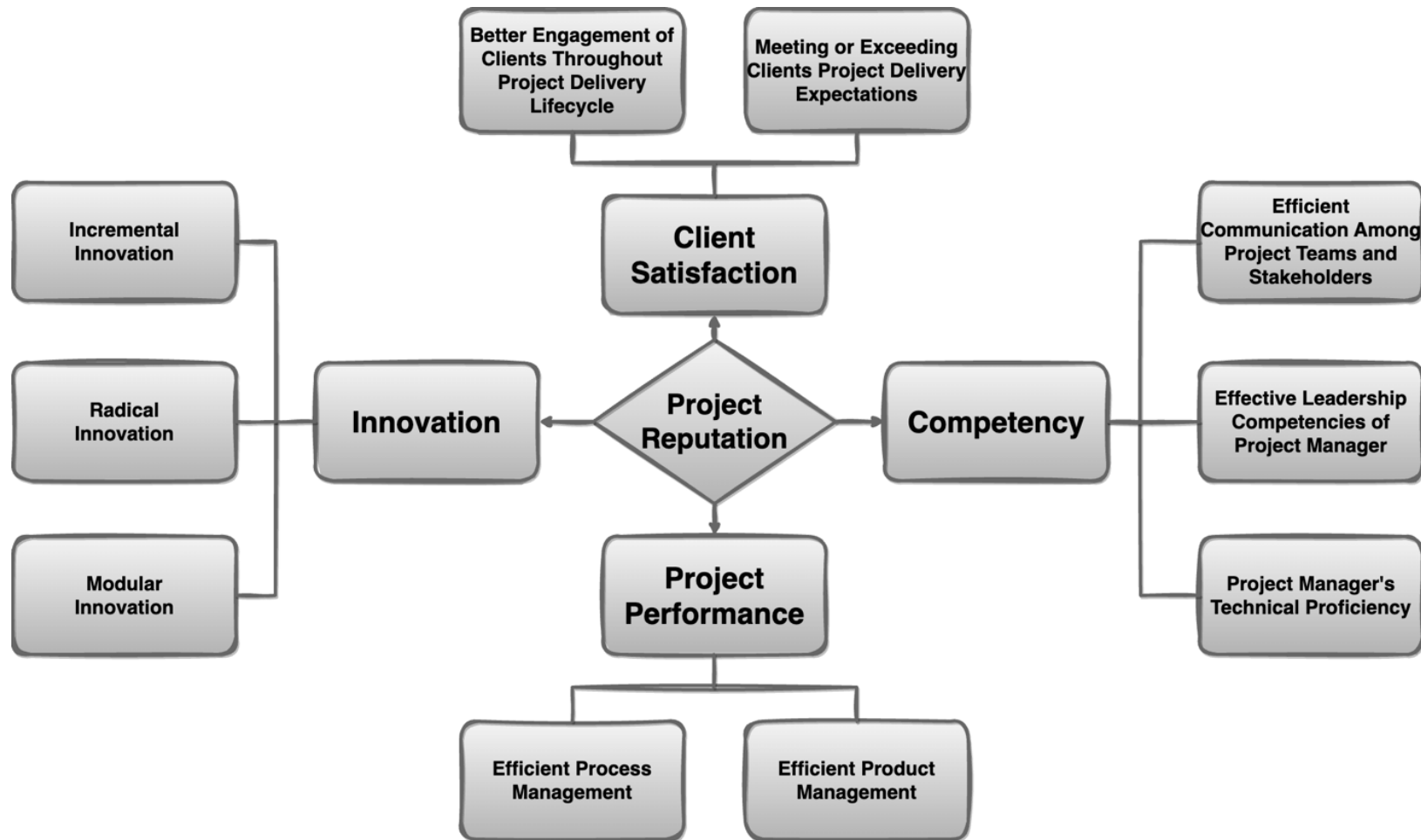
Figure 18: Multi-dimensional conceptual framework for evaluating project reputation for UK construction businesses.

Table 21: Result of the Hypotheses Examined on Factors Influencing the Project Reputation of UK Construction Organisations

List of Hypothesis	Propositions	Hypothesis Validity Result
Client Satisfaction	**Hypothesis 1:** *Better engagement of clients throughout the project delivery lifecycle will positively enhance the perception of project reputation.*	*Supported*
	Hypothesis 2: *Meeting or exceeding client's project delivery expectations positively influences perceived project reputation.*	*Supported*
Innovation	**Hypothesis 3:** *Implementing innovative ideas on projects on an incremental basis will positively enhance the perception of a project's reputation.*	*Supported*
	Hypothesis 4: *Implementing radical innovative ideas on a project can enhance positive perception of project reputation.*	*Supported*
	Hypothesis 5: *Implementing innovative aesthetics and designs in a project will result in a favourable perception of a project's reputation.*	*Supported*
	Hypothesis 6: *Improving and refining existing components within a project can enhance positive perception of project reputation.*	*Rejected*
Competency	**Hypothesis 7:** *Efficient communication among project teams and stakeholders will positively impact the project's reputation.*	*Supported*
	Hypothesis 8: *Project manager's competency in efficient project delivery and operations will positively influence the perception of a project's reputation.*	*Rejected*
	Hypothesis 9: *Effective leadership competencies of project manager can positively influence the perception of a project's reputation.*	*Supported*
	Hypothesis 10: *Project manager's technical proficiency on the project will significantly influence the positive perception.*	*Supported*
Project Performance	**Hypothesis 11:** *Efficient process management on a project will positively influence the perception of project reputation.*	*Supported*
	Hypothesis 12: *Efficient product management on a project will positively influence the perception of project reputation.*	*Supported*

9 Chapter Nine: Findings and Discussions
9.0 Chapter Overview

This chapter delves into an in-depth discussion of the findings elucidated in the preceding chapters. The chapter is divided into five key sections. The first section unpacks the variance in perceptions among participants according to their professional roles, specifically regarding factors that contribute to the reputation of construction organisations in project management. This section offers valuable perspectives on the nuanced worldviews of contractors. The subsequent four sections delve into the findings derived from applying structural equation modelling, focusing on the primary actors shaping the project reputation of construction organisations. These discussions are structured around the four principal constructs of project reputation examined in this study: client satisfaction, innovation, competency, and project performance.

9.1 Difference in Perception Based on Job Role

The findings from the non-parametric test reveal a predominantly unified perspective among respondents concerning the various measures, barring the factor MEC-4, which relates to "regular risk identification, reporting, and mitigation" (Pinto, Nunes, & Ribeiro, 2011). The respondents in this study came from diverse professional backgrounds, including project managers, design managers, civil engineers, and architects, thus offering a wide array of experiences and perspectives (Nwang & Ng., 2013). This divergence in viewpoint around the importance of MEC-4, particularly between architects and the other roles, makes for an intriguing observation. Most participants underscored the essentiality of this factor in meeting or exceeding client expectations and bolstering the reputation of construction firms (Serrador & Pinto, 2015). However, architects regarded this factor as less significant, demonstrating a unique perspective within the industry.

To elaborate, project managers, design managers, and civil engineers might stress regular risk identification and mitigation because these roles are often heavily involved in a project's operational and logistical aspects (Pinto, Nunes, & Ribeiro, 2011). These roles, each with its distinct scope and responsibilities, converge on the shared ground of operational logistics and management of projects in the construction industry. Project managers often helm the project, serving as its nucleus. Their responsibility is

overarching, spanning from project initiation to closure. They coordinate efforts across multiple teams and departments, navigating the project through a complex maze of activities, deadlines, and resources. This invariably exposes them to various potential risks - from budgetary overspends and scheduling delays, to stakeholder disagreements (Nwang & Ng., 2013). Their role mandates them to anticipate, identify, and promptly address these risks before they escalate into problems that could derail the project.

Design managers, with a more specific focus, also engage deeply with project logistics (Serrador & Pinto, 2015). They are instrumental in translating the architects' visions into workable plans, liaising between the creative aspirations and the practical constraints of the project. Consequently, they straddle two worlds – the theoretical realm of design and the concrete reality of construction. Their role necessitates regularly identifying risks that could compromise design integrity or practical execution and formulating mitigation strategies.

Civil engineers, too, find themselves at the heart of operational project activities. They contend with the technical challenges of translating designs into physical structures and navigating the labyrinth of building regulations, material limitations, and safety standards (Pinto, Nunes, & Ribeiro, 2011). They are also often at the forefront of troubleshooting unforeseen problems on-site. Hence, they are acutely aware of the project's vulnerability to various risks, ranging from structural issues and material failures to regulatory non-compliance. This pivotal role in the physical realisation of the project accentuates the importance they place on identifying and mitigating potential risks (Nwang & Ng., 2013).

However, while certainly cognizant of and responsive to practical constraints, the architect's role is rooted primarily in the creative and conceptual phases of construction projects (Serrador & Pinto, 2015). They are the first to give tangible form to a client's vision, translating abstract ideas into concrete designs. Within this creative realm, architects wield their most significant influence, shaping the physical and aesthetic characteristics of the project. While architects are certainly not immune to the implications of risk, their exposure to project risks often differs significantly from those on the operational side of the project. Their direct involvement typically tapers off as the project moves from the design phase into the construction phase, where the risk

landscape becomes more pronounced (Pinto, Nunes, & Ribeiro, 2011). Therefore, their limited engagement with the day-to-day logistics and operational challenges of project execution may account for their lower emphasis on regular risk identification, reporting, and mitigation.

Furthermore, the architects' approach towards risk may be fundamentally different (Serrador & Pinto, 2015). They may posit that excessive emphasis on risk anticipation could potentially stifle creativity and innovation. From this vantage point, constantly operating under the shadow of what could go wrong may result in overly conservative designs, inhibiting the exploration of ambitious, innovative ideas. Instead, architects might advocate for a more balanced approach where risks are acknowledged but not allowed to influence the creative process unduly. Architects may also believe that the most effective form of risk management is responsive rather than anticipatory (Nwang & Ng., 2013). They might argue that given project risks' dynamic and evolving nature, the best strategy might be to deal with them as they materialise rather than attempting to predict and mitigate all potential risks beforehand. They might contend that a flexible, adaptive approach to risk allows for more effective problem-solving, as it is tailored to the specific nature and context of the materialised risk rather than being a blanket pre-emptive measure (Pinto, Nunes, & Ribeiro, 2011).

9.2 Client Satisfaction Factors and Their Impact on Construction Project's Reputation

This section provides an in-depth exploration of the results about the client satisfaction constructs and their impact on the project reputation within construction organisations. The findings of the structural equation model employed in this study reveal a high rating for both examined constructs, underscoring their criticality in influencing the project's reputation. Consequently, a detailed analysis of these client satisfaction constructs follows in the subsequent sections of this chapter, arranged following their respective ranks as determined by the structural equation model. This approach aims to shed light on the integral role of these constructs in shaping the project reputation of construction organisations, thus contributing to the overall understanding of this phenomenon.

9.2.1 Better Engagement with Clients and its implication for positive project reputation of construction projects

The Better Engagement of Clients (BEC) mechanism impacted the reputation of construction organisations, as indicated by its strong standardised regression weight of 0.84 at a 99% significance level (refer to Figure 9). This coefficient suggests a robust positive relationship between BEC and the project reputation, implying that improvements in BEC correspond to considerable enhancements in the reputation of construction organisations. The BEC mechanism's dominant influence on project reputation validates the substantial attention it receives in the construction industry. The Cronbach's Alpha value for BEC, reported at 0.83, further underlines the mechanism's reliability and internal consistency within the context of client satisfaction measures. This figure is well above the generally accepted threshold of 0.70, suggesting that the BEC items included in the model reliably measure the same latent construct. Therefore, the observed relationship between BEC and the project reputation of construction organisations is not merely a statistical artefact; rather, it is an indicator of a substantive, reliable effect. The percentage variance, valued at 0.64 (as shown in Figure 16), portrays the degree to which BEC accounts for the variation in the model. This high value illustrates that BEC can predict a substantial proportion of the variation in the construction organisations' project reputation. In other words, implementing and optimising BEC could potentially lead to substantial improvements in the project's reputation.

These findings underscore the importance of effective and continuous engagement with clients as a core mechanism for enhancing the reputation of construction organisations. As such, the BEC mechanism should be prioritised, and construction organisations should focus on strategies that improve client engagement to foster a positive project reputation. The findings align with a myriad of perspectives in extant literature. The impact of Better Engagement of Clients (BEC) on the project reputation of construction organisations has been affirmed by several scholars. Firstly, Dainty, Moore, and Murray (2007) assert that BEC is instrumental in enhancing the reputation of construction organisations. They argue that engaged clients often lead to successful projects, contributing to a positive reputation for the construction firm. This is because satisfied and engaged clients are more likely to provide positive reviews and referrals, enhancing the firm's reputation. In addition, Wong et al. (2008) highlight the positive

influence of BEC on the reputation of construction organisations. They posit that better engagement with clients is key to understanding their needs and expectations, which, when fulfilled, improves client satisfaction and the company's overall reputation. Similarly, Berenger and Agumba (2016) found that BEC not only enhances project outcomes but also contributes significantly to the project reputation of construction firms. They assert that when clients are better engaged, it increases their trust and confidence in the construction firm, further bolsters its reputation.

Going further, based on the results as shown in Figure 9, the top drivers of Better Engagement with Clients (BEC) for influencing project reputation of construction firms are BEC4 (Empathetic understanding of the client's vision and concerns), BEC1 (Open and honest interactions with clients), BEC2 (Proactive assessment of client concerns or issues throughout the project lifecycle), BEC3 (Tailored communication to suit client preferences). A deep-seated understanding of the client's vision and concerns emanating from a position of empathy is pivotal. This understanding transcends the superficial knowledge of the project specifics and immerses into the client's overarching vision. As supported by the works of Bageis and Alshehri (2019), such empathetic understanding forms the bedrock of an effective relationship and, by extension, the company's reputation. For instance, a project shaped around a client's fervent aspiration for sustainability reflects this alignment, thus enhancing the project's reputation by fulfilling the client's goals. Further fortifying project reputation is cultivating honest and open dialogue with clients. As articulated in the works of Bal et al. (2013), transparency in communication fosters trust and dispels potential misunderstandings. This transparency serves as a conduit to project success and inherently boosts the project's reputation by establishing a narrative of reliability and integrity. Additionally, proactive anticipation and assessment of client concerns throughout the project lifecycle are crucial pillars in building project reputation. By foreseeing potential challenges, pre-empting complications, and involving clients in the solution-finding process, the project demonstrates a commitment to excellence. Ashokkumar (2014) affirms that such proactive strategies streamline project execution and bolster project reputation by manifesting an unwavering commitment to fulfilling project deliverables. Lastly, the art of tailoring communication to align with client preferences accentuates the project's client-centric approach. As Bennett and Mayouf (2021) indicated, nuances in communication — frequency,

mode, and complexity — ought to be skilfully customised to suit the client's preferences. This customisation enhances the client's experience and contributes positively to the project's reputation, as it underscores the attention to detail and commitment to the client's comfort and convenience.

9.2.2 Meeting or Exceeding Client's Project Delivery Expectations and its implication for positive project reputation

The nexus between the mechanism of Meeting or Exceeding Client's Project Delivery Expectations (MEC) and the project reputation within construction organisations emerges as pronounced, evidenced by a compelling standardised regression weight of 0.77, attaining a confidence level of 99% (as shown in Figure 9). This striking coefficient denotes a robust and favourable association between MEC and project reputation, indicating that enhancements in the former could bring about significant ameliorations in the latter. This dominant and profound influence of MEC corroborates its salience within the discourse of the construction industry. Further reinforcing the significance of MEC in this context is its Cronbach's α value, situated at 0.76, which signifies its high reliability and internal coherence with respect to client satisfaction metrics. This value transcends the commonly accepted benchmark of 0.70, thus implying that the elements of MEC within the model offer a consistent measure of the same underlying construct. Consequently, the observed correlation between MEC and the project reputation within construction organisations extends beyond a mere statistical anomaly. Instead, it signifies a substantial and trustworthy effect. The variance percentage, quantified at 0.61, exemplifies the extent to which MEC elucidates the variance within the model. This considerable percentage underlines that MEC can predict a notable portion of the variance in project reputation within construction organisations. This suggests that strategic implementation and optimisation of MEC can feasibly steer the projects towards significant advancements in their reputation.

The significance of this relationship in the realm of project reputation, particularly in the construction sector, has been well-established in the academic literature. It aligns with a study by Davies and Harty (2013), who asserted that delivering projects that meet or exceed client expectations is a key determinant of reputation in the

construction industry. Their research underscores the idea that the successful execution of this process has an undeniable impact on the reputation of construction projects, a concept that resonates with our finding. Further, Yang et al. (2010) noted that customer satisfaction, which is inherently linked to meeting and exceeding project expectations, is crucial in developing positive project reputations. Their study illuminates the reality that a project's reputation is significantly enhanced when client expectations are surpassed, a notion that finds strong parallels in our result. Beyond that, the work of Green et al. (2005) also brings into focus the centrality of exceeding client expectations for successful construction projects. They argue that exceeding of client expectations is an instrumental factor in determining the project's reputation, bolstering the link between MEC and positive project reputation uncovered in our study. Collectively, these studies lend credence to our findings and illuminate the critical role of meeting or exceeding client's project delivery expectations in shaping the positive reputation of construction projects.

Going further, based on the results as shown in Figure 9, the top drivers of Meeting or Exceeding Client's Project Delivery Expectations (MEC) for influencing project reputation of construction firms are MEC7 (Ensuring safety standards and regulations are strictly adhered to), MEC2 (Regular and clear communication with the client), MEC3 (Ability to adapt to client requirements), and MEC4 (Regular risk identification, reporting, and mitigation). Ensuring that safety standards and regulations are strictly adhered to is vital in meeting or exceeding client's project delivery expectations (MEC) and subsequently shaping the project reputation of construction firms. The diligence placed on safety measures corresponds to the quality of the project and the firm's professionalism, attributes that enhance the project reputation. This finding resonates with Hinze and Gambatese's (2003) assertion that safety performance is an integral indicator of project success and, by extension, influences the project's reputation. Moreover, regular, and clear communication with the client emerges as an influential driver in MEC, corroborating previous research by Baccarini (1999), who emphasised the significance of effective communication in achieving project objectives. The exchange of timely, accurate and relevant information profoundly impacts the client's perception of the project, thereby influencing the project's reputation.

Regular and clear communication assists in maintaining transparency, reducing misunderstandings, and aligning expectations, aspects that are imperative for fostering a positive project reputation. Adaptability to client requirements is another important driver in meeting or exceeding the client's project delivery expectations. Projects are dynamic by nature, and changes in client requirements are an inherent part of the process. The ability to accommodate these changes determines project success and reputation. This view aligns with findings by Pinto and Slevin (1988), who highlighted the importance of project adaptability in influencing project reputation. Their study reiterated that the ability to adjust to new situations and changing client requirements is crucial in shaping the project's reputation. Finally, regular risk identification, reporting and mitigation is instrumental in meeting or exceeding client's project delivery expectations and influencing project reputation. Identifying potential risks and implementing effective risk management strategies reduce project uncertainties and build client trust, leading to a positive reputation. This observation is substantiated by Zwikael and Ahn (2011), who indicated that risk management effectiveness positively impacts project success and, consequently, the project's reputation.

9.3 Innovation Factors and Their Impact on Construction Project's Reputation

This section thoroughly examines the results corresponding to innovation factors and their influence on the project reputation of construction organisations. The results from the Structural Equation Modelling (SEM) implemented in this study highlight the rankings of the examined innovation constructs, affirming their influence on the project reputation of construction organisations. Considering this, the subsequent parts of this chapter will feature an exhaustive exploration of these innovation constructs sequenced in line with their respective ranks as indicated by the SEM.

9.3.1 Radical Innovation and its implication for positive project reputation of construction projects

As evidenced in Figure 11, the Radical Innovation (RI) mechanism has been identified as a leading innovation mechanism with a standardised regression weight, or beta value, of 0.89, exhibiting a statistical significance at the 99% confidence level. This

finding highlights RI's pivotal role in shaping the project reputation of construction organisations. The strength of this relationship, implied by the substantial beta value, indicates that advancements in RI are directly proportionate to notable improvements in project reputation. This underlines the significance of RI and reinforces why it garners considerable attention within the construction industry. Additionally, the reliability and internal consistency of the RI mechanism within the context of client satisfaction measures are further confirmed by the reported Cronbach's α value of 0.81. Surpassing the generally accepted threshold of 0.70, it is inferred that the RI components integrated within the model are reliable measures of the same underlying construct. Thus, the observed connection between RI and project reputation is not simply a statistical phenomenon but a substantial, dependable effect. Moreover, the variance percentage, registered at 0.60, denotes the extent to which RI explains the fluctuation in the model. This significant value implies that RI can forecast a substantial part of the changes in the project reputation of construction organisations. Therefore, the strategic deployment and optimisation of RI have the potential to yield significant enhancements in a project's reputation.

The substantial influence of Radical Innovation (RI) on the reputation of construction projects aligns with the broader research landscape. A salient line of inquiry in the innovation literature underscores the transformative potential of RI in fostering competitive advantage and driving organisational success (Christensen, 1997; Tidd & Bessant, 2013). This notion is particularly relevant to the construction sector, where introducing novel technologies, processes, and business models - fundamental components of RI - can distinguish projects and enhance reputation (Manley, 2008). For instance, Slaughter (1998) positions RI as a catalyst for enhancing performance and, in turn, reputation in the construction industry. By challenging existing paradigms and delivering unprecedented solutions, RI can shape perceptions of project quality, responsiveness, and value, positively reflecting on project reputation. Echoing this, Blayse, and Manley (2004) contend that RI is central to disrupting industry norms and generating step-change improvements in project outcomes. These factors contribute to the reputational standing of construction firms. Recent studies further affirm the strategic role of RI in shaping construction project reputation. Gann and Salter's (2000) work underscores how RI can improve construction process efficiency, product quality, and customer satisfaction, all pivotal in reputation enhancement. Similarly, Loosemore

(2014) highlights the ability of RI-driven transformations in safety, sustainability, and stakeholder engagement to boost the reputational capital of construction projects. Furthermore, the interplay between RI and reputation has been explored from a risk perspective. The construction industry, characterised by its complexity and uncertainty (Mitropoulos & Tatum, 2000), can leverage RI to mitigate project risks, such as cost overruns or delays (Akintoye & Main, 2007). As risks are effectively managed, and project outcomes improved, the reputational benefits can be significant (Zwikael & Smyrk, 2012).

Going further, based on the results as shown in Figure 16, the top drivers of radical innovation are RI1 (strong leadership to drive radical changes), RI3 (skilled project team with high-risk tolerance), RI2 (thorough market and feasibility analysis) and RI5 (stakeholders buy-in and acceptance of major changes). The instrumental role of strong leadership in advancing radical innovation is well-established in the literature. Yukl (2012) postulated that leaders who foster an environment conducive to innovation and challenge the status quo can instigate ground-breaking changes. In the context of construction projects, leaders who can successfully steer the team through the uncertainties that radical innovation presents can significantly contribute to the project's overall success and, thereby, enhance its reputation (Ayuso et al., 2011). Leaders' effective orchestration of radical innovation can serve as a powerful testament to the project's adaptability and forward-thinking approach, amplifying its reputation. The importance of a skilled project team with a high tolerance for risk in facilitating radical innovation cannot be overstated. Project teams that are skilled, resilient, and willing to navigate the risks associated with radical changes are crucial for successful implementation (Bresnen, 2010). The skills and resilience of such teams become particularly visible in the face of radical innovation, where risks and uncertainties are inherently high (Winch, 2010). The ability of a project team to successfully manage these risks is a reputational enhancer, indicating competence, adaptability, and robustness.

A thorough market and feasibility analysis provides a solid foundation for radical innovation. Understanding market trends and potential project impacts is critical in navigating the uncertainties accompanying radical changes (Chesbrough, 2003). The ability to perform comprehensive analyses and translate them into innovative solutions

is indicative of a project's strategic acumen, which can positively influence its reputation. Lastly, stakeholder buy-in and acceptance of major changes underscore the success of radical innovation. Mitchell et al. (1997) emphasised that stakeholder support can significantly facilitate the implementation of innovative solutions. In construction projects, stakeholder acceptance of radical changes can serve as a testament to the project's ability to manage change and uphold stakeholder interests, thereby boosting its reputation.

9.3.2 Incremental Innovation and its implication for positive project reputation of construction projects

Incremental Innovation (II) emerged as a crucial determinant, securing the second rank in its impact on bolstering the project reputation of construction firms. As illustrated in Figure 13, Incremental Innovation manifests a substantial regression weight (βValue) of 0.77, validated at a 99% confidence interval, reinforcing its statistical significance. The reliability coefficient, Cronbach's alpha, for Incremental Innovation is reported as 0.85, reflecting its internal consistency and the veracity of its role in the overarching model. Furthermore, the construct accounts for 0.60 of the variances in the model, as delineated in Figure 16. This statistic underscores the predictive capacity of Incremental Innovation within the model's framework. Drawing from prior scholarly discourses (Lambert and Lapsley, 2006; Whitfield, 2007; Spence and Dinan, 2011; Kew and Stredwick, 2016), these empirical findings align with the academic consensus, emphasising the instrumental role of Incremental Innovation in shaping a positive project reputation. Consequently, the cultivation of Incremental Innovation emerges as a strategic imperative for construction organisations aspiring to enhance their project reputation.

The pivotal role of Incremental Innovation (II) in enhancing the project reputation of construction firms, as demonstrated by our study, finds extensive corroboration in a broad array of extant literature. To begin, Gopalakrishnan and Damanpour (1997) stress on the strategic importance of II in organisational success. They argue that it is through the accumulation of these smaller, incremental innovations that a firm can sustain its competitive edge over time, ultimately bolstering its project reputation. Similarly, Damanpour and Aravind (2012) affirm that II, despite its seeming

insignificance in isolation, culminates in a significant impact on the reputation of a project due to its potential for systematic implementation. They contend that the continual introduction of improvements in the existing processes or minor additions to the products/services positively reflects the project's reputation as it indicates the firm's commitment to enhancing quality and efficiency. In a construction context, Loosemore et al. (2003) proposes that Incremental Innovation, through small changes in construction practices or techniques, can significantly improve project delivery efficiency. This efficiency gain, they argue, is a strong driver of project reputation as it directly affects key project outcomes like timely completion, cost-effectiveness, and quality - all critical determinants of a project's reputation. Taking a different stance, Tidd, and Bessant (2014) suggest that Incremental Innovation is a vital mechanism in risk mitigation for construction projects. Incremental Innovation involves less uncertainty than radical innovation, so its adoption reduces the risk of project failure, indirectly contributing to enhancing the project's reputation.

Going further, based on the results as shown in Figure 16, the top drivers of Incremental Innovation for influencing the project reputation of construction firms are II2 (Continuous learning and adaptability of the project team), II5 (Consistent feedback and evaluation mechanisms), II3 (Proactive risk management for new implementations) and II1 (Effective planning and strategic execution of incremental innovations). The continuous learning and adaptability of the project team (II2) are pivotal in fostering a climate of innovation. This adaptability accompanies an ongoing learning process, enabling the team to accommodate emerging information and adjust the project course accordingly. In their work, Argyris and Schon (1978) emphasised the importance of double loop learning in organisations. This concept encapsulates challenging and refining the underlying assumptions to adapt and innovate. They argued that such an approach positively impacts the organisation's ability to respond to change, enhancing the project's reputation. The introduction of consistent feedback and evaluation mechanisms (II5) can be viewed as another significant driver of II. Feedback mechanisms are critical for course correction and alignment with client expectations. They provide the project team with valuable insights that can drive innovation. Avolio and Hannah (2008) highlighted the role of transparent feedback systems in fostering an innovative environment, arguing that such systems are

instrumental in enhancing project reputation by improving the quality of services and processes.

Proactive risk management for new implementations (II3) is a key element that can significantly influence II and, therefore, the project's reputation. As small-scale innovations are introduced, understanding, assessing, and proactively managing potential risks becomes crucial. Keil et al. (2009) demonstrated the importance of a proactive risk management approach in IT projects. They proposed that such an approach can significantly enhance the project's success rates, leading to a stronger reputation. Lastly, effective planning and strategic execution of incremental innovations (II1) are fundamental to ensure that the innovations introduced align with the project's objectives and contribute to its success. Zollo and Winter (2002) indicated that the planned and strategic introduction of innovation, even on a smaller scale, could accumulate to produce substantial effects on the project's performance, enhancing its reputation over time.

9.3.3 Modular Innovation and its implication for positive project reputation of construction projects

Exerting a pronounced influence on the reputation of construction projects, Modular Innovation (MI) is identified as the third most influential innovation construct, corroborated by a robust standardised regression weight or Beta value (β) of 0.64, illustrating its significance at an elevated confidence interval of 99%. The construct's composite reliability, registering a score of 0.71, exceeds the universally accepted threshold of 0.7, underscoring the consistent and robust interrelation among MI's constituent variables (Tavakol and Dennick, 2011). This internal consistency manifests the reliability of MI as an effective construct in the innovation spectrum. The influence of MI within the model is further reflected in the variance account of 0.52 per cent, delineating the proportion of variability in project reputation directly attributable to MI. This appreciable degree of variance signifies the distinct and salient role MI plays in shaping the project reputation within construction organisations. The empirical evidence presented in this research, highlighting the substantial impact of Modular Innovation (MI) on the reputation of construction project outcomes, finds a broad

resonance in existing academic literature, but also provokes new theoretical perspectives to consider.

Firstly, Baldwin and Clark's (2000) landmark study establish a clear association between modular innovation and enhanced organisational reputation. They argue that the unique ability of MI to enable rapid and cost-efficient alterations within larger systems lends construction organisations the flexibility and adaptability to respond to changes in the project landscape, thereby bolstering their reputational capital. However, their argument assumes a relatively stable technological and market environment, which may not always hold in the fluid, competitive construction world. Ethiraj and Levinthal (2004) propose a dynamic view of MI to address this. They suggest that MI, through its capacity to generate a variety of module combinations, allows construction organisations to foster a diversity of innovative solutions. This ability to consistently deliver innovation contributes directly to the success of individual projects and enhances an organisation's overall project reputation, underscoring its innovative capabilities. However, both studies focus on the internal dynamics of organisations and overlook the external stakeholder perspective. This perspective is introduced by Brusoni and Prencipe (2006), who argue that the reconfigurability of MI can facilitate more efficient interaction and communication with external stakeholders, including suppliers, clients, and regulatory bodies. In construction projects, these interactions are crucial for ensuring project success and building a positive reputation. Conversely, Hoetker (2006) raises a word of caution, arguing that while MI does enhance flexibility, it may also result in increased complexity, potentially affecting project deliverables and timelines. Hence, organisations must balance the potential reputational gains of MI with its inherent challenges, especially in a high-stakes, deadline-driven field such as construction.

Going further, based on the results as shown in Figure 16, the top drivers of Meeting or Exceeding Client's Project Delivery Expectations (MEC) for influencing the project reputation of construction firms are MI1 (Thorough analysis of current project components), MI2 (Clear identification of areas requiring improvement), MI3 (Efficient planning and execution of improvement actions), MI6 (Maintenance of a continuous improvement culture within the project team). The process of analysing and improving project components, identified as MI1, is pivotal in enhancing the project reputation of

construction organisations. This process resonates with the concept of continual re-evaluation and iterative improvements highlighted in the study by Schilling (2000), who asserts that such an approach allows organisations to effectively address issues and introduce improvements without disrupting the ongoing project operations. This continual process contributes to project success and signifies a proactive and dynamic approach towards project management, thus reinforcing the project's reputation. Further, identifying areas requiring improvement (MI2) is another crucial driver for fostering project reputation. Salvador (2007) expounded that this process is integral to pursuing modular innovation, enabling organisations to strategically and efficiently target their innovative efforts. The ability to discern areas of improvement demonstrates an organisation's understanding of its operations and commitment towards excellence, traits that reflect its project reputation.

Equally important is the efficient planning and execution of improvement actions (MI3). According to Campagnolo and Camuffo (2010), the success of modular innovation is contingent upon the meticulous planning and implementation of changes. An organisation's ability to do this reflects its capabilities in managing innovation and contributes significantly to the project's successful outcomes, thus enhancing its reputation. Lastly, maintaining a continuous improvement culture within the project team (MI6) is integral to fostering a positive project reputation. In the words of Teece (2007), it is this cultural emphasis on innovation that enables an organisation to navigate uncertainties and evolve over time. The establishment of such a culture thus portrays the organisation as a learning entity, able to adapt and improve, thereby bolstering its project reputation.

9.4 Competency Factors and Their Impacts on Construction Project's Reputation

Drawing from the breadth of scholarly literature, the impact of competency on project outcomes is well-established. This study's findings lend further credence to this assertion by validating the identified competency constructs as potent enhancers of project reputation within construction organisations. Thus, this section delves deeper into the analysis of these competency constructs. Derived from the structural equation model (SEM) used in this research, three of the four examined competency constructs

emerged as highly ranked by the respondents. This underscores their crucial role in shaping the project's reputation within the purview of construction organisations.

9.4.1 Efficient Communication

Given a standardised factor coefficient of 0.76 at 99% significance level (as shown in Figure 13), Effective Communication (EC) emerged as the topmost process-based accountability mechanism in the study. This is based on its significance in evaluating potential projects under the infrastructure guarantee scheme. The composite reliability coefficient for this factor was recorded as 0.83. This indicated the huge reliability of the factor and its contribution towards the overall model. Effective communication (EC) as a significant influencer in determining project reputation within the construction sector has garnered substantial academic attention. It is underpinned by numerous studies that draw diverse perspectives on its importance and how it impacts project reputation. According to Hwang and Low (2012), efficient communication is pivotal to ensuring seamless operations and reducing misunderstandings among project stakeholders in the construction industry. It strengthens relationships, builds trust, and significantly improves project reputation. Similarly, Obradovic, Jovanovic, Sretenovic, and Petrovic (2015) emphasised the role of communication as a critical success factor, highlighting that effective and transparent communication leads to better client satisfaction, one of the primary factors influencing project reputation.

In a broader context, Müller, and Turner (2010) suggested that communication is integral to all aspects of project management, including planning, executing, controlling, and closing projects. They argued that poor communication could potentially result in project failure, significantly tarnishing the reputation of the involved construction firms. On a different note, Dainty, Moore, and Murray (2006) focus on team communication, asserting that effective communication within construction teams leads to better problem-solving and decision-making, which eventually translate to successful project outcomes and a superior project reputation. Moreover, the role of communication in risk management, a significant aspect of construction projects, cannot be overstated. As per the study by Dikmen, Birgonul, and Kiziltas (2005), efficient communication plays a critical role in mitigating risks, managing uncertainties, and thereby improving the project reputation.

Going further, based on the results as shown in Figure 16, the top drivers of Meeting or Exceeding Client's Project Delivery Expectations (MEC) for influencing the project reputation of construction firms are ECA-1 (Clear and concise communication processes), ECA-6 (Transparent sharing of project status and updates), ECA-5 (Timely response to queries and issues) and ECA-3 (Usage of appropriate communication channels). Effective communication holds a salient place in the project management literature, and our study results distinctly emphasise its role in cultivating the project reputation of construction organisations. The drivers identified - clear communication, transparency, timely response, and appropriate channel usage - echo many extant studies, alluding to a comprehensive understanding of effective communication in the construction industry.

Our study identifies the importance of clear and concise communication processes (ECA-1) in enhancing the project reputation. This is consistent with the research conducted by Leung et al. (2004) who found that communication clarity can significantly reduce misunderstandings and potential conflicts within construction projects. Our results also echo the theoretical underpinnings of the 'garbage can' model proposed by Cohen et al. (1972), which posits that clarity in communication is essential for reducing ambiguity and enhancing decision-making. As a corollary, a project's reputation is elevated when stakeholders are engaged through clear, unambiguous communication. Transparency in sharing project status and updates (ECA-6), another key driver identified, aligns with the study by Smyth and Morris (2007) which underscored the importance of transparent communication in building trust and managing stakeholder expectations. Transparent communication not only ensures that stakeholders have a clear understanding of the project's progress but also helps in preventing potential conflicts, thus contributing significantly to a project's reputation.

Timely response to queries and issues (ECA-5) is recognised as an important factor in crisis communication and issues management. Our findings resonate with the research of Jaques (2008), who argued that swift and appropriate responses to queries and issues are fundamental in maintaining stakeholders' trust. This trust-building mechanism is a cornerstone of a project's reputation. Lastly, the driver regarding the use of appropriate communication channels (ECA-3) reflects the study

of Verma (1996), which suggests that selecting the right communication channel significantly enhances communication effectiveness in project management. Communication sent through the appropriate channel ensures the message reaches the intended recipient accurately and promptly, thereby reducing misunderstandings, enhancing stakeholder relationships, and elevating the project's reputation. Delving deeper into the implications, these drivers reflect the multifaceted nature of effective communication in construction project management. Clear communication, transparency, timeliness, and the apt choice of communication channels, together, not only facilitate smooth project execution but also play a crucial role in moulding the reputation of construction firms. Effective communication interconnects various facets of project management, thus catalysing the construction firms' reputation in the industry.

9.4.2 Effective Leadership

Effective Leadership (ELC) was ranked the second most important competency construct in terms of its influence on the positive project reputation of construction organisations. This accountability mechanism showed a standardised regression weight of 0.69 at 99% significance level (as shown in Figure 13). ELC also recorded composite reliability of 0.77, indicating the influence on the overall model. The value of 0.62 percentage (%) variance, based on Figure 16, also indicated the predictive influence of the factor on the model. This study's findings pertaining to the critical influence of ELC on the project reputation of construction organisations, as deduced from the rigorous quantitative analysis, are corroborated by a rich body of extant literature. The interrelationship between effective leadership and the success of construction projects is well articulated in the work of Müller and Turner (2010). Their study highlights the pivotal role of project managers' leadership style in shaping project outcomes. Similarly, Walker and Walker (2011) underscore the necessity for effective leadership in delivering successful construction projects, a success that positively contributes to the project's reputation.

The role of effective leadership becomes even more salient when we consider the complexity and dynamic nature of the construction industry. As posited by Thamhain (2013), the volatility of the construction environment demands proficient leadership to

steer the project towards success. The implication here is that, by extension, effective leadership positively influences the project reputation of construction firms. The seminal work of Pant and Baroudi (2008) fortifies our stance on the critical role of leadership. They argue that effective leadership is instrumental in fostering a conducive project environment that promotes teamwork, collaboration, and innovation - elements that contribute significantly to the overall project reputation. Moreover, Stagnitti (2006) contributes to our understanding of the dimension of leadership communication. This work affirms our finding that clear and concise communication, a trait inherent in effective leadership, is crucial in maintaining the reputation of a construction project.

Going further, based on the results as shown in Figure 16, the top drivers of Meeting or Exceeding Client's Project Delivery Expectations (MEC) for influencing the project reputation of construction firms are ELC-1 (Clear and concise communication processes), ELC-3 (Transparent sharing of project status and updates), ECC-5 (Timely response to queries and issues) and ELC-6 (Usage of appropriate communication channels). At the heart of ELC is clear and concise communication processes (ELC-1). The adage that 'good communication is the bridge between confusion and clarity' by Nat Turner is particularly true in project management. A construction project is a complex entity involving multiple stakeholders, each with their roles and responsibilities. The importance of clear and concise communication in such a setting is further underpinned by Müller et al. (2017), who observes that it forms a critical lifeline that holds together all aspects of a project. Not only does it ensure all stakeholders are well-informed, but it also helps prevent costly misunderstandings and misconceptions. It clarifies what often might be perceived as chaotic, directly contributing to the efficiency of operations and the quality of outcomes, thereby positively affecting the project's reputation.

Transparency in sharing project status and updates (ELC-3) is crucial in enhancing trust, a critical component of project reputation. Lohikoski et al. (2016) posit that transparency gives stakeholders a sense of inclusion, ensuring they feel acknowledged and valued. In this information age, withholding project information may be perceived negatively, leading to doubt and suspicion. On the other hand, transparency signals good faith, fostering trust and cooperation. This congenial

atmosphere translates into a shared sense of responsibility and commitment to the project's success, consequently enhancing the project's reputation. Timely response to queries and issues (ECC-5) further cements the project's reputation. It indicates the project management's commitment to solving problems efficiently, minimising the potential for escalating into more significant issues. Ahern et al. (2014) suggest that the timely resolution of issues is directly proportional to client satisfaction. When clients perceive that their concerns are being addressed promptly, their confidence in the project management team increases. This confidence invariably translates into a positive reputation for the project.

Lastly, choosing appropriate communication channels (ELC-6) is fundamental to effective communication. Anantatmula (2015) underscores this point by stating that the medium is, in many instances, as crucial as the message itself. Selecting a communication channel accessible and convenient to the intended audience ensures that the message is received and understood as intended. Additionally, it underscores the importance of inclusivity, where every stakeholder has access to crucial project information regardless of their rank or role. This inclusive approach positively enhances the project's reputation by enhancing client satisfaction and engagement.

9.4.3 Project Manager Technical Proficiency

The third most significant competency construct influencing the positive project reputation of a construction organisation is Project Manager Technical Proficiency. Going by its standardised regression weight of 0.62, the factor is significant at a 99% confidence level. The composite reliability for this factor also shows composite reliability of the factor at 0.75 whilst accounting for 0.58 percent of the variance of the model. The pivotal role of Project Manager Technical Proficiency (PMT) in promoting the project reputation of construction organisations, evidenced by the study's empirical findings, resonates with numerous studies in extant literature. Chiocchio et al. (2015) have underscored the importance of a project manager's technical acumen in delivering successful outcomes, asserting that their ability to comprehend and manage complex technical aspects can greatly enhance the project's perceived success, contributing to a favourable project reputation. The strength of technical skills in navigating the project towards desired outcomes is echoed by Mir and Pinnington

(2014), who contend that PMT is instrumental in optimising resource allocation, reducing redundancies, and effectively addressing potential risks - all aspects that can positively impact a project's reputation.

Contrasting viewpoints in the literature, such as that of Crawford et al. (2006), position PMT as a secondary competency to 'soft' skills, arguing that interpersonal and leadership competencies tend to have a more significant impact on project outcomes. However, even these perspectives underline the necessity of PMT, advocating for a balanced approach where technical competencies supplement the efficacy of 'soft' skills, indirectly contributing to a positive project reputation. Müller and Turner (2010), based on their study of successful project managers, highlighted the role of PMT in reputation building by differentiating projects that merely meet the minimum standards from those that exceed expectations and create a reputation of excellence. Here, PMT provides the technical grounding necessary for exceptional project delivery, thereby enhancing the project's reputation. Considering these diverse perspectives, it is evident that PMT, though its importance may vary depending on the viewpoint, remains a significant construct impacting the project reputation in construction organisations. Our empirical findings, in alignment with these various viewpoints, underscore the continued relevance of PMT in shaping project reputation.

Going further, based on the results as shown in Figure 16, the top drivers of Project Manager Technical Proficiency for influencing the project reputation of construction firms are PMT-1 (adequate knowledge of project-specific technical aspects), PMT-2 (ability to guide the team on technical issues), PMT-3 (capability to oversee technical quality checks), PMT-6 (communication of technical complexities in simple terms). In the quest for fostering a positive project reputation in the construction sector, the role of technical proficiency among project management team members is undeniably crucial. The findings of this study, particularly concerning the drivers PMT-1, PMT-2, PMT-3, and PMT-6, further underscore this centrality, resonating with previous academic research and bringing new depth to our understanding of its practical implications. The first factor, PMT-1, underlines the importance of a project management team's sufficient grasp of project-specific technical aspects. According to Shenhar et al. (2001), such knowledge provides a solid foundation for dealing with each project's unique challenges. It enables project managers to foresee technical

problems, devise effective solutions, and implement them efficiently, safeguarding the project from potential technical pitfalls. This proactive and competent handling of project-specific issues inevitably influences the perceived reliability of the project team, subsequently contributing to the project's reputation. It echoes the sentiments of Turner and Müller (2005), who emphasise that project managers' technical competence is a crucial determinant of project success.

Next, the ability to guide the team on technical issues, PMT-2, significantly influences a project's reputation. When project managers display solid guidance in technical matters, it engenders a sense of confidence within the team. Hoegl et al. (2008) highlighted this in their work, noting that effective guidance encourages creativity and problem-solving among team members. Moreover, this leadership quality ensures the steady progress of the project, even in the face of technical adversities, further enhancing the project's reputation. Yet another crucial factor is the capability to oversee technical quality checks (PMT-3). Quality assurance has long been recognised as a cornerstone of successful project execution, directly influencing project outcomes (Kerzner, 2017). A project manager's ability to effectively oversee these checks helps maintain the project's quality standards, mitigates the risk of technical failures, and ensures that the project adheres to its intended specifications. This meticulous approach to quality control underscores the project's commitment to excellence, thereby fortifying its reputation in the eyes of stakeholders. Finally, PMT-6—the ability to communicate technical complexities in simple terms—is instrumental in ensuring transparency and understanding amongst all project stakeholders. This trait allows project managers to bridge the gap between complex technical jargon and layman's language, enabling stakeholders to grasp the intricacies of the project. Clear, simplified communication enhances stakeholder engagement and confidence in the project, as evidenced by Dainty, Moore, and Murray (2006). By ensuring all parties understand the project's technical aspects, project managers foster trust and openness, which positively reflects the project's reputation.

9.5 Project Performance Factors and Their Impacts on Construction Project's Reputation

9.5.1 Efficient Process Management

The role of Efficient Process Management as a pivotal determinant of positive project reputation for construction organisations has been emphatically illustrated by its high standardised regression weight of 0.76, observed at a 99% confidence interval. This statistically significant weight underscores its influential position in shaping the reputation of such organisations. This substantial reliability measure underlines the robustness of Efficient Process Management as a construct within the overarching model and speaks to its ability to generate consistent results, enhancing the overall reliability and interpretability of the model. Moreover, Efficient Process Management accounts for a substantial 0.67% variance within the model, as delineated in Figure 16. This high percentage of variance explicates the considerable predictive influence of Efficient Process Management within the model. It implies that a significant proportion of changes in the project reputation of a construction organisation can be predicted by changes in Efficient Process Management, further attesting to its paramount role in the model.

The results of this study align seamlessly with extant literature. The finding that Efficient Process Management is a critical determinant of positive project reputation corresponds with the views of several researchers who have underscored the importance of process efficiency in project management. For instance, Geraldi and Leus (2008) have pointed out that efficient process management is crucial for project success, indirectly contributing to a favourable reputation. Similarly, Kerzner (2013) has highlighted the role of efficient processes in enhancing the quality of project outcomes, which in turn bolsters project reputation. Moreover, our finding also aligns with the work of Olawale and Sun (2010), who have emphasised the importance of process efficiency for construction companies. According to them, efficient processes can help construction companies avoid costly delays and overruns, thereby improving their reputation among clients and stakeholders. Notably, the work of Zwikael and Globerson (2006) stressed the importance of efficiency in project processes and its direct impact on the success and, consequently, the project's reputation. They argued that process efficiency could robustly predict project performance and the reputation it gains in the stakeholders' perception. Our study's conclusion echoes this sentiment and validates it in the context of construction organisations.

Likewise, the importance of efficient processes has been given prominence in the works of scholars like Lehtonen and Martinsuo (2006). They have propounded that efficient process management is a crucial determinant of client satisfaction, which is inextricably linked to an organisation's reputation. Our finding that Efficient Process Management significantly contributes to a positive project reputation aligns with their perspectives. Building on the work of Too and Weaver (2014), who explored the role of effective processes in enhancing client satisfaction and trust, our study confirms that efficient process management positively influences project reputation. According to Too and Weaver, robust and efficient processes are pivotal in delivering project objectives and ensuring client satisfaction, thereby boosting project reputation. Additionally, the emphasis on efficient process management in our study parallels Shenhar and Dvir's (2007) diamond model, which underscores the need for process efficiency for project success and positive reputation. They posited that managing processes efficiently directly influences the project's efficiency, novelty, technology, and pace, collectively contributing to a positive reputation.

Going further, based on the results as shown in Figure 16, the top drivers of Efficient Process Management for influencing the project reputation of construction firms are EP1 (Thorough understanding of project processes), EP2 (Effective process planning and execution skills), EP5 (Adherence to process standards and guidelines), and EP3 (Use of process optimisation techniques). The significance of the first driver, EP1, underscores the requisite depth of comprehension regarding the processes involved throughout the project lifecycle. As elucidated in extant literature (Winch, 2010), this understanding is a pivotal tool for risk mitigation within the challenging environment of construction projects. Furthermore, such depth of knowledge fosters smoother transitions between project stages, leading to more accurate forecasting, superior resource allocation, and optimal task sequencing. These factors collectively contribute to enhanced operational efficiency and, consequently, a more positive project reputation. The role of the second driver, EP2, is equally fundamental in the successful implementation of construction projects. As Müller and Turner (2007) contend, adept process planning and execution skills significantly diminish potential project risks, thereby fortifying the project's reputation. In a practical context, these skills translate to developing robust project plans, executing them efficiently, and swiftly adapting to unforeseen changes or challenges. This dynamic and responsive approach to project

management has been recognised in academic circles as being critical for achieving project objectives and enhancing the reputation of the implementing firm.

The third driver, EP5, mandates strict adherence to established process standards and guidelines. This approach resonates with scholars such as Beringer, Jonas, and Kock (2013), who propose that such adherence signifies a construction firm's commitment to delivering quality outcomes. This commitment reinforces operational consistency and engenders trust among stakeholders, thus augmenting the project's reputation. Lastly, the adoption and application of process optimisation techniques, as denoted by driver EP3, contribute to process efficiency and the delivery of superior project outcomes. As emphasised in Love, Edwards, and Irani's (2009) work, such techniques can yield significant improvements in cost, time, and quality parameters, thereby positively influencing the project's reputation.

9.5.2 Efficient Product Management

Efficient Product Management is a critical influencer in establishing a positive project reputation for construction organisations. Its standardised regression weight of 0.71 is notable at a 99% confidence interval. This substantial weight highlights its consequential role in forging the reputation of construction organisations. This firm reliability measure reinforces the stability of Efficient Product Management as a constituent within the holistic model, bearing testimony to its potential to yield consistent results, thus enhancing the model's overall reliability and intelligibility. In addition, Efficient Product Management explains a significant 0.68% variance within the model, as displayed in Figure 16. This high degree of variance clarifies the substantial predictive influence of Efficient Product Management within the model, implying that a considerable portion of alterations in the project reputation of a construction organisation can be anticipated by shifts in Efficient Product Management, which further underscores its central role in the model.

To begin with, the concept of Efficient Product Management and its impact on project reputation is familiar in scholarly literature. Muller and Turner (2007) advocated that efficient product management is fundamental to achieving project objectives and, in turn, establishing a solid reputation. Similarly, Chen et al. (2009) highlighted the importance of an efficient product management process in construction projects and

linked it to improved project reputation, especially in complex and dynamic project environments. Moreover, the correlation between Efficient Product Management and positive project reputation has been acknowledged by Kerzner (2013), who opined that efficient product management practices foster a climate of trust and integrity, which can significantly enhance the reputation of construction firms. This claim aligns with our study's finding, underlining the weightage of 0.85 for Efficient Product Management in shaping the project's reputation. Söderlund (2004) also added weight to this discussion by noting the importance of efficient product management in managing complexities in construction projects. By implementing an efficient product management system, firms can effectively coordinate resources, make informed decisions, and ensure smooth project execution, thus contributing to a better project reputation (Pinto & Slevin, 1988).

Going further, based on the results as shown in Figure 16, the top drivers of Efficient Product Management for influencing the project reputation of construction firms are EPM1 (Clear understanding of product requirements), EPM3 (Strong coordination with design and production teams), EPM4 (Ability to manage product-related risks and issues), EPM6 (Regular product updates and communication with stakeholders). A clear comprehension of product requirements (EPM1) is undoubtedly foundational to Efficient Product Management. The work of Davis (2017) mirrors this assertion, arguing that an in-depth grasp of product requirements is paramount in aligning product development efforts with client expectations, thereby bolstering the project's reputation. A shared understanding of the product's requirements ensures that the construction process meets the end user's needs, contributing to the project's overall success. Coordination with design and production teams (EPM3) is another linchpin in Efficient Product Management. As validated by Söderlund (2004) and later echoed by Kerzner (2013), robust synchronisation between the different teams enhances the efficiency of the product development process, thereby reinforcing project reputation. Kerzner elucidated that a well-coordinated team tends to reduce potential miscommunication, misunderstandings, or oversights that can compromise the quality of the final product, negatively impacting the project's reputation.

Efficient Product Management also hinges on managing product-related risks and issues (EPM4). Dey (2001) and Zwikael and Ahn (2011) asserted that adept risk

management is a significant determinant of project success and, by extension, the project's reputation. Successful risk management entails anticipating, identifying, analysing, and mitigating potential threats to the product development process, ensuring a smooth, uninterrupted progression that invariably enhances the project's reputation. Regular product updates and stakeholder communication (EPM6) round up the key drivers of Efficient Product Management. According to Muller and Turner (2007), project stakeholders require consistent, timely, and transparent communication regarding the product's progress to instil trust and confidence. Chen et al. (2009) further argued that transparent communication fosters a robust relationship with stakeholders, improving project reputation. Thus, keeping all project stakeholders apprised of regular updates reduces uncertainty and bolsters the perception of the project's reputation.

10 Chapter Ten: Conclusion, Contributions to Knowledge and Limitations of the Study

10.0 Chapter Overview

This concluding chapter serves as the culmination of the study, encapsulating a comprehensive overview of the research work and an in-depth examination of the findings derived from qualitative and quantitative data collection and analysis. The subsequent section offers a detailed summary of the study, underscoring the research aim, the design methodology employed, the data collection techniques used, and the analytical approach adopted throughout the research process. This is followed by a robust presentation of the study's key findings, each dissected and discussed in direct correlation with the research objectives, as outlined in the first chapter of the study. In addition, the theoretical implications of the research findings are explored in detail, shedding light on how our understanding of the topic at hand is furthered and how it contributes to the existing body of knowledge. Also, the policy implications derived from the research are outlined, offering potential pathways for influencing and informing policy decisions. Furthermore, this chapter acknowledges the study's limitations, providing a clear, balanced view of the scope and boundaries of the research undertaken. Lastly, potential avenues for future research are explored, carving out new frontiers of enquiry that could be pursued to build on the foundation laid by this study.

10.1 Summary of Findings in Relation to the Study's Objectives

Amid the distinct challenges and dynamics of project-based organisations such as construction firms, reputation's erratic and often volatile nature poses significant barriers for industry practitioners. Recent incidents underscore a harsh reality where construction companies have faced substantial reputational damage due to project failures to meet established goals and expectations, including cost, timeline, and quality considerations. Prominent entities, like Aéroports de Paris/Architects and Engineers, have suffered reputational fallout following significant failures, as demonstrated by the unfortunate collapse of terminal 2E at Charles de Gaulle Airport in France, which resulted in six fatalities. Given the intertwined relationship between project success and construction companies' reputation, many researchers have begun to distinguish project reputation as a separate concept from organisational

reputation, particularly within the construction sector. Scholars assert that, like individuals and organisations, projects possess their unique reputation, defined as stakeholders' collective perception of a project's quality and performance. In project-based settings, each project carries a unique reputation, which independently impacts the overarching reputation of the construction organisation. Drawing parallels to the marketing sector, an array of products contributes to a company's overall organisational reputation, enabling potential clients to form expectations of an organisation's performance based on the perceived reputation of its projects.

Nonetheless, this growing interest in project reputation raises fundamental questions. Researchers grapple with identifying the unique factors shaping a project's reputation and determining whose opinions carry the most weight in assessing a project's reputation. Despite its complexity, various factors, including project success, performance, innovation, managerial competency, and client satisfaction, have been explored as potential influences on project reputation. Studies have suggested a strong correlation between project performance and the perceived reputation of a project, with successful project performance-enhancing reputation and future business opportunities. In contrast, poor performance can lead to negative publicity and loss of customer trust. Furthermore, projects demonstrating innovative problem-solving approaches often garner high regard and can generate positive publicity, thus improving their perceived reputation. Even though the concept of project reputation has gained increasing significance within project management, there is still a scarcity of research investigating this area within the construction industry, particularly from the perspectives of project contractors. These individuals play a critical role in the success or failure of a construction project, given that they execute the plans and complete the work, often acting as the primary point of contact for clients and stakeholders. Understanding the contractor's perspective can highlight areas for improvement and inform strategies for enhancing project reputation and overall performance.

Considering this, the study aimed to develop a multi-dimensional theoretical framework for evaluating project reputation within UK construction organisations. Accordingly, the study investigated the theoretical foundations of project reputation, revealing key dimensions such as client satisfaction, project innovation, competency,

and project performance through an extensive review of pertinent literature. Besides identifying the hypothetical dimensions influencing project reputation in construction organisations, the study explored variations in perceptions of these dimensions among research participants. The implementation of this study employed multiple data collection methods. Aligned with the epistemological proposition of critical realism, the study adopted subjective and objective research strategies.

Consequently, qualitative and quantitative data collection methods were combined under an exploratory sequential mixed-method approach. The initial data collection stage comprised a multi-modal strategy, incorporating a theoretical review of extant literature and Focus Group Interviews (FGIs). The study's exhaustive examination of existing literature identified 12 theoretical hypotheses (with 66 associated indicators) linked to the four constructs of project reputation influencing the project reputation of construction organisations. To validate these academic findings (i.e., constructs and indicators) in a practical setting, the study employed Focus Group Interviews (FGIs). Using a purposive or judgemental sampling technique, the survey selected information-rich participants. Thirty-three participants from design and construction firms across the UK participated in four cross-disciplinary focus group discussions. The participants ranged from small to large organisations with varying years of experience. Participants were asked to validate or invalidate which of the 12 theoretical hypotheses and their associated factors were relevant and applicable to the construction projects they have been involved in. Through consistent prompting and follow-ups on specific issues, we encouraged discussions. The study adopted a content-driven thematic analysis to analyse the qualitative data, focusing on the applicability or otherwise of the twelve constructs and the 66 associated factors identified from the literature. After coding the FGI data, our qualitative data analysis yielded additional insights, uncovering six distinct factors influencing the project reputation of construction businesses, which were not previously identified in the literature review. Findings from the literature review and the FGIs were combined into a single list of factors, totalling seventy-two. This data then informed the development of a quantitative data collection instrument.

To bolster the generalisability of the qualitative findings, the study used the identified 12 theoretical hypotheses and 72 associated factors/indicators to formulate a

questionnaire. After piloting the questionnaire, it was distributed to a broader audience. The questionnaire respondents included UK contractors and stakeholders with prior involvement with construction projects. The study utilised random sampling to select participants to mitigate potential bias. Using directories from eight UK professional bodies and a list of the top 100 construction companies as a sampling frame, 392 questionnaires were randomly distributed to chosen respondents via email and postal services. The study then employed a snowball sampling strategy to expand the pool of respondents. This approach, is a simple but effective technique for accessing hard-to-reach populations. Of the 154 responses received, 13 questionnaires were deemed unsuitable for preliminary analysis due to their incompleteness (i.e., a response was registered when the respondent opened the questionnaire but failed to complete it satisfactorily).

Consequently, 141 of the 256 distributed questionnaires, representing a 55% response rate, were deemed usable and used for statistical analysis. The analysis included descriptive mean ranking, reliability analysis, and the Kruskal-Wallis's test. These statistical analyses helped uncover the key underlying factors influencing project reputation in construction organisations, identified across the 12 theoretical hypotheses and under the four broad constructs of project reputation. The study developed structural equation models to further understand the structural path, underlying theoretical hypotheses, and associated factors/indicators influencing the project reputation of construction organisations. The study performed reliability and missing value analysis to ensure that only reliable factors were considered for the model and no data was missing. A series of analyses, including model fitness, modification, and re-specification of the structural and measurement models, were used to establish the underlying measures influencing the project reputation of construction organisations. The critical theoretical hypotheses influencing the project reputation of construction organisations were also unravelled, with ten out of the twelve theoretical hypotheses validated. The results were then used to produce a final structural equation model through a conceptual framework influencing the project reputation of construction organisations.

10.2 Implication for Practice

According to a report from KPMG in 2020, only 29% of construction projects delivered globally in the past three years were considered successful. In the UK, the Construction Industry Training Board found that nearly a third of all construction projects overrun their timelines. These high rates of project failures and delays pose severe threats to the reputation of construction firms, both nationally and internationally. The implications of this research become increasingly important when contextualised within the above context. The findings from this research offer a profound impact on construction companies in their operations, processes, and strategic planning, with direct consequences on their overall project outcomes and reputation. This study can reshape practice and influence policy development within the construction sector, particularly given the alarming statistics about project failures.

These findings could dramatically reshape how construction organisations conduct their operations. Identifying key constructs and associated indicators provides a roadmap for construction companies to better structure their project management procedures. It highlights those areas that firms must prioritise to improve project success rates and enhance their reputations. Furthermore, these findings can be instrumental in developing predictive tools and risk management strategies, helping firms anticipate potential issues and mitigate their impacts effectively. This study can also inform training and development programmes, ensuring that all organisation members know these constructs and their significant role in shaping project outcomes and reputations. This knowledge can foster a culture of continuous improvement, driving innovation and excellence within the organisation. This study could catalyse industry-wide change. The high failure rates of construction projects in the UK and globally underline the need for better regulatory oversight and stricter guidelines on project management within the sector. Policymakers could utilise the constructs identified in this study to establish more robust and comprehensive regulations to improve the overall success rate of construction projects. Such policy changes would not only serve to enhance the reputation of individual firms but also to improve public trust in the entire sector.

Furthermore, these policies also encourage transparency and collaboration within the industry, promoting more sustainable and responsible practices. The study's insights

into the different perceptions among contractor stakeholders can be instrumental in policy formulation, guiding construction firms to foster better stakeholder relations. Recognising these differing perceptions could create more significant policies that account for different stakeholder groups' unique needs and expectations. These insights can also be utilised to enhance communication strategies, fostering better understanding and cooperation among stakeholders, leading to more successful project outcomes. Developing a structural equation model for evaluating project reputation in this study is essential for construction firms. It introduces a systematic and objective way to measure a firm's reputation, which has traditionally been subjective and intangible. The implementation of this model can standardise how companies monitor and evaluate their reputation, facilitating more data-driven decision-making and strategic planning. In terms of policy, such models could be promoted or even mandated by industry bodies to ensure consistent reputation management across the sector. Adopting these models could also introduce more accountability within the industry, driving firms to strive for better performance and higher standards of quality.

10.3 Theoretical Implication of the Study

In this study, the theoretical contribution to the understanding of project reputation in project-based organisations (PBOs) is significantly enriched by the integration of three distinct theoretical perspectives: evaluative, impressional, and relational. This synthesis provides a more holistic view, particularly in addressing the varying stakeholder perspectives within the construction industry, such as those of architects, project managers, and clients. Architects, primarily concerned with design and technical innovation, generally align with the evaluative aspect of reputation. This aspect focuses on objective assessments of quality and capability, resonating with architects' emphasis on tangible outcomes and technical competencies. Their perspective underscores the applicability of the evaluative theory in understanding the components of project reputation linked to actual achievements and technical excellence.

In contrast, other critical stakeholders in the construction process, such as project managers and clients, often focus on different dimensions of reputation. Project managers, for instance, may prioritise relational aspects, emphasising the importance

of process management, team dynamics, and stakeholder relationships. On the other hand, clients might be more influenced by the impression aspect, basing their perception of a project's reputation on subjective experiences, overall impressions of the organisation, and the quality of communication and engagement they receive. This divergence in stakeholder perspectives highlights a critical theoretical contribution of this research.

The integrated multi-theoretical framework developed in this study does not simply aggregate these different viewpoints; instead, it seeks to elucidate the complex dimensions of reputation as perceived by these diverse groups. This integrative approach enables a more comprehensive understanding of reputation in PBOs, which accounts for the multifaceted nature of reputation, which could be overlooked when examined through a single theory. For example, this integrated framework provides insights into how an architect's focus on design excellence (evaluative) can intersect with a project manager's emphasis on efficient process management (relational) and a client's perception formed by the organisation's engagement strategies (impression). This intersection of perspectives within the framework reveals the intricate interplay between different aspects of reputation, showing how each stakeholder group's focus contributes to the overall perception of a project's reputation.

The theoretical innovation of this study is further underscored by identifying five key constructs - Efficient Communication, Better Engagement of Clients, Efficient Process Management, Efficient Product Management, and Meeting or Exceeding Clients' Project Delivery Expectations. These constructs are intricately linked to the integrative framework, reinforcing the theoretical significance of evaluative, impression, and relational facets in reputation management. The research resonates with the work of Deephouse and Carter (2005) and Walker (2010), who highlighted the critical role of impression management and stakeholder relationship quality. This study extends these insights, particularly emphasising the significance of client engagement and efficient communication in crafting and maintaining stakeholder impressions and fostering enduring relationships. Additionally, the study echoes the findings of Rindova et al. (2005), who emphasised the paramount importance of meeting and exceeding stakeholder expectations in cultivating a positive reputation. In the context of PBOs, the success of project delivery is directly linked to client satisfaction and, by extension,

the organisation's reputation. This study, therefore, not only corroborates but also extends upon these established perspectives, particularly emphasising the unique environment of PBOs.

However, this research's most striking theoretical innovation lies in its challenge to the applicability of traditional reputation theories in isolation within PBO settings. The proposed integrative construct acknowledges the complex interplay and interdependencies of reputation management's evaluative, impression, and relational elements. This comprehensive approach fills the theoretical voids and forges a tailored reputation management strategy for PBOs. Thus, this research makes a substantial contribution to the existing corpus of knowledge, offering a novel and expansive perspective on reputation management in PBOs. It paves the way for future scholarly exploration in this domain, advocating for further investigation and validation of this multi-theoretical approach across various PBO contexts.

10.4 Limitations of the Study & Directions for Future Research

In every empirical investigation, limitations arise, and this study is not an exception. Firstly, the existing literature deliberately informed the selection of specific variables for this study – client satisfaction, innovation, competency, and project performance – and reflects a focused approach towards understanding project reputation from a contractor's perspective. These constructs were chosen as they represent core operational metrics within the construction project lifecycle, which are directly controllable and closely monitored and serve as immediate indicators of a contractor's effectiveness and success. Client satisfaction directly correlates with future business opportunities, innovation is becoming a competitive necessity in an evolving industry, competency is viewed as a fundamental expectation, and project performance is the definitive measure of a contractor's capability. This focused approach, however, entails certain inherent limitations. By concentrating on these specific variables, the study may not encompass the entire spectrum of factors that could potentially impact project reputation. While client satisfaction, innovation, competency, and project performance are crucial, they represent a pre-defined set of characteristics. This limitation highlights a gap in the research landscape, indicating the potential for future studies to expand their scope. Future research could explore a more diverse array of

factors, thereby enriching our understanding of the multifaceted nature of project reputation.

The methodological approach adopted in this study for analysing focus group data while providing valuable insights revealed certain limitations in its capacity to encapsulate the complexities inherent in group interactions fully. Focus group discussions, by their very nature, are rich tapestries of individual and collective voices, where the dynamics of negotiated meanings, along with the convergence and divergence of opinions, play a crucial role in shaping the discourse. These interactions are not merely a collection of individual responses but are a complex interplay of ideas, experiences, and perceptions that evolve and respond to the group context. However, the methodology employed in this study fell short in capturing these intricate dynamics. Specifically, it did not sufficiently explore how meanings were constructed, negotiated, and potentially altered through the course of the focus group discussions. The subtle nuances of how participants' views converged into common themes or diverged into distinct perspectives were not thoroughly examined, leaving a gap in our understanding of how collective insights are formed and how they reflect the broader context of the construction industry. This limitation points to a need for future research to incorporate more sophisticated qualitative methodologies capable of delving deeper into the fabric of focus group dynamics. Discourse analysis, or grounded theory could offer more nuanced means of interpreting data from focus groups. These approaches allow a more layered understanding of how ideas and meanings are shared, contested, and transformed within the group setting. Employing such methodologies could also involve a more reflexive approach to data analysis, where the researcher actively acknowledges and interrogates their role in the interpretive process. This reflexivity is critical in qualitative research, as it ensures a more transparent and vital engagement with the data, enhancing the depth and credibility of the findings.

While yielding valuable insights into this critical stakeholder group, the study's primary focus on contractors within the UK construction sector, simultaneously narrows the research's breadth and depth. Contractors, undoubtedly, are pivotal players in the construction industry, and their perspectives offer a significant understanding of factors affecting project reputation. However, this singular focus may inadvertently limit the comprehensiveness of the research, as it overlooks the rich tapestry of viewpoints

offered by other key stakeholders in the construction process. In the intricate ecosystem of a construction project, stakeholders such as clients/owners and environmental groups each contribute unique perspectives and experiences. Clients, for instance, offer insights into expectations, satisfaction levels, and perceptions of value, which are critical in shaping a project's reputation. Their viewpoints can directly gauge the market's response to construction projects, highlighting aspects that contractors might overlook.

Furthermore, the construction industry operates within a complex network of interdependencies, where interactions between various stakeholders can significantly impact a project's reputation. The dynamics of these interactions, the conflicts, collaborations, and negotiations, are vital to understanding how reputation is built, sustained, or eroded in the construction industry. Future research expanding its focus to include these diverse stakeholder groups could provide a more comprehensive understanding of project reputation. It would allow for the exploration of a broader range of factors influencing reputation, encompassing operational, relational, and perceptual dimensions. Such inclusive research would not only provide a richer, multi-dimensional understanding of the variables affecting project reputation but also offer a more balanced view, incorporating the diverse and sometimes conflicting priorities of different stakeholders.

The scope of participant roles included in the study's Focus Group Interviews (FGIs) and Questionnaire Survey, while comprehensive, inadvertently overlooked certain crucial roles that are fundamental from a contractor's perspective in shaping the project reputation of construction organizations. The FGIs encompassed a range of professionals including Architects, Civil Engineers, Structural Engineers, Project Managers, Health & Safety Managers, Design Managers, and Construction Site Managers. Similarly, the Questionnaire Survey engaged participants such as Project Managers, Design Managers, Civil/Structural Engineers, and Architects. However, this selection of roles, though extensive, only encompass part of the spectrum of critical positions within the construction industry. Crucial roles, particularly those directly involved in the day-to-day execution of construction projects and those that substantially impact operational aspects and client interactions, were not represented in the study. The omission of these roles, which might include onsite technical staff,

subcontractors, and other specialised professionals, constitutes a limitation of the study. These roles are often at the forefront of implementing project plans, managing onsite challenges, and maintaining stakeholder relations – all of which are pivotal in shaping a project's reputation. Their direct involvement and experiences can offer valuable insights into the practical aspects of project execution and its impact on reputation. The exclusion of these perspectives means that the study may not fully capture the comprehensive array of influences and viewpoints that shape the reputation of construction projects from a contractor's lens. This limitation highlights a gap in the research and underscores the importance of incorporating a broader range of stakeholder roles in future studies. Including a more diverse set of participants, particularly those directly involved in on-ground project activities, would provide a more holistic understanding of the factors influencing project reputation in the construction industry. This comprehensive approach would enhance the depth and applicability of the research findings, offering a more nuanced perspective on the dynamics of project reputation from the viewpoint of all key stakeholders involved in construction projects.

The geographical constraint of this research, focused exclusively on the UK construction sector, represents a significant limitation that must be acknowledged for its implications on the universality and applicability of the study's findings. The construction industry, inherently influenced by many factors including cultural norms, regulatory frameworks, and market dynamics, varies considerably across different geographical contexts. This variation means that insights derived from one regional context, such as the UK, may not necessarily be extrapolated with fidelity to other regions with different cultural, regulatory, and economic landscapes. This geographical limitation underscores the need for future research to transcend national boundaries and explore the dynamics of project reputation in a more global context. Such research could provide invaluable comparative insights, revealing how differing cultural norms influence stakeholder expectations and perceptions in the construction industry. For example, the factors that drive client satisfaction or how innovation is valued and integrated into construction projects may vary significantly between regions.

Moreover, regulatory frameworks and market conditions differ significantly across countries and even within regions of the same country. These differences can have

profound implications on project execution, risk management, and, ultimately, the reputation of construction projects. Future research could investigate how these regulatory and market conditions shape the practices and strategies of construction firms and influence their reputation. Expanding the scope of research to include various geographical regions would not only enhance the external validity of the findings but also provide a richer, more nuanced understanding of the factors influencing project reputation. Such research could adopt a comparative approach, examining similarities and differences across regions. This could lead to the development of more universally applicable models and frameworks for understanding and managing project reputation in the construction industry. Furthermore, an international perspective would contribute to a more comprehensive understanding of global best practices and innovative approaches in the construction sector. It could facilitate the sharing of knowledge and experiences across borders, fostering a more collaborative and progressive international construction community.

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Appendix 1: Ethics Approval Memo

UWE REC REF No: FBL.21.11.015

24th February 2022

Oladimeji Olawale

Dear Oladimeji

Application title: Developing Positive Project Reputation in Construction Businesses: UK Contractor's Perspectives to Critical Determinants

Thank you for responding to the conditions raised in my letter to you of 28th January 2022.

I can now confirm full ethics approval for your project, but please note that despite the easing of lockdown in England and across the devolved nations, you must continue to follow guidance as set by the UK Government and the relevant devolved administrations. If you have any questions about how this may affect starting your research project or for further information, please contact res.admin@uwe.ac.uk.

In the UK, face-to-face research and fieldwork can be undertaken but there should still be consideration of whether the activities could be delivered in an alternative way. There must still be appropriate mitigations related to Covid-19 risks included within risk assessments, including account taken of requirements from stakeholders.

At the present time overseas travel on UWE business is not permitted. Please see the guidance at https://intranet.uwe.ac.uk/tasks-guides/Guide/travelling-on-university-business. If you are planning any overseas activities involving personnel already located in the country concerned, then you must first contact researchgovernance@uwe.ac.uk. Please see COVID guidance: FAQs on conducting face-to-face activity and fieldwork (PDF).

The following standard conditions apply to all research given ethical approval by a UWE Research Ethics Committee:

1. You must notify the relevant UWE Research Ethics Committee in advance if you wish to make significant amendments to the original application: these include any changes to the study protocol which have an ethical dimension. Please note that any changes approved by an external research ethics committee must also be communicated to the relevant UWE committee.
2. You must notify the Faculty Research Ethics Committee if you terminate your research before completion.
3. You must notify the Faculty Research Ethics Committee if there are any serious events or developments in the research that have an ethical dimension.

FBL FREC Decision letter Full approval   Version 18 18/11/2021

Please ensure that before proceeding with your research:
- you have sought contractual advice from the UWE Contracts Team Amy.Charles@uwe.ac.uk if your research involves external funding and/or contracts with partner organisations;
- You have sought advice from the UWE Data Protection Team (dataprotection@uwe.ac.uk) if, in relation to collecting and/or sharing personal data, a third party (i.e. any person or institution extraneous to UWE) is involved in the research project.

Please note: The Research Ethics Sub-Committee (RESC) is required to monitor and audit the ethical conduct of research involving human participants, data and tissue conducted by academic staff, students and researchers. Your project may be selected for audit from the research projects submitted to and approved by the RESC and its committees.

We wish you well with your research.

Yours sincerely

Hazel Conley

Professor Hazel Conley
Chair, Faculty Research Ethics Committee

c.c.   Hakeem Owolabi

UWE Bristol | University of the West of England

Participant Information Sheet

You are invited to take part in the self-funded research taking place at the University of the West of England, Bristol. Before you decide whether to take part, it is important for you to understand why the study is being done and what it will involve. Please read the following information carefully and if you have any queries or would like more information, please contact Oladimeji Olawale, Faculty of Business & Law, University of the West of England, Bristol Oladimeji.Olawale@uwe.ac.uk.

Who is organising and funding the research?

The Doctoral Researcher leading this study is Oladimeji Olawale (Oladimeji.Olawale@uwe.ac.uk). Dr. Hakeem Owolabi (Hakeem.Owolabi@uwe.ac.uk) is the Director of Studies while Dr. Ximing Ruan (Ximing.Ruan@uwe.ac.uk) and Professor Paul Olomolaiye (Paul.Olomolaiye@uwe.ac.uk) are the first and second supervisors for this study respectively. The team's bios and details of their work are available at https://people.uwe.ac.uk/.

What is the aim of the research?

Reputation is the combined experience held by a stakeholder or stakeholder group about the actions and results of organisations (Khan et al., 2013). The extent to which a stakeholder or stakeholder group believes an organisation delivers or fails to deliver a project/product/service will determine if the organisation is considered reputable or not. When positive, authors such as Rindova et al. (2005) and Vidaver-Cohen (2007) argue that reputation is the single most important intangible asset for organisations. It is therefore not surprising that academics and business practitioners/professionals argue that a positive reputation contributes to public organisation confidence, stimulates competitive advantage, attracts high-quality staff, and reduces stakeholder doubts about future organisational performance (Vidaver-Cohen, 2007; Aula and Mantere, 2013). Despite these well-known impacts of reputation, Aula and Mantere (2013) argue that the concept of reputation, owing to its subjective and dynamic nature, is not a straightforward affair, especially for many project-oriented organisations (i.e., construction).

For instance, construction organisations are known to operate in a dynamic environment where they undertake multiple unique projects which differ in size and complexity. Each of these projects could impact the given construction firm's reputation positively or negatively. There have been many cases in the public domain of well-known project organisations whose reputation was smeared, because one of their projects received severe criticism from stakeholders (e.g., Charles de Gaulle Airport – Terminal 2E). This indicates that one recent failure can have a lasting negative impact on the reputation of construction PBOs. To this end, this study argues that construction projects are separate entities with unique project reputations, which independently and inevitably influences organisational reputation. Despite this apparent impact of project performance on project reputation, it is still surprising why

projects continue to fail in large numbers (Papke-Shields et al., 2010) and construction organisations continue to go insolvent.

It is on this premise that this study is looking at developing a robust quantitative model for critical evaluation of project reputation for construction businesses. To achieve this aim, the following objectives will be implemented:

1. To examine project performance and its impact on positive project reputation.

2. To examine project manager's competencies and its influence on positive project reputation.

3. To examine top management leadership competencies and its influence on positive project reputation.

4. To examine project innovation and its influence on positive project reputation.

5. To develop a statistical model for evaluating the reputation of projects in a construction setting.

To help us answer these objectives, this study will be employing a mixed methods approach that will involve Semi-Structured Interviews and Questionnaire Survey. The anonymised results from the Semi-Structured Interviews and Questionnaire Survey will be analysed using software packages such as Nvivo and SPSS, respectively. The anonymised results of the study may also be published in conference papers and peer-reviewed academic papers.

Why have I been invited to take part?

As academics, we are interested in gaining information about your experience, so the semi-structured interview will ask you about these things. The purpose of the questions will be to gain information regarding how concepts such as project performance, project manager competencies, top management leadership competencies and project innovation can influence the project reputation for construction businesses.

Do I have to take part?

You do not have to take part in this research. It is up to you to decide whether you want to be involved. If you do decide to take part, you will be given a copy of this information sheet to keep and will be asked to sign a consent form. If you do decide to take part, you are able to withdraw from the research without giving a reason. This point will take place 3 months from the date you signed your consent form. If you want to withdraw from the study within this period, please write to Oladimeji Olawale (Oladimeji.Olawale@uwe.ac.uk). Deciding not to take part or to withdrawal from the study does not have any penalty.

What will happen to me if I take part and what do I have to do?

If you agree to take part, you will be asked to take part in the semi-structured interviews and possibly the questionnaire survey. The semi-structured interview and questionnaire survey will

be conducted by Oladimeji Olawale, who is the Doctoral Researcher leading the study under the supervision of Dr. Hakeem Owolabi, Dr. Ximing Ruan and Professor Paul Olomolaiye. The team are all experienced in the subject matter and are sensitive to issues it may raise. The semi-structured interview will take approximately 1 hour and will be held virtually via Microsoft Teams.

The subject and focus of the discussion will be to explore your experiential opinion regarding how concepts such as project performance, project manager competencies, top management leadership competencies and project innovation can influence the project reputation for construction businesses. Your answers will be fully anonymised. Since the semi-structured interview will be taking place via Microsoft Teams, it will be recorded using Microsoft Teams recording function which will automatically save on UWE Bristol's secure OneDrive. After sufficient transcription, your voice recording will be deleted. Your data will be anonymised at this point and will be analysed with semi-structured interview data from other anonymised participants.

What are the benefits of taking part?

If you take part, you will be helping us to gain a better understanding of the concept of project reputation, especially within the context of construction businesses. Your participation will also allow us to develop a robust framework/model for critical evaluation of project reputation for construction businesses. It is anticipated that this framework/model will allow construction businesses to assess, plan, improve and maintain consistent positive project reputation on their projects.

What are the possible risks of taking part?

We do not foresee or anticipate any significant risk to you in taking part in this study. If, however, you feel uncomfortable at any time you can ask for the semi-structured interview to stop or stop filling the questionnaire. If you need any support during or after the semi-structured interview or questionnaire survey, then the researchers will be able to put you in touch with suitable support agencies. The research team are experienced in conducting semi-structured interview and questionnaire surveys and are sensitive to the subject area. The semi-structured interview and questionnaire survey has been designed with these considerations in mind.

What will happen to your information?

All the information we receive from you will be treated in the strictest confidence. The only circumstance where we may not be able to keep your information confidential is when the information you provided indicates a likelihood that you may inflict harm on self or others and threat to the public. Hard copy material will be kept in accordance with the University's and the Data Protection Act 2018 and General Data Protection Regulation requirements. Voice recordings will be destroyed securely immediately after anonymised transcription. Your anonymised data will be analysed together with other semi-structured interview and file data,

and we will ensure that there is no possibility of identification or re-identification from this point.

Where will the results of the research study be published?

This study constitutes a significant part of a Doctoral Research; hence the results of this study will be published in a PhD thesis as well as in peer-reviewed journals which will be made readily available on the University of the West of England's open-access Research Repository. In all publications, anonymous and non-identifying direct quotes may be used for publication and presentation purposes.

Who has ethically approved this research?

The project has been reviewed and approved by the Faculty of Business & Law of University of the West of England University Research Ethics Committee. Any comments, questions, or complaints about the ethical conduct of this study can be addressed to the Research Ethics Committee at the University of the West of England at: Researchethics@uwe.ac.uk

What if I have more questions or do not understand something?

If you would like any further information about the research, please contact in the first instance:

Oladimeji Olawale
Doctoral Researcher,
Faculty of Business & Law
University of the West of England
Oladimeji.Olawale@uwe.ac.uk

Thank you for agreeing to take part in this study.

You will be given a copy of this Participant Information Sheet and your signed Consent Form to keep.

Privacy Notice for Research Participants – Developing Positive Project Reputation in Construction Businesses: UK Contractor's Perspectives to Critical Determinants

Purpose of the Privacy Notice

This privacy notice explains how the University of the West of England, Bristol (UWE Bristol) collects, manages, and uses your personal data before, during and after you participate in the study titled "Developing Positive Project Reputation in Construction Businesses: UK Contractor's Perspectives to Critical Determinants". 'Personal data' means any information relating to an identified or identifiable natural person (the data subject).

This privacy notice adheres to the General Data Protection Regulation (GDPR) principle of transparency. This means it gives information about:

- How and why your data will be used for the research;
- What your rights are under GDPR; and
- How to contact UWE Bristol and the project lead in relation to questions, concerns or exercising your rights regarding the use of your personal data.

This Privacy Notice should be read in conjunction with the Participant Information Sheet and Ethical Consent Form provided to you before you agree to take part in the research.

Why are we processing your personal data?

UWE Bristol undertakes research under its public function to provide research for the benefit of society. As a data controller we are committed to protecting the privacy and security of your personal data in accordance with the (EU) 2016/679 the General Data Protection Regulation (GDPR), the Data Protection Act 2018 (or any successor legislation) and any other legislation directly relating to privacy laws that apply (together "the Data Protection Legislation"). General information on Data Protection law is available from the Information Commissioner's Office (https://ico.org.uk/).

How do we use your personal data?

We will only process your personal data when the law allows us to. In addition, we will always comply with UWE Bristol's policies and procedures in processing your personal data. Our lawful basis for using your personal data for research purposes is fulfilling tasks in the public interest, and for archiving purposes in the public interest, for scientific or historical research purposes. You can find out more information about lawful bases at the following webpage:

https://ico.org.uk/for-organisations/guide-to-data-protection/guide-to-the-general-data-protection-regulation-gdpr/lawful-basis-for-processing/

We will always tell you about the information we wish to collect from you and how we will use it. We will not use your personal data for automated decision making about you or for profiling purposes.

Our research is governed by robust policies and procedures and, where human participants are involved, is subject to ethical approval from either UWE Bristol's Faculty or University Research Ethics Committees. This research has been approved by the Faculty of Business & Law of University of the West of England University Research Ethics Committee.

The research team adhere to the the principles of the General Data Protection Regulation (GDPR).

For more information about UWE Bristol's research ethics approval process please see our Research Ethics webpages at www1.uwe.ac.uk/research/researchethics

What data do we collect?

The data we collect will vary from project to project. Researchers will only collect data that is essential for their project. The specific categories of personal data processed are described in the Participant Information Sheet provided to you with this Privacy Notice.

Who do we share your data with?

We will only share your personal data in accordance with the attached Participant Information Sheet.

How do we keep your data secure?

We take a robust approach to protecting your information with secure electronic and physical storage areas for research data with controlled access. Access to your personal data is strictly controlled on a need to know basis and data is stored and transmitted securely using methods such as encryption and access controls for physical records where appropriate.

Alongside these technical measures there are comprehensive and effective policies and processes in place to ensure that those who process your personal information (such as researchers, relevant University administrators and/or third-party processors) are aware of their obligations and responsibilities for the data they have access to.

By default, people are only granted access to the information they require to perform their duties. Mandatory data protection and information security training is provided to staff and expert advice available if needed.

How long do we keep your data for?

Your personal data will only be retained for as long as is necessary to fulfil the cited purpose of the research. The length of time we keep your personal data will depend on several factors including the significance of the data, funder requirements, and the nature of the study. Specific details are provided in the attached Participant Information Sheet.

Anonymised data that falls outside the scope of data protection legislation as it contains no identifying or identifiable information may be stored in UWE Bristol's research data archive or another carefully selected appropriate data archive.

Your Rights and how to exercise them

Under the Data Protection legislation, you have the following **qualified** rights:

(1) The right to access your personal data held by or on behalf of the University;
(2) The right to rectification if the information is inaccurate or incomplete;
(3) The right to restrict processing and/or erasure of your personal data;
(4) The right to data portability;
(5) The right to object to processing;
(6) The right to object to automated decision making and profiling;
(7) The right to complain to the Information Commissioner's Office (ICO).

We will always respond to concerns or queries you may have. If you wish to exercise your rights or have any other general data protection queries, please contact UWE Bristol's Data Protection Officer (dataprotection@uwe.ac.uk).

If you have any complaints or queries relating to the research in which you are taking part please contact either the research project lead, whose details are in the attached Participant Information Sheet or UWE Bristol's research governance manager (researchgovernance@uwe.ac.uk.).

Consent Form

Developing Positive Project Reputation in Construction Businesses: UK Contractor's Perspectives to Critical Determinants

This consent form will have been given to you with the Participant Information Sheet. Please ensure that you have read and understood the information contained in the Participant Information Sheet and asked any questions before you sign this form. If you have any questions please contact a member of the research team, whose details are set out on the Participant Information Sheet.

If you are happy to take part in the interview, please sign and date the form. You will be given a copy to keep for your records.

- I have read and understood the information in the Participant Information Sheet which I have been given to read before asked to sign this form;
- I have been given the opportunity to ask questions about the study;
- I have had my questions answered satisfactorily by the research team;
- I agree that anonymised quotes may be used in the final Report of this study;
- I understand that my participation is voluntary and that I am free to withdraw at any time until the data has been anonymised, without giving a reason;
- I agree to take part in the research.

Name (Printed)...

Signature.. Date.........................

Oladimeji Olawale
Doctoral Researcher
Faculty of Business and Law
University of the West of England
Frenchay Campus, Bristol, BS16 1QY.
Tel (Office) +44(0)1173285686
Email: Oladimeji.Olawale@uwe.ac.uk

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Appendix 5: Questionnaire

**A Multi-Dimensional Evaluative Framework for Examining Project
Reputation within the Construction Industry: Contractors' Perspective**

Section A: Aim, Objectives and Ethics

Dear Respondents,

I am a doctoral researcher at the Faculty of Business and Law, University of the West of England (UWE), Bristol, delving into the intricate subject of "A Multi-Dimensional Evaluative Framework for Examining Project Reputation within the Construction Industry: Contractors' Perspective." As a continuation of my in-depth research, this questionnaire aims to gather insights from industry stakeholders regarding the reputational evaluation mechanisms in the construction sector, with a specific emphasis on the contractors' viewpoint.

I wish to assure you that the primary intent of collecting responses is for academic enrichment, and therefore, every individual's response will be accorded the highest degree of confidentiality. This approach adheres strictly to UWE's established ethical guidelines concerning the anonymity of research participants.

It's also vital to highlight that your participation remains entirely voluntary. If any question seems unsuitable or causes discomfort, you're at complete liberty to abstain from answering. Nonetheless, rest assured that the questions revolve around your professional experiences related to project reputation within the construction industry. I estimate that the questionnaire will take approximately 30 minutes to complete.

Please do not hesitate to reach out with any concerns or inquiries about this survey. Thank you in advance for your invaluable contribution.

Section B: Demographics of the Respondents.

Please mark answers with an 'X'

   1. **Type of Organisation:**

   - Tier 1 – General Contractor ☐
   - Tier 2 – Subcontractor ☐
   - Tier 3 – Specialty Contractor ☐

   2. **Job Title of Respondent:**

   - Project Manager ☐
   - Design Manager ☐
   - Civil/Structural Engineer ☐
   - Architect ☐
   - Other (please specify)

3. Years of Experience of Respondent within the Fintech Industry:

- 1-5 ☐
- 6-10 ☐
- 11-15 ☐
- 16-20 ☐
- 21-25 ☐
- Above 25 ☐

4. Please select the highest level of education that you have attained:

- High school/college graduate, diploma or equivalent ☐
- Bachelor's Degree ☐
- Master's Degree ☐
- Doctorate Degree ☐
- Other (please specify)

Section C: Client Satisfaction factors influencing the project reputation of construction organisations in the UK.

This section explores two key client satisfaction mechanisms derived from the qualitative study and their related factors influencing the reputation of UK construction organisations. Drawing from your experience with construction projects in the UK, please rate the significance of these factors using the scale below:

- 1 denotes "Not Important".
- 2 signifies "Less Important".
- 3 indicates "Moderately Important".
- 4 represents "Important".
- 5 stands for "Most Important".

Better Engagement of Clients Throughout Project Delivery Lifecycle (BE)						
Label	To what extent do you agree that the following are essential for influencing project reputation of construction organisations	Factor Importance				
		5	4	3	2	1
BE-1	Open and honest interactions with clients.	☐	☐	☐	☐	☐
BE-2	Proactive assessment of client concerns or issues throughout the project lifecycle.	☐	☐	☐	☐	☐
BE-3	Tailored communication to suit client preferences	☐	☐	☐	☐	☐
BE-4	Empathetic understanding of the client's vision and concerns.	☐	☐	☐	☐	☐
Meeting or Exceeding Clients Project Delivery Expectations (MEC)						
Label	To what extent do you agree that the following are essential for influencing project reputation of construction organisations	Factor Importance				
		5	4	3	2	1

		5	4	3	2	1
MEC-1	Active involvement of the client in key decision-making processes.	☐	☐	☐	☐	☐
MEC-2	Regular and clear communication with the client.	☐	☐	☐	☐	☐
MEC-3	Ability to adapt to client requirements.	☐	☐	☐	☐	☐
MEC-4	Regular risk identification, reporting and mitigation.	☐	☐	☐	☐	☐
MEC-5	Effective change management process.	☐	☐	☐	☐	☐
MEC-6	Continual improvement based on past project experiences.	☐	☐	☐	☐	☐
MEC-7	Ensuring safety standards and regulations are strictly adhered to.	☐	☐	☐	☐	☐

Section D: Innovation factors influencing the project reputation of construction organisations in the UK.

This section explores four key innovation mechanisms derived from the qualitative study and their related factors influencing the reputation of UK construction organisations. Drawing from your experience with construction projects in the UK, please rate the significance of these factors using the scale below:

- 1 denotes "Not Important".
- 2 signifies "Less Important".
- 3 indicates "Moderately Important".
- 4 represents "Important".
- 5 stands for "Most Important".

Incremental Innovation (II)						
Label	To what extent do you agree that the following are essential for influencing project reputation of construction organisations	Factor Importance				
		5	4	3	2	1
II-1	Effective planning and strategic execution of incremental innovations.	☐	☐	☐	☐	☐
II-2	Continuous learning and adaptability of the project team.	☐	☐	☐	☐	☐
II-3	Proactive risk management for new implementations.	☐	☐	☐	☐	☐
II-4	Regular stakeholder communication about innovation updates.	☐	☐	☐	☐	☐
II-5	Consistent feedback and evaluation mechanisms.	☐	☐	☐	☐	☐
II-6	Building an innovation-friendly project culture.	☐	☐	☐	☐	☐
Radical Innovation (RI)						
Label	To what extent do you agree that the following are essential for influencing project reputation of construction organisations	Factor Importance				
		5	4	3	2	1
RI-1	Strong leadership to drive radical changes.	☐	☐	☐	☐	☐

		5	4	3	2	1
RI-2	Thorough market and feasibility analysis.	☐	☐	☐	☐	☐
RI-3	Skilled project team with high risk tolerance.	☐	☐	☐	☐	☐
RI-4	Availability of resources for substantial innovation.	☐	☐	☐	☐	☐
RI-5	Stakeholders buy-in and acceptance of major changes.	☐	☐	☐	☐	☐
RI-6	Robust change management and contingency plans.	☐	☐	☐	☐	☐
RI-7	Regular training and skill development for project team members.	☐	☐	☐	☐	☐
RI-8	Active monitoring and evaluation of implemented ideas.	☐	☐	☐	☐	☐

Architectural Innovation (AI)

Label	To what extent do you agree that the following are essential for influencing project reputation of construction organisations	Factor Importance				
		5	4	3	2	1
AI-1	Competent design team with a creative approach.	☐	☐	☐	☐	☐
AI-2	Understanding of end-user preferences and trends.	☐	☐	☐	☐	☐
AI-3	Clear communication of design objectives and expectations.	☐	☐	☐	☐	☐
AI-4	Efficient implementation of design changes.	☐	☐	☐	☐	☐
AI-5	Regular design reviews and quality checks.	☐	☐	☐	☐	☐
AI-6	Customer involvement in design feedback and iterations.	☐	☐	☐	☐	☐

Modular Innovation (MI)

Label	To what extent do you agree that the following are essential for influencing project reputation of construction organisations	Factor Importance				
		5	4	3	2	1
MI-1	Thorough analysis of current project components.	☐	☐	☐	☐	☐
MI-2	Clear identification of areas requiring improvement.	☐	☐	☐	☐	☐
MI-3	Efficient planning and execution of improvement actions.	☐	☐	☐	☐	☐
MI-4	Regular monitoring and evaluation of improvements.	☐	☐	☐	☐	☐
MI-5	Transparent communication about refinements with stakeholders.	☐	☐	☐	☐	☐
MI-6	Maintenance of a continuous improvement culture within the project team.	☐	☐	☐	☐	☐

Section E: Competency factors influencing the project reputation of construction organisations in the UK.

This section explores four key competency mechanisms derived from the qualitative study and their related factors influencing the reputation of UK construction organisations. Drawing from your experience with construction projects in the UK, please rate the significance of these factors using the scale below:

- 1 denotes "Not Important".
- 2 signifies "Less Important".
- 3 indicates "Moderately Important".
- 4 represents "Important".
- 5 stands for "Most Important".

	Efficient Communication Among Project Teams and Stakeholders (ECA)					
Label	To what extent do you agree that the following are essential for influencing project reputation of construction organisations	**Factor Importance**				
		5	**4**	**3**	**2**	**1**
ECA-1	Clear and concise communication processes.	☐	☐	☐	☐	☐
ECA-2	Active listening and feedback mechanisms.	☐	☐	☐	☐	☐
ECA-3	Usage of appropriate communication channels.	☐	☐	☐	☐	☐
ECA-4	Regular communication scheduling.	☐	☐	☐	☐	☐
ECA-5	Timely response to queries and issues.	☐	☐	☐	☐	☐
ECA-6	Transparent sharing of project status and updates.	☐	☐	☐	☐	☐
	Project Manager's Competency in Efficient Project Delivery (PMC)					
Label	To what extent do you agree that the following are essential for influencing project reputation of construction organisations	**Factor Importance**				
		5	**4**	**3**	**2**	**1**
PMC-1	Effective project planning and execution skills.	☐	☐	☐	☐	☐
PMC-2	Deep understanding of project operations.	☐	☐	☐	☐	☐
PMC-3	Ability to identify and mitigate risks.	☐	☐	☐	☐	☐
PMC-4	Strong decision-making capabilities.	☐	☐	☐	☐	☐
PMC-5	Proven track record of successful project deliveries.	☐	☐	☐	☐	☐
PMC-6	Effective delegation and resource allocation skills.	☐	☐	☐	☐	☐
	Effective Leadership Competencies of Project Manager (ELC)					
Label	To what extent do you agree that the following are essential for influencing project reputation of construction organisations	**Factor Importance**				
		5	**4**	**3**	**2**	**1**
ELC-1	Visionary and strategic thinking abilities.	☐	☐	☐	☐	☐
ELC-2	Strong interpersonal and influence skills.	☐	☐	☐	☐	☐
ELC-3	Ability to inspire and motivate the team.	☐	☐	☐	☐	☐
ELC-4	Conflict resolution and problem-solving skills.	☐	☐	☐	☐	☐
ELC-5	Capacity to foster a positive and productive project culture.	☐	☐	☐	☐	☐
ELC-6	Emotional intelligence to manage team dynamics.	☐	☐	☐	☐	☐
	Project Manager's Technical Proficiency (PMT)					

Label	To what extent do you agree that the following are essential for influencing project reputation of construction organisations	Factor Importance				
		5	4	3	2	1
PMT-1	Adequate knowledge of project-specific technical aspects.	☐	☐	☐	☐	☐
PMT-2	Ability to guide the team on technical issues.	☐	☐	☐	☐	☐
PMT-3	Capability to oversee technical quality checks.	☐	☐	☐	☐	☐
PMT-4	Staying updated with latest technical advancements.	☐	☐	☐	☐	☐
PMT-5	Skills to solve complex technical problems.	☐	☐	☐	☐	☐
PMT-6	Communication of technical complexities in simple terms.	☐	☐	☐	☐	☐

Section F: Project Performance factors influencing the project reputation of construction organisations in the UK.

This section explores two key project performance mechanisms derived from the qualitative study and their related factors influencing the reputation of UK construction organisations. Drawing from your experience with construction projects in the UK, please rate the significance of these factors using the scale below:

- 1 denotes "Not Important".
- 2 signifies "Less Important".
- 3 indicates "Moderately Important".
- 4 represents "Important".
- 5 stands for "Most Important".

Efficient Process Management (EP)						
Label	To what extent do you agree that the following are essential for influencing project reputation of construction organisations	Factor Importance				
		5	4	3	2	1
EP-1	Thorough understanding of project processes.	☐	☐	☐	☐	☐
EP-2	Effective process planning and execution skills.	☐	☐	☐	☐	☐
EP-3	Use of process optimization techniques.	☐	☐	☐	☐	☐
EP-4	Regular process audits and improvements.	☐	☐	☐	☐	☐
EP-5	Adherence to process standards and guidelines.	☐	☐	☐	☐	☐
EP-6	Efficient coordination among different process steps.	☐	☐	☐	☐	☐
Efficient Product Management (EPM)						
Label	To what extent do you agree that the following are essential for influencing project reputation of construction organisations	Factor Importance				
		5	4	3	2	1
EPM-1	Clear understanding of product requirements.	☐	☐	☐	☐	☐
EPM-2	Capability to manage product development lifecycle.	☐	☐	☐	☐	☐

EPM-3	Strong coordination with design and production teams.	☐	☐	☐	☐	☐
EPM-4	Ability to manage product-related risks and issues.	☐	☐	☐	☐	☐
EPM-5	Quality assurance and control for product outputs.	☐	☐	☐	☐	☐
EPM-6	Regular product updates and communication with stakeholders.	☐	☐	☐	☐	☐

Section G: Any additional comments

Please state any further information that you feel may have particular importance to the outcome of this questionnaire.

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