

Copyright is owned by the Author of the thesis. Permission is given for a copy to be downloaded by an individual for the purpose of research and private study only. The thesis may not be reproduced elsewhere without the permission of the Author.

**Modelling the relationship between Individual and
Organisational Resilience: A multi-method framework for
the New Zealand construction sector**

Mitansha

*A thesis submitted in fulfilment of the requirements for the degree of Doctor of
Philosophy in Building and Construction*

Field of Building and Construction

Supervised by:

Dr. Fei Ying

Prof. James O.B. Rotimi

2025

Abstract

The New Zealand construction industry has always been dynamic and impacted by changing environment like disasters, pandemic outbreaks, geopolitics, scientific and technological innovation. It is indeed vital for the construction organisations to be resilient, which is defined as an organisation's capacity to anticipate, absorb, adapt to, and recover from disruptive events while maintaining core functions amidst such scenarios, to facilitate community and national resilience. Nevertheless, they are also fruitful in poverty reduction, employment generation and contributes to the nation's GDP. Additionally, the resilience of the organisations is significantly impacted by its most fundamental unit, i.e., the individuals as their ideas, attitudes, and adaptive behaviours directly influence how the organisation perceives threats, makes decisions, and mobilises resources during disruption. In this sense, the resilience of individuals, which is the individual's capacity to cope, adapt, and recover under pressure becomes a critical determinant of how effectively an organisation can respond and recover. In other words, organisations function through their people because it is the individuals who carry out the work, interpret unfolding situations, improvise solutions, coordinate actions, and drive recovery. Consequently, the quality and speed of an organisation's response are inseparable from the resilience, capabilities, and constraints of its workforce.

In line with this, the existing literature often highlights the direct and largely positive relationship between individual resilience (IR) and organisational resilience (OR). Numerous studies describe resilient employees as the micro-foundations of resilient organisations, arguing that adaptive individuals collectively enhance organisational learning, continuity, and performance during disruption (e.g., leadership studies linking employee adaptability to firm recovery). Under this view, resilient individuals are expected to aggregate into resilient organisations through mechanisms such as shared problem-solving, rapid information exchange, and mutual support. However, several other studies show that resilient individuals may or may not be positively linked to organisational resilience. Resilient individuals may cope effectively with disruption, yet their adaptive responses do not always align with organisational priorities or structural constraints and can even create inefficiencies or conflict within the wider system. For instance, the self-protecting nature of a resilient individual to manage and cope against a scenario may impact the organisational goals negatively. Moreover, the opinions or the decisions of resilient individuals could be different from each other and may result in conflict and disturbed organisational environment.

The literature, therefore, presents two competing narratives: one depicting a simple positive association, and another highlighting non-linear, complex dynamics. This conceptual ambiguity is especially pronounced in complex, multi-actor sectors such as construction, where micro-level behaviours and macro-level systems frequently misalign, leaving the mechanisms of IR–OR interaction both practically important and theoretically unresolved. As a result, the influence of individual resilience (IR) on organisational resilience (OR) remains conceptually ambiguous and empirically underexplored. It is unclear whether the effect is consistently positive, conditional, or at times counterproductive. Due

to the unclear relationship, the modelling of the two entities also carries multiple possibilities and thus, carry immense potential to be explored.

To resolve this ambiguity, the research investigates how IR and OR connect in practice, which conditions enable or block that connection, and what capabilities translate individual adaptation into organisational continuity. Thus, the aim of the study is to develop a multi-method framework to explore the relationship between Individual Resilience (IR) and Organisational Resilience (OR) of the NZ construction sector. To achieve the aim, the study explores 3 research objectives, including 7 research questions. The research method encompasses three reinforcing steps. First, a systematic literature review (SLR), aligned with PRISMA 2020, mapped definitions, boundaries, and theorised linkages between IR and OR and identified a fragmented evidence base that treats the two entities in isolation. The findings revealed that IR and OR are conceptually connected but remain poorly integrated, with existing studies offering competing explanations ranging from direct positive relationships to conditional or mediated interactions. This step helped in producing a preliminary analytical frame. Second, the study conducted two rounds of semi-structured interviews, using purposive sampling to reach information-rich participants. The findings showed that the IR–OR relationship is not automatic but is shaped by key mediating factors such as leadership, communication, organisational culture, empowerment, shared purpose, learning orientation, and resourcefulness. This particular step helped in resolving the complex functioning of the two entities by unfolding the key factors that act as a bridge between the two. Third, a focused group discussion (FGD) with nine senior industry experts validated and refined the emerging framework (terminology, flows, bidirectionality), improving analytical precision and practical usability. The findings confirmed the relevance of the model and led to refinement of its terminology, directional flows, and bidirectional links between IR and OR. Collectively, this triangulation led to the development of a conceptual model and elevated construct clarity, deepened contextual grasp, and increased the robustness of inferences about the IR–OR interface.

The key contribution of this research lies in advancing a more nuanced and contextually grounded understanding of the IR–OR relationship. Unlike existing models that often treat individual resilience and organisational resilience as either separate constructs or as directly and positively connected, the proposed framework demonstrates that their relationship is complex, mediated, contextual, conditional, and bidirectional. A distinctive contribution of the model is its emphasis on resourcefulness as a critical mediating capability, showing that resilience is not determined solely by the availability of resources, but by how effectively individuals and organisations mobilise, adapt, and reconfigure those resources during disruption. The framework also extends current resilience thinking by recognising that the IR–OR relationship is shaped by the source of resilience, whether it emerges from individual capacities or organisational systems, and the purpose resilience is intended to serve, such as survival, adaptation, continuity, or transformation. Ultimately, the final model offers a diagnostic lens that is both conceptually robust and practically usable. It can support tools such as resilience audits, strategic workforce planning, and the integration of resilience thinking into business continuity frameworks, enabling organisations to not only assess their current capabilities but also intervene meaningfully to strengthen them.

Limitations include sectoral and geographic specificity (New Zealand construction), purposive sampling with positional bias toward senior roles, and reliance on self-reported qualitative data, which may constrain generalisability and introduce perception biases. Future research should quantitatively operationalise and test the model, extend sampling to frontline/site roles, and employ longitudinal designs to track resilience dynamics across disruption and sectors/countries.

To my grandparents for their love and blessings.

To my father, for his progressive thinking and encouragement.

To my mother, for her unwavering love and support.

To my brother, for his constant belief and affection.

To my partner, for his endless patience and for being my pillar.

Acknowledgement

The successful completion of this research has been made possible through the invaluable assistance and encouragement of many individuals who have supported me throughout this journey.

I would like to extend my deepest appreciation to Professor Suzanne Wilkinson, Professor Regan Potangaroa, Dr. Fei Ying, and Professor James O.B. Rotimi. I have had the privilege of learning from some of the most distinguished scholars in the field of the Built Environment. This journey would not have begun without Professor Suzanne Wilkinson, who gave me the opportunity to pursue my dream. During the brief yet meaningful period I worked with her, I learned the importance of humility while maintaining confidence and authority in one's work.

My heartfelt gratitude also goes to Professor Regan Potangaroa, with whom I spent the most significant part of this journey. That phase was marked by many highs and lows, and his constant guidance taught me how to navigate challenges with patience, humour, and an open mind. He remained a strong pillar of support and is someone whom I continue to see as a guardian in this faraway land.

In the final and most crucial stage of my study, I received unwavering supervision and mentorship from Dr. Fei Ying and Professor James O.B. Rotimi. Their insightful guidance, thoughtful feedback, and constant encouragement were instrumental in bringing this thesis to completion. Their collective wisdom not only shaped this thesis but also greatly contributed to my personal and professional growth. I am sincerely indebted to them for their continued belief in my abilities and for motivating me to persevere until the very end.

I would also like to extend my special appreciation to the Ministry of Business, Innovation and Employment (MBIE), whose financial support made this research possible. Their contribution went far beyond funding as it provided the stability and resources necessary to pursue my academic goals with focus and commitment. The Ministry's emphasis on advancing knowledge and innovation in the built environment inspired much of the practical relevance of this study. I am deeply thankful for their trust in my work and for offering me the opportunity to contribute to an area of research that aligns with national priorities.

List of publications

Journal Papers (Published)

- Mitansha, M., Wilkinson, S., Potangaroa, R. (2023). 'Impact of Individual Resilience on Organisational Resilience: An Exploratory Study'. *International Journal of Economics and Management Engineering*, 17(12), 901 – 907. Retrieved from <https://publications.waset.org/10013426/impact-of-individual-resilience-on-organisational-resilience-an-exploratory-study>
- Mitansha, & Potangaroa, R. (2025). Exploring the Interplay between Individual Resilience and Organisational Resilience of New Zealand in the Construction sector: A Comprehensive Analysis. *Sustainability*, 17(16), 7229. <https://doi.org/10.3390/su17167229>
- Mitansha, & Potangaroa, R., & Wilkinson, S (2025). Investigating the Connection Between Individual and Organisational Resilience. *Systems*, 13(10), 907. <https://doi.org/10.3390/systems13100907>

Journal Papers (Draft Preparation)

- Mitansha, Ying, F., & Rotimi, J.O. (2025). Conceptual Refinement and Validation of the IR–OR Model.

Conference Papers (Published)

- Mitansha, N., Wilkinson, S., & Potangaroa, R. (2024). An examination on individual resilience to achieve organisational resilience. In *Advances in Science, Technology & Innovation/Advances in science, technology & innovation* (pp. 319–326). https://doi.org/10.1007/978-3-031-63203-7_25
- Wilkinson, S, Potangaroa, R, Cameron, R and Mitansha, M (2024) Improving Disaster Response: Combining Organisational and Individual Resilience for Improved Outcomes In: Thomson, C and Neilson, C J (Eds) *Proceedings of the 40th Annual ARCOM Conference*, 2-4 September 2024, London, UK, Association of Researchers in Construction Management, 205-214
- Mitansha, Wilkinson, S., & Potangaroa, R. (2025). Exploring the Impact of Emotion-Focussed Coping Strategies, Including Humour, on Organisational Resilience: A Systematic Literature Review of the New Zealand Construction Industry. In M. Sutrisna, M. B. Jelodar, N. Domingo, A. Le, & R. Kahandawa, *Creating Capacity and Capability: Embracing Advanced Technologies and Innovations for Sustainable Future in Building Education and Practice* Singapore.
- Mitansha, & Potangaroa, R. (2025). Resources verses Resourcefulness- The need for achieving organisational resilience. AUBEA, Canberra, Australia (ACCEPTED)

Table of Content

Abstract	ii
Acknowledgement	vi
List of publications	vii
Table of Content.....	viii
List of Tables.....	xiii
Abbreviations and Acronyms	xiv
Part A: Overview	1
A.1. PROLOGUE TO PART A	2
CHAPTER ONE	3
1.1. Background.....	3
1.2. Context of the research/Statement of Problem.....	7
1.3. Research Aim and Objective	9
1.4. Scope of the study.....	9
CHAPTER TWO	12
2.1. Overview	12
2.2. Research Philosophy	12
2.3. Research Approach.....	13
2.4. Research Methods	14
2.5. Research Process	15
2.5.1. Literature Review.....	16
2.5.2. First Round of Qualitative Inquiry.....	17
2.5.3. Second Round of Qualitative Inquiry	18
2.5.4. Focus group	20
2.5.5. Ethics.....	21
2.5.6. Thesis Layout	21
A.2. EPILOGUE TO PART A	24
Part B: Literature Review.....	25
B.1. PROLOGUE TO PART B	26
B.2. Conceptual Background.....	27
B.2.1. Overview of Resilience	27
B.2.2. Organisational Resilience.....	30
B.2.3. Individual Resilience	35

CHAPTER THREE	43
3.1. Introduction	44
3.2. Theoretical framework	44
3.2.1. Individual Resilience and Organisational Resilience	44
3.2.2. An Overview of Key Indicators of organisational resilience and individual resilience	45
3.3. Research Methodology	46
3.4. Findings	47
3.5. Conclusion	52
CHAPTER FOUR	54
4.1. Introduction	55
4.2. Theoretical Framework	55
4.3. Research Methodology	56
4.4. Analysis and Discussions	58
4.5. Conclusion	64
CHAPTER FIVE	66
5.1. Introduction	67
5.2. Definitions and Theoretical Background	70
5.2.1. Organisational Resilience	70
5.2.2. Individual Resilience	70
5.2.3. Theoretical Evolution of the Relationship Between Individual and Organisational Resilience	71
5.3. Research Methodology	71
5.3.1. Literature retrieval and selection	72
5.3.2. Quality Assessment	74
5.3.3. Inclusion and Exclusion Criteria	75
5.3.4. Data Analysis	75
5.4. Findings and Discussion	76
5.4.1. The unaddressed gap between individual resilience and organisational resilience	76
5.4.2. Potential Conceptual Model	80
5.4.3. Future Research Opportunities	86
5.5. Conclusion	88
B.3. EPILOGUE TO PART B	90
Part C: Developing the Modified Integrated Resilience Model: Empirical Findings and Thematic Synthesis	92
C.1. PROLOGUE TO PART C	93

CHAPTER SIX	94
6.1. Introduction	95
6.2. Literature Review.....	97
6.2.1. Organisational and Individual resilience.....	97
6.2.2. Relationship between Individual and Organisational resilience	98
6.2.3 Unclear link between the Individual and Organisational resilience	99
6.3. Materials and Method.....	99
6.3.1. Procedure of conducting the study	99
6.3.2. Details of the participants	101
6.4. Analysis and Discussion	102
6.4.1. Relationship between Individual and Organisational resilience	102
6.4.2. Integrated Resilience Model	114
6.5. Conclusion	117
C.2. EPILOGUE TO PART C	119
Part D: Model Refinement	123
D.1. PROLOGUE TO PART D	124
CHAPTER SEVEN	125
7.1. Introduction	126
7.2. Literature Review.....	127
7.2.1. Resource role in Organisational Resilience	127
7.2.2. Challenges in the Resource–Resilience Link.....	127
7.2.3. Resourcefulness as a Mediating Construct in Resilience Theory.....	129
7.3. Research Methodology	131
7.3.1. Research Design	131
7.3.2. Data Collection Method.....	131
7.3.3. Data Analysis.....	132
7.3.4. Ethical Considerations	132
7.3.5. Details of the participants	132
7.4. Findings.....	133
7.4.1. The Resource–Resilience Gap	133
7.4.2. Resourcefulness as a Mediating Capability	134
7.4.3. Enablers of Resourcefulness	135
7.5. Conclusion	141
CHAPTER EIGHT	143
8.1. Introduction	144
8.2. Research Method	145

8.2.1. Research Design	145
8.2.2. Data Collection Method.....	146
8.2.3. Data Analysis	148
8.3. Findings.....	149
8.3.1 Contextual Factors in Individual and Organisational Resilience relationship	149
8.3.2. Process Description of the Revised Conceptual Model	154
8.3.3. Qualitative feedback and refinement	166
8.4. Conclusion	174
D.2. EPILOGUE TO PART D	177
Part E: Conclusion and Recommendation	180
E.1. PROLOGUE TO PART E.....	181
CHAPTER NINE	182
9.1. Research Overview	182
9.2. Achievement of Research Objective.....	183
9.2.1. Objective 1: To assess the current literature on the relationship between individual and organisational resilience.	183
9.2.2. Objective 2: To explore how construction professionals perceive the relationship between individual and organisational resilience, and to identify the organisational factors that influence their interaction.	186
8.2.3. Objective 3: To develop an integrated framework that captures the interaction between individual and organisational resilience and informs resilience-building interventions in the construction industry.....	188
9.3. Theoretical Contribution of the Study	191
9.4. Practical Contribution of the Study.....	194
9.5. Research Limitation and Future Research Opportunities	196
E.2. EPILOGUE TO PART E.....	200
REFERENCE.....	201
APPENDICES.....	217
Appendix 1: Ethics Approval	218
Appendix 2: Coding Framework: From Initial Codes to Themes for Chapter 5.....	220
Appendix 3: Semi- Structured Interview Questions (First Round).....	222
Appendix 4: Coding Framework: From Initial Codes to Themes for Chapter 6.....	228
Appendix 5: Semi- Structured Interview Questions (Second Round)	230
Appendix 6: Coding Framework: From Initial Codes to Themes for Chapter 7 and 8	236
Appendix 7: Focus Group Discussion Questions.....	237
Appendix 8: Statement of Contribution Forms	243

List of Figures

Figure 2.1- Research Framework.....	23
Figure B.1- Word cloud showing the dominant keywords related to organisational resilience.	33
Figure B.2- Word cloud showing the dominant keywords related to individual resilience.	39
Figure 4.1. PRISMA Flow Diagram	58
Figure 5.3- Stack resilience model (source- author)	81
Figure 5.4- Integrated Resilience Model (source- author)	83
Figure 5.5- Nested resilience model (source- author)	85
Figure 6.1. Distribution of key factors as per the interviewee's responses.....	107
Figure 6.2- Modified Integrated Model of Individual and Organisational Resilience	116
Figure 8.1- Revised Integrated Model	163
Figure 8.2- Refined version of the Modified Integrated Model based on expert's recommendations	172

List of Tables

Table B.1- Definitions of organisational resilience from literature.....	31
Table B.2- Definitions of individual resilience from literature	36
Table 6.1. Respondents profile for interview phase	102
Table 6.2. Identified themes from transcripts (Source-NVivo)	106
Table 7.1. Respondents profile for interview phase	132
Table 8.2. Respondents profile for Focus Group phase.....	148

Abbreviations and Acronyms

- IR: Individual Resilience
- OR: Organisational Resilience
- NZ: New Zealand
- MBIE: Ministry of Business, Innovation and Employment
- BRANZ: Building Research Association of New Zealand
- ResOrgs: Resilient Organisation
- PRISMA: Preferred Reporting Items for Systematic Reviews and Meta Analyses
- ERM: Enterprise Risk Management
- BCP: Business Continuity Planning
- CC: Contracting and Consultancy Firms
- C: Consultancy Firms
- RE: Real Estate Firms
- MS: Manufacturing and Supplier Firms
- BI: Building and Infrastructure Firms
- CT: Construction Firms
- HR: Human Resource Firms
- E: Engineering Firms
- CP: Construction Professionals
- IP: Insolvency Practitioners
- FGD: Focus Group Discussion

Part A: Overview

A.1. PROLOGUE TO PART A

The Part A of this thesis lays the foundation for discussing the significance of resilience in the construction sector, with a particular emphasis on New Zealand's unique risk landscape and its implications for resilience at multiple levels. The part introduces the background and significance of the study, highlighting the need to explore the interrelationship between individual resilience (IR) and organisational resilience (OR) in the context of repeated disruption and sectoral volatility. The part encompasses an extensive background study, with a clearly defined statement of the problem, that currently limits the understanding and implementation of resilience strategies within high-risk industries.

Following this, the research aim, objectives, and corresponding research questions are presented, providing a logical trajectory for the rest of the thesis. A brief discussion of the scope clarifies the boundaries of inquiry, focusing on the intersection of IR and OR in the New Zealand construction sector. This part also outlines the methodological foundations of the study, including the philosophical stance, research design, and inductive logic that guided the research process. The research framework and strategy are explained in detail, mapping the relationship between the research objectives, methods, and key analytical phases.

Together, these components establish the rationale for the study's design, ensuring coherence between the research questions, methods, and final contributions. This part also provides a roadmap for how the research was operationalised, and how each objective would be addressed through the chosen methods.

CHAPTER ONE

INTRODUCTION

1.1. Background

Across the globe, construction industries exert a substantial impact on the economies of countries, functioning as both a facilitator and a connective force to other sectors. This phenomenon is particularly pronounced in developing nations, where the construction sector plays a critical role in fostering sustainable development. The construction industry holds a crucial position in driving economic growth and advancement in nations around the globe. It serves as a significant avenue for generating employment opportunities for both skilled and unskilled labour on a massive scale (Cucos & Turcan, 2025). Additionally, the sector contributes to fostering economic development through both direct and indirect means. In an international context, the construction industry commands a 15% share of the GDP and is projected to expand further, reaching US\$ 15,030 billion by 2025, a testament to its pivotal role in the global economic landscape (Agyekum et al., 2021). In most nations, this sector contributes 5% to 7% to the country's GDP, with an average global expenditure of USD 1.7 trillion (Alaloul et al., 2021). A well-functioning construction industry enhances tourism, elevates living standards, bolsters financial circulation, promotes sustainability, and generates employment, all of which are essential for national development.

As of June 2023, the construction sector constituted 6.3% of New Zealand's real GDP and directly employed 308,500 individuals, representing about 10.7% of the total workforce (MBIE, 2023). Additionally, the sector was responsible for 8% of all national imports in the same period (StatsNZ, 2023). Tasked with delivering housing, structures, and fundamental infrastructure to society, this industry holds a pivotal role in enhancing New Zealand's community well-being, aligning with government policies, and driving economic advancement. Several studies (Bosher et al., 2007; Sapeciay et al., 2017; Wilkinson et al., 2016) underscore the construction sector's significance in enhancing community resilience. With society's increasing reliance on critical infrastructures like power, water, telecommunications, and transportation, Seville et al. (2008) emphasised the need for infrastructure to be resilient because of their criticality to societal growth and development. Therein lies Bosher's assertion of the role of the construction sector at ensuring the proper functioning of critical infrastructure. Additionally, Chih et al (2022) asserts that the construction sector would need to craft context-specific strategies for dealing with unexpected shocks. Nevertheless, the resilience of infrastructures is not confined to their solid physical elements but also extend to the elements responsible for constructing, operating, and managing these infrastructures.

It is important to give due focus to New Zealand construction organisations as they have been struggling with shocks and stresses for quite a long time. For instance, the leaky building crisis of 2002, followed by a "bleak year of 2012" due to postponement of Canterbury reconstruction and less work at other sites. Finally, when the Canterbury recovery work started in early 2013, the sector faced a hike in cost

prices, lack of skilled labour and defects in various materials. According to Wilkinson (2022), almost 60 construction companies struggled with liquidation in 2015, making the situation severe. During 2019, the world faced the deadliest pandemic of all times, which froze every sector including construction. In order to maintain health and safety of the workers, the government had to impose a temporary suspension of all the operations (Day, 2020). Consequently, the New Zealand construction industry suffered a massive financial loss of 245 million/month. During the post pandemic phase, when the construction industry started to stabilise itself, it faced immense labour shortage due to strict immigration policies, higher wage in Australia and other countries, supply chain challenges and changes in technology and economy. Estimates suggest that the global construction industry's growth for the year 2020-2021 has been sharply reduced, dropping from 3.1% to just 0.5%, as outlined in the Global Data report of 2020. Unfortunately, the COVID-19 crisis within the construction sector presents an unprecedented chance to tackle the pressing issues confronting this industry. Key stakeholders in the construction domain, such as builders, contractors, and owners, have grappled with the far-reaching effects of the COVID-19 crisis on a worldwide scale, as highlighted by (Ogunnusi et al., 2020). Amidst all these issues, New Zealand again got hit by Cyclone Gabrielle in 2023 which led to major disruptions to various organisations, entailing important lifeline infrastructures (Harrington et al., 2023). Therefore, it has become extremely important to acknowledge the pivotal role of civil infrastructure sector of New Zealand and must address the stability, protection and resilience of organisations, which requires further examination (Pascua & Chang-Richards, 2018). In this context, the resilience of civil infrastructure carries immense value for the overall development of the country.

As per (Cunha et al., 2013; Hillmann & Guenther, 2021; Rioli & Savicki, 2003), resilience in the construction sector is not solely about structural integrity or engineering robustness. It is also about the organisational and human dimensions that enable firms to survive, adapt, and recover. This includes the behaviours of individuals during crises, the decisions made under pressure, and the systems in place to support dynamic responses. Thus, examining resilience in construction now requires a more holistic lens, one that integrates organisational, and psychological domains. APA (2020) defines psychological resilience as the process of “adapting well in the face of adversity, trauma, tragedy, threats or significant sources of stress.” This framing centres on cognitive and emotional traits such as optimism, emotional regulation, and self-efficacy (Tugade et al., 2004). While these traits are critical, particularly for mental health, scholars increasingly argue that psychological resilience alone is insufficient in explaining how individuals respond and adapt within complex and high-pressure work environments (Bardoel et al., 2014; Crane & Searle, 2016; Fletcher & Sarkar, 2013). This critique has led to the evolution of the individual resilience construct from a primarily psychological concept to a context-sensitive and action-oriented capability.

Individual resilience has been defined in multiple ways across disciplines, yet all definitions converge on key themes such as coping, adaptation, and survival. For instance, in psychology, it is often described as an individual's ability to maintain or regain mental health despite adversity (Masten, 2001). Clinical perspectives emphasise “bouncing back” from trauma or stress, while ecological models view resilience as the capacity to access and negotiate for resources within supportive environments (Ungar,

2011). Despite these disciplinary differences, the core mechanisms underlying resilience consistently emphasised how individuals cope with difficulty, adapt to change, and continue to function effectively under pressure.

This conceptual expansion has been especially significant in applied fields, including organisational psychology and occupational health, where individual resilience is often contextualised within performance-driven environments. Scholars such as McLarnon and Rothstein (2013) and Cooper et al. (2013) proposed that individual resilience in professional settings includes behavioural attributes such as task adaptability, decision-making under pressure, coping through role flexibility, and seeking social support. Similarly, McGonagle et al. (2014) illustrated individual resilience as “positive adaptability or ability to thrive in the face of adversity” and Sood et al. (2011) described it as “ability of an individual to withstand adversity”. These definitions reflect a shift from viewing resilience as an emotional stability to a more integrated concept that includes functional and interpersonal competencies. Thus, individual resilience becomes necessary, especially in high-risk industries such as construction, where individuals need to regularly navigate fluctuating deadlines, workforce volatility, physical danger, and project ambiguity. Resilience in such settings must reflect the ability to function and adapt in real time, rather than simply the ability to remain emotionally stable. This broader framing sometimes referred to as individual resilience in workplace, which acknowledges that resilience is not static or intrinsic but shaped by the interaction between personal traits and the organisational context (Bardoel et al., 2014). It integrates emotional, behavioural, and relational dimensions, making it more applicable to complex, task-oriented sectors like construction.

Parallel to this individual-level evolution, the field of organisational resilience also gained attention, especially in the past two decades. Different scholars explored organisational resilience and conceptualised in different ways. For instance, Duchek (2020) defines organisational resilience as the “capacity to anticipate potential threats, to cope effectively with adverse events, and to adapt to changing conditions”. It focussed on the dynamic capability of the organisation which is built from organisational learning, agility, and adaptive routines. Lengnick-Hall et al. (2011) conceptualise resilience as “a firm’s ability to effectively absorb, develop situation-specific responses to, and ultimately engage in transformative activities to capitalise on disruptive surprises that potentially threaten organisation survival”. Their framework focuses on strategic human resource management and positions resilience as a long-term capability for adaptation and growth, not just short-term recovery. Mallak (1998) introduced one of the earlier behavioural perspectives, defining resilience as “the ability of an organisation to absorb strain and maintain function despite environmental shocks”, linking it to leadership practices, culture, and communication. While these definitions vary in terms of their focus, they collectively converge on a few central themes: Anticipation: The proactive identification of potential disruptions or emerging risks, Absorption/Survival: The ability to continue critical operations despite shocks or stress, Adaptation and Evolution: Reconfiguring structures, processes, or behaviours to respond to new realities. These themes suggests that organisational resilience deals with how organisations withstand, recover from, and adapt to major disruptions. Moreover, it is dynamic in nature, and can be influenced by flexible systems, empowered individuals, and collaborative routines. It is seen

as a dynamic capability that depends on processes such as learning, agility, decentralisation, and resource flexibility. In this framing, organisational resilience is not only about systems and structures but also about the people within the system who act in adaptive, timely, and informed ways (Lengnick-Hall et al., 2011).

Despite the conceptual maturity of organisational resilience, the literature continues to underrepresent the mechanisms that connect individual-level resilience to organisational-level outcomes. Some scholars suggest that organisational resilience is built on the foundation of the resilience of members (Mallak, 1998; Rioli & Savicki, 2003). This straightforward and direct relationship indicates that the presence of resilient employees, characterised by optimism, emotional regulation, and adaptability, aggregates into resilient organisational behaviour (Duchek, 2020). However, others argue that this relationship is neither straightforward nor certain. In support, (Wang & Ahmed, 2003; Wishart, 2018) suggested that the relationship is often mediated by factors such as organisational culture, leadership practices, communication channels, and decision-making structures. This ambiguity is also noted in empirical studies. While psychological resilience is frequently measured through individual traits, like self-efficacy, emotional coping (Cassidy, 2015; Sabouripour et al., 2021), organisational resilience is assessed through strategic agility, performance metrics, or continuity planning (Chen et al., 2021). This measurement mismatch complicates efforts to trace how resilience at the micro level affects resilience at the macro level. Moreover, the distinct measurement frameworks reflect the separate disciplinary origins of the two constructs, i.e., psychology for individual resilience and management science for organisational resilience. As a result, the conceptual and methodological gap between them has limited cross-level research. This measurement mismatch complicates efforts to trace how resilience at the micro level (individual employees) contributes to resilience at the macro level (organisational systems), leaving the interaction between personal adaptation and organisational performance underexplored. Consequently, the relationship between individual and organisational resilience remains theoretically fragmented and empirically underdeveloped, despite increasing recognition that individual behaviours and attitudes are critical drivers of system-level resilience (Duchek, 2020; Linnenluecke, 2017).

Moreover, the dynamic and interactive nature of work environments especially in decentralised sectors like construction requires more than just trait-based resilience. Individual responses are shaped by situational variables, including team dynamics, autonomy, workload, and the availability of institutional support. Without addressing these contextual moderators, current resilience frameworks risk oversimplifying the link between personal adaptation and organisational performance. In addition, projects in construction are often temporary, distributed, and time-constrained, requiring rapid decision-making, role fluidity, and interpersonal coordination. While infrastructure resilience and project risk management are frequently studied, the individual resilience of professionals that determines how they cope under pressure, and support organisational continuity remains underexplored (Pascua & Chang-Richards, 2018; Sapeciay et al., 2019).

Addressing the gap between individual resilience and organisational resilience offers significant benefits for both theory and practice. From a theoretical standpoint, bridging this divide enables a more holistic understanding of resilience as a multi-level construct, where individual behaviours and psychological

capacities interact dynamically with organisational systems, structures, and culture. Such integration helps explain how individual adaptation influence collective outcomes like continuity, innovation, or recovery. Practically, linking individual and organisational resilience supports the development of targeted interventions that align personal capacities with organisational needs. For example, resilience training for employees can be more effective if the impact of supportive leadership practices, flexible work systems, and resource availability is assessed. In high-risk or fast-paced sectors like construction, where uncertainty and stress are routine, the understanding of the relationship can lead to more resilient workforces, stronger organisational adaptability, and more sustainable performance outcomes during times of disruption or change. Recognising the dynamic interplay between IR and OR can help the sector in several ways. First, it shifts resilience planning from reactive and resource-dependent approaches to more proactive, human-centred strategies. Second, it encourages organisations to move beyond technical resilience (e.g., redundancy or continuity planning) and invest in psychological and behavioural capacities. Finally, it provides a basis for integrated training, leadership development, and mental health interventions that are not isolated efforts but part of a broader organisational resilience agenda.

The proposed framework developed through this research is intended to support three primary user groups: industry practitioners (e.g., project managers, HR professionals, safety coordinators), policymakers, and academic researchers. For practitioners, the framework serves as a diagnostic tool to identify weak links between individual and organisational resilience and develop context-specific interventions. For policymakers, it offers a structured lens to design resilience-supportive regulations and workforce development initiatives. For researchers, the model opens new avenues to explore multi-level resilience through longitudinal or comparative studies. At its core, the framework is designed to bridge the micro-macro divide. It maps how individual traits such as emotional regulation, self-efficacy, and adaptability interact with organisational dimensions like leadership, learning culture, and system agility. By capturing these dynamics, the framework not only offers a conceptual contribution to resilience theory but also a practical guide for building more adaptive, sustainable construction organisations.

1.2. Context of the research/Statement of Problem

Despite the growing prominence of resilience as a critical construct in both psychological and organisational research, the field lacks a cohesive theoretical framework or practical guidance on how resilient individuals impact resilient organisations, or how organisational structures, cultures, and leadership influence the development and enactment of individual resilience. This has resulted in fragmented resilience strategies, where interventions are implemented in isolation focusing either on employee mental health and wellbeing or on system-level contingency planning, without recognising the dynamic and potentially reciprocal relationship between individual adaptability and organisational capacity. This conceptual gap is especially problematic in complex, task-oriented sectors such as construction, where individual and organisational responses must be tightly aligned to manage constant uncertainty, high operational risk, and systemic interdependence. Without a unified understanding of

the IR–OR relationship, the academic progress and practical implementation remain limited, leaving organisations vulnerable to failure in the face of future disruptions.

This gap is especially problematic in the New Zealand construction sector, which operates in a uniquely high-risk, high-uncertainty environment. Construction firms in New Zealand face continual exposure to external shocks such as earthquakes, pandemics, labour shortages, and economic volatility. They are also central to national recovery efforts during crises, making organisational resilience not just a business imperative but a matter of public infrastructure stability and social well-being. Although there is growing recognition of the need for resilience across all organisational levels, very few empirical studies have examined the interplay between individual and organisational resilience within the construction sector—either in New Zealand or internationally. Existing research tends to focus on either workforce well-being (at the individual level) or structural preparedness and continuity strategies (at the organisational level), with insufficient attention to how the micro-level traits and behaviours of employees influence, or are influenced by, organisational structures, leadership styles, and strategic decisions. This fragmentation limits the sector’s ability to develop holistic resilience strategies that align individual capacities with organisational systems. In practice, construction organisations often invest in generic resilience training or reactive crisis plans, without understanding the mechanisms through which individual resilience either translates into or is constrained by organisational resilience. Given the increasing frequency and severity of disruptions, there is an urgent need to fill this research gap with context-specific, evidence-based insights that can inform both theory and practice in the New Zealand construction industry. Without an integrated understanding of how IR and OR interact, firms may continue to suffer from implementation failures, resource misalignment, and slow recovery in times when resilience is most needed.

Given these challenges, this study seeks to address the critical research gap by investigating the relationship between individual and organisational resilience in the context of New Zealand’s construction sector. By employing a qualitative research design grounded in pragmatism reasoning, the study explores how resilience is perceived, enacted, and mediated across different organisational levels. The research focuses not only on identifying whether a relationship exists between IR and OR, but also on uncovering the conditions, mechanisms, and contextual factors that shape this relationship in high-risk construction environments. This investigation is particularly timely and relevant for New Zealand, where the construction sector plays a pivotal role in post-disaster recovery and infrastructure continuity. By engaging directly with industry professionals through interviews and thematic analysis, the study aims to generate empirically grounded insights and develop a practical, integrative framework that bridges micro-level human capacities and macro-level organisational systems. The findings are expected to contribute to both academic theory and sectoral practice, offering actionable guidance for construction leaders, HR professionals, policymakers, and resilience planners seeking to enhance organisational adaptability through human-centered strategies.

1.3. Research Aim and Objective

To address the given challenges, the study aims to investigate the relationship between individual and organisational resilience in the New Zealand construction sector with an intent to develop an integrated framework that bridges the conceptual and practical gap between them.

The study operationalises its aim through a series of research objectives and associated research questions as follows:

Objective 1: To examine the relationship between individual and organisational resilience based on the current literature.

- RQ1.1: What are the conceptual similarities and distinctions between individual resilience (IR) and organisational resilience (OR) as identified in current literature?
- RQ1.2: What is the nature and extent of the relationship between IR and OR as represented in resilience research?
- RQ1.3: What key research gaps remain in the literature on the IR–OR relationship, and how can these inform the development of potential conceptual models to explain this relationship? models evolve further?

Objective 2: To determine how construction professionals perceive the relationship between individual and organisational resilience, and to identify the organisational factors that influence their interaction.

- RQ2.1: How do construction professionals understand the relationship between individual and organisational resilience?
- RQ2.2: What are the mediating factors between individual resilience and organisational resilience and how can these be incorporated to refine the most relevant conceptual model derived from the literature?

Objective 3: To develop an integrated framework that captures the interaction between individual and organisational resilience and informs resilience-building interventions in the construction industry.

- RQ3.1: What is the role of resourcefulness in influencing the relationship between individual resilience (IR) and organisational resilience?
- RQ3.2: How can the insights from IR–OR dynamics, resourcefulness and mediating factors be synthesised into a practical model for resilience in the construction sector?

1.4. Scope of the study

This research explores the relationship between individual resilience (IR) and organisational resilience (OR) within the context of New Zealand's construction sector. Although both concepts have been widely examined in academic literature, they are typically treated as distinct constructs, resulting in a limited understanding of how they interact in applied organisational settings. Individual resilience is commonly framed through a psychological lens, referring to an individual's capacity to adapt, recover, or grow in the face of adversity (Cassidy, 2015; Luthar et al., 2000; Masten, 2001). In contrast, organisational resilience is often positioned within strategic and systems-oriented frameworks, describing an

organisation's ability to anticipate, absorb, and respond effectively to disruption (Duchek, 2020; Lengnick-Hall et al., 2011). This conceptual division has contributed to a fragmented approach to resilience, with few studies offering an integrated perspective on how IR and OR function together in dynamic, high-risk work environments (Bardoel et al., 2014; Linnenluecke, 2017).

This study addresses the gap by combining critical analysis of existing literature with empirical data drawn from professionals within New Zealand's construction sector. The sector that has repeatedly been exposed to large-scale, systemic disruptions. Events such as the 2010–11 Canterbury earthquakes, which caused extensive infrastructural damage and forced organisations to operate under extreme uncertainty and the COVID-19 pandemic, which disrupted supply chains, workforce mobility, and regulatory processes. In addition, there was Cyclone Gabrielle in 2023, which severely impacted project timelines and resource accessibility, highlight the urgent need for robust resilience at both individual and organisational levels. These crises reinforce the importance of understanding how individual adaptability contributes to organisational continuity and recovery, particularly in sectors responsible for national infrastructure and crises response.

The research adopts a qualitative methodological approach to investigate how resilience is perceived, experienced, and enacted by professionals working within New Zealand's construction sector. Given the complexity and context-specific nature of resilience, a qualitative design was considered most appropriate for uncovering nuanced perspectives and the lived realities of individuals embedded in organisational settings. Semi-structured interviews served as the primary data collection method, allowing participants the flexibility to articulate their experiences while enabling the researcher to explore core themes related to both individual and organisational resilience. Interviewees were selected from two main groups, Construction Professionals and Insolvency Practitioners. These groups represented a diverse range of professional roles and perspectives, spanning project managers, site engineers, consultants, financial-legal experts and senior leaders to capture a broad spectrum of insights that reflect different positions within the organisational hierarchy. This diversity helped in capturing the various ways resilience is enacted across operational, managerial, and strategic levels in construction sector. Moreover, the data collected from these interviews provided an in-depth understanding of how individuals respond to disruption in real time, and how resilience manifests across personal and systemic domains. Through detailed thematic analysis, the study examined how individual-level resilience interact with organisational level resilience.

Several assumptions and delimitations guided the inquiry. First, the study assumes that resilience is context-dependent and socially constructed. Second, the research prioritises depth over breadth, seeking analytical rather than statistical generalisation. Third, while the findings are grounded in the New Zealand construction context, they are not intended to represent all industries or geographies and may limit direct transferability to other sectors or national settings. Additionally, considering the study's timeframe and practical constraints on researchers' access, the study utilises a sample size of 20 and 18 participants in the first and second round of interviews respectively. While the sample size does not fully represent the views of the entire construction sector, they are consistent with accepted qualitative research standards. In other words, these numbers meet the minimum sufficiency criteria for

information-rich sampling and thematic saturation as recommended in the literature. A detailed justification of this sampling strategy and its adequacy is provided in the subsequent chapters.

Despite the limitations, the study contributes to a more integrated understanding of the dynamic relationship between individual and organisational resilience in construction practice. It identifies key areas where alignment between personal adaptability and organisational systems can enhance overall performance, as well as points of disconnect that may weaken the resilience capacity of firms, even when individuals remain highly adaptive. Although the study is rooted in the New Zealand construction context, its findings can be used as a base to develop the resilience of other high-risk, project-based sectors such as mining, energy, logistics, or emergency response, where uncertainty is common and the ability to adapt quickly is critical. By offering empirically grounded insights, the research aims to contribute to both academics and practical strategies for building resilience in organisations operating under volatile and complex conditions.

CHAPTER TWO

RESEARCH METHODOLOGY

2.1. Overview

The following subsections set out the overarching methodological framework that guided this research. Given that the thesis comprises multiple published articles, each with its own specific methodological emphasis, this section provides a unifying account of the research philosophy, overall process, and approach that underpin the individual studies. It outlines the rationale for adopting particular methods in different phases of the research and explains how these methods collectively contribute to achieving the broader research objectives. In this way, it situates each article within a coherent methodological structure, clarifying how distinct methodological choices ranging from systematic literature review to qualitative inquiry and refinement were strategically employed to address different aspects of the research problem.

2.2. Research Philosophy

This study is grounded in a pragmatic research philosophy, which is particularly suited to the applied, complex, and context-dependent nature of resilience in organisational settings. Pragmatism views reality as multifaceted and acknowledges that different individuals may experience and interpret phenomena differently based on their roles, experiences, and contexts. Rather than seeking absolute truths, pragmatists focus on what works in practice and how knowledge can be used to solve real-world problems. This aligns with the aim of the study, which is to explore the relationship between individual resilience (IR) and organisational resilience (OR) in the construction sector and to develop a framework that informs practice, strategy, and decision-making in uncertain environments. Pragmatism holds the value that knowledge is contingent upon its practical consequences, and that beliefs, concepts, and theories should be judged by how effectively they address the problems at hand (Elkjaer & Simpson, 2011).

The pragmatic stance allowed for methodological flexibility, combining theory-driven deductive analysis with data-driven inductive insights, in line with abductive reasoning. This was particularly important as the study progressed from literature-based coding to inductively derived themes based on rich interview data from construction professionals. NVivo was used to support this dual process, allowing for the systematic analysis of data and the emergence of meaningful themes that extended beyond the limitations of predefined frameworks. In this way, the research design was shaped not by rigid adherence to a single method but by responsiveness to the nature of the research questions and the complexity of the data. Pragmatism also considers participants as active contributors to knowledge generation, and not passive subjects. Such a perspective aligns with the study's goal of capturing the lived experiences of professionals in high-risk, real-world construction environments. Furthermore, it accepts that knowledge is co-constructed and contextually grounded, reinforcing the epistemological foundation for using open-ended interviews and thematic analysis. Axiologically, pragmatism recognises that research is not value-free and the researcher's aim to produce actionable knowledge

for policy, leadership, and sustainability in the construction sector reflects the value-laden nature of this inquiry.

In summary, the philosophy of pragmatism offers a coherent and suitable foundation for this study. It enables a dynamic, problem-centred, and outcome-oriented approach that bridges theory with practical relevance. It is essential when investigating complex, real-world issues like organisational resilience. By prioritising usefulness over methodological purity and integrating both researcher and participant perspectives, pragmatism ensures that the research remains flexible, responsive, and ultimately impactful.

2.3. Research Approach

Research Approach mainly consists of two broad categories, namely deductive and inductive. Since there exist numerous theories on individual resilience and organisational resilience, the researcher decided to start off with the findings of the literature. This provided a structured pathway and helped in avoiding any unfocused or unguided exploration. Thus, the first approach was chosen to be deductive for the initial phase of the research process. The findings of this phase helped in assessing the gap and formulating interview questions for subsequent phases. Once the interview data was obtained, the researchers utilised the deductive coding to check its relevance with the literature findings. However, this approach failed to account for a significant portion of the interview data as the responders were giving more valuable details and were not just limited to literature-based concepts. The researchers couldn't fit it within the pre-defined codes as the literature doesn't mention what makes the two entities distinct and how much individual resilience contributes to, or interacts with, organisational resilience. Often the literature seems either black or white, but rarely explores the nuanced "grey area" between the two constructs. Hence, the deductive approach, which was initially focussed on the multiple diverse arguments on individual and organisational resilience, wasn't sufficient to capture emergent patterns, relational nuances, or lived complexities that could meaningfully answer our research questions. Evidently, it wasn't complete and led to further questions on what determines the response of the two entities with respect to each other, are they really important for each other, what is the extent of this importance, through what factors both the distinct concepts are connected and what are the opportunities for conceptual integration or practical improvement in this context? As the deductive approach didn't serve the intended purpose in purpose, we made a gradual methodological transition by blending deductive findings and inductive approach grounded in empirical insights.

For the inductive approach, the codes were allowed to emerge directly from the data, without the researcher having preconceived notions about what the codes should be. A thorough review of the transcript was made to incorporate the remaining data into meaningful themes or categories and to answer our research objectives. The researcher allowed the themes or theories to develop naturally from the raw data. This involved carefully reading through interview texts, highlighting important sections, and assigning codes to these parts in a sequential manner. Analytic reflections related to the text segments were captured using NVivo annotations, making it easy to keep these reflections connected to the relevant text. Additionally, code memos were digitally linked with the data, enabling

easy retrieval of related information. The initial codes derived through the deductive approach were not discarded but were used as anchor categories, with slight modifications to achieve common grounds between transcript data and literature.

2.4. Research Methods

Saunders et al. (2016) proposed eight research techniques which can be bifurcated into qualitative and quantitative research strategies. Quantitative research is a systematic and objective approach focused on measuring and analysing variables using numerical data. It is widely recognised for its ability to produce generalisable results across large populations, especially in studies that aim to test hypotheses, examine relationships, or quantify behavioural patterns (Creswell, 2014). While quantitative research is powerful for answering "what," "how much," or "how often" questions, it is generally less equipped to explore the nuanced "how" and "why" aspects of social behaviour or lived experiences. As such, although it is ideal for research requiring precise measurement and broad generalisability, it may not fully capture the contextual richness or subjective meaning that qualitative methods can reveal (Creswell & Creswell, 2017). Nonetheless, its structured, replicable, and statistically robust design continues to make it an essential methodological approach across disciplines such as social sciences, health, education, and business.

In contrast, studies demanding flexibility, authentic environments, valuable insights, novel idea generation utilises qualitative method to achieve their purpose. Qualitative research is an interpretive and exploratory approach that focuses on understanding human experiences, perceptions, and social contexts through non-numerical data. Unlike quantitative methods that emphasise measurement, statistical analysis, and generalisation, qualitative research seeks to explore the depth and complexity of a phenomenon by examining how individuals make sense of their realities. It is particularly useful for investigating topics that are not yet well-defined or where subjective interpretation and social meaning are central to the research question (Silverman, 2021). The data in qualitative studies are typically collected through methods such as semi-structured or unstructured interviews, focus groups, observations, or document analysis, allowing for rich, detailed narratives to emerge. These methods enable researchers to explore not only what people think or do, but also how and why they experience particular phenomena in specific contexts (Denzin & Lincoln, 2011). This makes it especially suitable for research that aims to understand complex, context-sensitive dynamics such as the interaction between individual and organisational resilience within real-world organisational settings. The process of gathering and analysing data can be adjusted as new ideas or patterns emerge. It is not predetermined or rigid. In addition, data collection takes place in genuine, real-world settings or through naturalistic methods. It provides in-depth descriptions of individuals' experiences, emotions, and perceptions, which can be applied to enhance or innovate systems and products. Open-ended responses allow researchers to uncover fresh challenges or opportunities they might not have otherwise considered. Rather than aiming for generalisability, qualitative studies prioritise credibility, transferability, and depth, often using iterative, flexible designs that evolve as themes and insights emerge during the research process (Patton, 2002). As such, qualitative research is a powerful approach for uncovering meaning, identifying patterns of interaction, and generating grounded theoretical insights in applied fields such as education, healthcare, and construction management.

Qualitative research is especially well-suited to the objectives of this study, which seeks to explore the nuanced and context-dependent relationship between IR and OR in the New Zealand construction sector. Unlike quantitative approaches, qualitative research allows for an in-depth exploration of how resilience is perceived, enacted, and experienced by individuals operating within dynamic and high-risk organisational environments. Since the relationship between IR and OR is under-theorised and lacks a clearly established framework in existing literature, this research adopts an exploratory stance, aiming to uncover emergent patterns, lived experiences, and practitioner insights. Qualitative methods, such as semi-structured interviews and thematic analysis, provide the necessary flexibility to investigate how construction professionals make sense of their adaptive responses, and how these responses are influenced by or contribute to organisational resilience efforts. Such type of data is particularly valuable in a sector like construction, where external shocks (e.g., natural disasters, pandemics) intersect with internal organisational practices in complex ways. By capturing the perspectives of individuals across multiple roles and project contexts, the qualitative design facilitates a multi-level understanding of resilience and supports the development of a context-specific framework that is grounded in real-world experience rather than abstract theory. As such, qualitative research not only aligns with the nature of the research questions but also enhances the study's capacity to generate meaningful, actionable insights for both theory and practice.

2.5. Research Process

The alignment between the study's objectives and its structured methodological approach ensures the depth, credibility, and robustness of the research outcomes. This study adopts a qualitative research based on inductive approach through a pragmatism-oriented philosophy design to explore the relationship between IR and OR within the New Zealand construction sector.

The research followed the methodology proposed by Saunders et al. (2015), comprising of the commonly accepted phases of academic inquiry namely problem identification, literature exploration, methodological design, empirical data collection, and analysis. Consequently, the process began with a comprehensive literature review to establish the conceptual background and identify the gap concerning the fragmented treatment of IR and OR. This was followed by two rounds of semi-structured interviews with professionals from various roles in the New Zealand construction sector. These interviews served to uncover how IR and OR are perceived, experienced, and enacted in practice, while also identifying the factors that mediate their interaction. Each round of interviews added a new layer of depth: the first informed the initial thematic structure, while the second refined and supported emerging patterns. To enhance the credibility of the final findings, a focus group session was conducted as the final stage for improvisation. This step allowed participants to reflect on the emerging themes and proposed framework, offering critical feedback on its accuracy, applicability, and relevance to real-world construction settings. The combination of triangulated qualitative methods and practitioner-informed validation ensured that the research outcomes were both theoretically informed and empirically grounded.

The following subsections present a detailed account of how each research objective was achieved.

2.5.1. Literature Review

A systematic literature review is a rigorous, methodical approach used to identify, evaluate, and synthesise existing research relevant to a specific question (Mirzaei et al., 2020). The adoption of this process helps in providing the comprehensive and reliable synthesis of current evidence, supporting both theoretical insights and practical recommendations concerning IR and OR. Therefore, the process of systematic Literature Review (SLR) was undertaken to investigate objective 1 and corresponding RQs. The review followed a structured protocol aligned with the PRISMA 2020 guidelines (Page et al., 2021), ensuring transparency and replicability. The SLR was instrumental in shaping the conceptual framework that guided the next phases of the research. It offered an in-depth examination of existing literature, clarified key research themes, and identified integration strategies relevant to IR and OR.

The review comprised several stages:

1. Identification: Keywords were developed based on a preliminary review of relevant literature and key themes in resilience research. Different phases of the study included different keywords to align with the specific objective. Core terms utilised are “Disaster”, “Employee Resilience”, “Organisational Resilience”, “Crisis” and “Infrastructural Resilience.” These keywords were applied to the SCOPUS and Web of Science database, known for its extensive collection of peer-reviewed literature, to retrieve relevant publications from 2014 to 2024, a period marked by increased attention in IR and OR research.
2. Screening: The initial search returned a large number of articles. A filtering process based on predefined inclusion and exclusion criteria such as language (English), document type (peer-reviewed journal articles and reviews), and relevance to IR and OR, was applied to ensure the selection of high-quality studies. Preference was given to articles published in reputable, high-impact journals. The PRISMA flowchart was used to illustrate the screening and selection process (Meho & Rogers, 2008).
3. Eligibility and Inclusion: Full-text assessments were conducted to ensure that selected studies directly addressed the relationship between IR and OR. The shortlisted research articles were organised based on their alignment with the research objectives, forming a solid foundation for deeper analysis.
4. Analysis: The included studies underwent both descriptive and content analysis to extract key information such as publication trends, methodologies, and critical challenges. Content analysis helped identify recurring themes, while thematic analysis allowed for categorisation of integration strategies and challenges into structured themes (Braun & Clarke, 2019). This dual approach facilitated a comprehensive understanding of the research landscape. NVivo 20 software was used to manage the qualitative data, aiding in coding, categorisation, and consistency throughout the analytical process (Gibbs, 2017). Thematic analysis, chosen for its flexibility, allowed both inductive (data-driven) and deductive (theory-driven) reasoning to uncover complex patterns particularly useful in analysing the complex interaction between IR and OR (Braun & Clarke, 2006; Nowell et al., 2017). The iterative nature of this method ensured that the analysis remained grounded in the data while highlighting the key insights related to resilience dynamics. The relevant codes and themes which emerged from the literature and was used to propose the conceptual models related to IR and OR is identified and outlined in the Appendix-2.

This phase of the research provided a foundational understanding of how individual and organisational resilience have been conceptualised and operationalised in existing literature. Through a detailed coding and thematic analysis of peer-reviewed literature, the study identified key distinctions and overlaps between IR and OR, highlighting the mutual but unclear relationship. These insights were discussed in Chapters 2,3 and 4, proving to be instrumental in guiding the subsequent interview design and the construction of the conceptual framework.

2.5.2. First Round of Qualitative Inquiry

The previous round of analysis based on the literature review, shed light on the existence of a relationship between IR and OR and identified the presence of certain mediating factors. However, it did not explain the underlying mechanisms, specifically, how and why this relationship unfolds in real-world contexts. To address this gap and to investigate Objective 2, the study employed semi-structured interviews, with questions developed from the findings of background literature, including documented case study evidence from sectors such as healthcare, consultancy, and security. These sources helped highlight thematic gaps and offered practical insights that shaped the content and structure of the interview process.

The responders included consultants, contractors, infrastructure firms, real estate developers, and material suppliers, professionals actively engaged in the New Zealand construction sector. The shortlisting criteria included factors such as company history, prior exposure to crises, organisation size, employee satisfaction, and financial performance. These indicators helped identify organisations that had demonstrated resilience under challenging conditions. Based on these criteria, 20 construction professionals were purposefully selected and contacted for interviews. Considering the focus of the study, i.e., exploring individual and organisational resilience in the construction sector, the number of participants with the requisite combination of experience, seniority, and relevance to the topic was inherently limited. Moreover, the New Zealand construction sector, while dynamic, is comparatively small and tightly networked. As such, access to highly experienced professionals who could provide deep, context-specific insights was constrained. Vasileiou et al. (2018) support this approach, stating that a smaller sample size is justified when participants are information-rich, and the focus is on thematic exploration rather than generalisability. Hence, the study utilised interviews with these 20 construction professionals, who provided critical perspectives grounded in industry practice, offering both depth and diversity in response.

Participant role and seniority may have influenced how resilience was understood and described in this study. Senior participants tended to discuss resilience from a strategic and organisational perspective, reflecting their involvement in decision-making, planning, resource allocation, crisis management, and future priorities. However, junior or lower-level employees also provided important insights, as they are directly affected by senior decisions and are responsible for implementing them in practice. Their experiences help explain how organisational strategies influence workload, communication, culture, job security, financial stability, and individual resilience at the operational level. A further limitation is the possibility of hindsight bias, as participants reflected on past disruptions after outcomes were known, which may have shaped how events and decisions were interpreted. To address this, responses were

interpreted cautiously, and perspectives across different levels of seniority were considered. Minority views identified during data collection were also carefully noted and discussed, particularly in the focus group, to assess whether they reflected isolated opinions, context-specific nuances, or broader issues relevant to the model. Suggestions were retained where they were relevant, rigorous, sufficiently detailed, and offered plausible evidence-informed explanations of how individual resilience and organisational resilience interact, while weaker, overly linear, or insufficiently supported ideas were excluded.

Ethics approval was obtained from Massey University prior to data collection (Appendix-1). Participants were provided with a full briefing on the purpose of the study, funding source, interview duration, and ethical considerations, including their right to anonymity and the confidentiality of their organisations. Informed consent was obtained before scheduling each interview, which typically lasted between 45 to 60 minutes. The interviews were structured into two sections: Section A gathered background information on the participants and their organisations; Section B explored topics directly related to resilience at both individual and organisational levels (Appendix-3).

All interviews were transcribed and analysed using NVivo software. The study followed an inductive approach to allow new themes to emerge directly from the data. Key segments were coded, annotated, and linked to analytical reflections through NVivo's memo and node features, facilitating a comprehensive and traceable thematic analysis. These emergent findings were then compared with existing literature to strengthen the credibility and theoretical grounding of the study. The analysis was done through NVivo using Braun and Clarke (2019) 6 step reflexive thematic analysis process. This method allowed the study to extract meaningful themes related to integration challenges and resilience strategies within the construction sector. The coding framework for the same is provided in (Appendix-4). It also provided a systematic way to link empirical findings with existing literature, thereby reinforcing the study's conceptual and practical contributions. Importantly, the insights gained through the interview process played a critical role in addressing Objective 2 by revealing the underlying mechanisms shaping the relationship between IR and OR in the New Zealand construction context (as discussed in Chapter 6).

2.5.3. Second Round of Qualitative Inquiry

To strengthen the robustness and contextual relevance of the findings, a second round of semi-structured interview was conducted. This phase specifically focused on addressing Objective 3, which aimed to extend and improvise the emerging insights from previous round of the interview. In other words, the second round of interview served two key purposes. First, it enabled a deeper examination of the themes that emerged from the initial round such as leadership, decision-making, culture, empowerment, and resource dynamics. Second, the follow-up interviews were instrumental in exploring new dimensions that emerged inductively from the initial analysis. While the first phase, alongside the literature review, illuminated the current state and mediators of IR-OR, it offered limited insight into the common failures, oversights, or structural blind spots that prevent firms from adapting or recovering. The study refers mediators as linkers or joining factors between IR and OR. The second round addressed this critical gap by identifying what organisations should avoid, what is frequently overlooked

in practice, and how misalignments between individual efforts and organisational systems can erode resilience capacity.

The interview cohort comprised 12 insolvency practitioners (IPs) and 6 construction professionals (CPs), each possessing significant experience in dealing with organisations during periods of disruption, crisis, or recovery. The inclusion of both financial and operational experts ensured a balanced and interdisciplinary perspective on how resilience is either built or undermined in practice. The decision to engage these specific individuals was strategic as their direct involvement in both organisational survival and collapse scenarios gave them a unique advantage to comment not only on what enables resilience, but also on what impedes it. The participants brought a combined range of experience from 10 to 26 years, with the majority having over a decade of professional exposure to complex projects, financial restructuring, or operational leadership. Such tenure meant they were not only knowledgeable but had seen the long-term effects of organisational decision-making in real-world settings before, during, and after crises. Many had supported firms during high-impact events such as the Christchurch earthquakes, the COVID-19 pandemic, or periods of financial insolvency. Their capacity to draw on first-hand case knowledge made them exceptionally well-suited to contribute to the feedback and extension of earlier findings.

The sample size of 18 participants is certainly a noticeable point, but it can be justified by both the specificity and richness of their professional backgrounds. Each respondent brought extensive hands-on experience with organisations during periods of disruption, whether through insolvency procedures, crisis recovery projects, or frontline operational leadership. The information-rich sampling strategy by Vasileiou et al. (2018) also prioritises depth and relevance over breadth, enabling the research to achieve thematic saturation while maintaining analytical focus. Given the exploratory nature of the study, the goal was not statistical generalisation, but rather analytical generalisation, developing insights that are transferable to similar contexts through deep, and rationale understanding. This approach not only strengthened the internal validity of the study but also allowed for a more dynamic understanding of resilience. It highlighted how it is not merely the presence of enabling factors, but also the avoidance of critical missteps, that determines an organisation's capacity to adapt and endure. The follow-up interviews ultimately contributed to a more nuanced and grounded model of resilience, one that integrates both enablers and inhibitors, and reflects the lived complexity of navigating crises in the construction sector. This particular interview-based discussion is addressed in Chapter 7. Similar to previous stage, all the interviewees were given proper briefing on the topic of the study, ethical protocols, and participation consent form before commencing the second stage of data collection. The relevant consent form and interview questions is provided in Appendix-5, with the coding framework in Appendix-6.

Thematic saturation was achieved through an iterative process of data collection and analysis, supported by carefully selected experienced participants, semi-structured interviews, probing, and refined questioning. Saturation was assessed by determining whether new interviews added meaningful insights or only repeated existing themes, including any contradictory perspectives. In line with qualitative research guidance, saturation was considered reached when no new themes or

understandings emerged. This was further confirmed through two additional interviews, which produced no substantially new issues or concepts, consistent with the view that saturation is reached when no new information emerges across consecutive interviews or focus group.

2.5.4. Focus group

Focus group discussions (FGDs) are a valuable qualitative research method used to gain deeper insights into how individuals and groups perceive and interpret specific issues. Unlike individual interviews or surveys, FGDs encourage dynamic interaction among participants, allowing for the exploration of shared or divergent views, clarification of opinions, and generation of new ideas through group dialogue (Sagoe, 2012). This interactive nature helps participants reflect more deeply and build upon each other's perspectives often revealing information that may not surface through other data collection methods (Patton, 2002).

In this study, FGDs were used as the final stage to validate and refine the findings on the integration of Individual Resilience (IR) and Organisational Resilience (OR) in the context of the built environment. As group size is an important factor for effective discussion, the researchers ensured optimum number of experts in the group. As per (Morgan, 2002; Ritchie et al., 2013), the size of an ideal focus group must lie between 6-8, considering the strength can be managed well with diversity of input. Groups that are too small may lack diversity, while overly large groups can be difficult to manage and limit individual contributions (Creswell, 2014). Thus, for the current study, the focus group included 9 construction professionals, four of whom had participated in previous rounds of data collection. The participants were selected based on their expertise and experience related to IR, OR, and construction management, ensuring the discussion remained focused and insightful.

The selected experts were presented with a synthesis of the study's core themes and proposed model of IR–OR interaction. All the questions and consent form are provided in Appendix 7. Based on these questions, the experts were asked to assess whether the interpretations accurately reflected their experiences and whether the model appeared applicable and relevant in real-world settings. The group setting offered a space to test the relevance, applicability, and clarity of the developed conceptual framework and themes derived from earlier research stages, including the systematic literature review and expert interviews. The ability of FGDs to stimulate critical discussion, assess consensus or divergence, and elicit contextually grounded insights made them particularly suitable for this purpose (Patton, 2002).

Follow-up questions and probing were used to clarify responses, helping to uncover the reasoning behind participants' views. This real-time feedback loop enhanced the credibility and applicability of the findings to real-world practice. Moreover, the use of FGDs ensured accessibility and ease of understanding, making the results more relevant to both practitioners and policymakers. Feedback was used to refine the framework and ensure that it resonated with practitioners' lived contexts. In addition, peer debriefing with academic supervisors and qualitative researchers was used to challenge and refine interpretive decisions throughout the coding and analysis process. The use of FGDs with peer debriefing, thus, not only strengthened the study's methodological triangulation but also provided a final

layer of validation, ensuring that the findings were robust, contextually relevant, and aligned with practitioner perspectives. The final results after this stage helped in the achievement of objective 3.2. as discussed in Chapter 8.

2.5.5. Ethics

The Massey University Human Participants Ethics Committee's ethical approval is needed prior the starting of the research project. This protocol is implemented to ensure the avoidance of detrimental research outcomes, the prevention of harm to anyone engaged in the study, and the steadfast protection of participants' safety, rights, confidentiality, and well-being. Consent from all participants is obligatory before data collection, and sole data access is granted to the researcher. Addressed concerns encompass attaining access to specific individuals, securing their information against unauthorized sharing, and meticulous incorporation of these ethical considerations during the approval process.

The study is subject to peer assessment by my supervisors, focusing on ethical considerations like participant and organisational anonymity, participants' explicit consent, data confidentiality, and addressing any potential conflicts of interest. Stringent measures will be observed throughout the research to safeguard the confidentiality of participants' sensitive information. The data collection ensured:

- The anonymity of participants: The exclusive focus will be on capturing the individual viewpoints of participants in the study, Information that could reveal identity, such as names, organisational details, and business names, will be intentionally omitted from the data collection process and will not be incorporated into any part of the research.
- Participants' consent: Participants will receive an explanation of the study details and provide their consent in writing before their involvement is confirmed. Throughout and after the study, participants will have the prerogative to withdraw from participation whenever they choose.
- Confidentiality of information: All the data shall remain private as per Massey Ethics Regulations.
- Conflict of interest: The research is broad in its scope and does not entail any conflicts of interest with any individual or entity.

The researcher applied for the low-risk notification (4000027659) on 26 June 2023 and was approved by the Massey University Human Participants Ethics Committee.

2.5.6. Thesis Layout

This doctoral thesis is structured into eight chapters (Chapters 1 to 8) distributed amongst 5 parts (Part A to E). Part A comprises of Chapter 1, which provides an overview of the entire study by presenting the background, problem statement, research aim and objectives, scope, and methodology. Part B corresponds to the literature review stage and addresses Objective 1. It encompasses Chapters 3, 4 and 5, which critically examine existing studies to identify conceptual gaps and lay the theoretical foundation for the study. Part C focuses on the first round of qualitative research and addresses Objective 2, as detailed in Chapter 6. This stage involves empirical exploration to refine emerging

insights from the literature. Part D covers the second round of qualitative research and the focus group discussion for refinement, reported in Chapters 7 and 8. These chapters address Objective 3, thereby strengthening the robustness and credibility of the findings through iterative validation. Finally, Part E, including Chapter 9 concludes the thesis by synthesising the key findings, presenting theoretical implications, practical recommendations and offering directions for future research. To ensure logical continuity and thematic coherence throughout the thesis, each part is developed sequentially, building upon the previous one. The research framework presented in Figure 2.1 illustrates this progression in detail, mapping out both the research flow and the connection between each step, while exploring the dynamic interplay between Individual Resilience (IR) and Organisational Resilience (OR). The framework not only outlines each phase but also synthesises them into a holistic representation of the study's conceptual development and empirical focus.

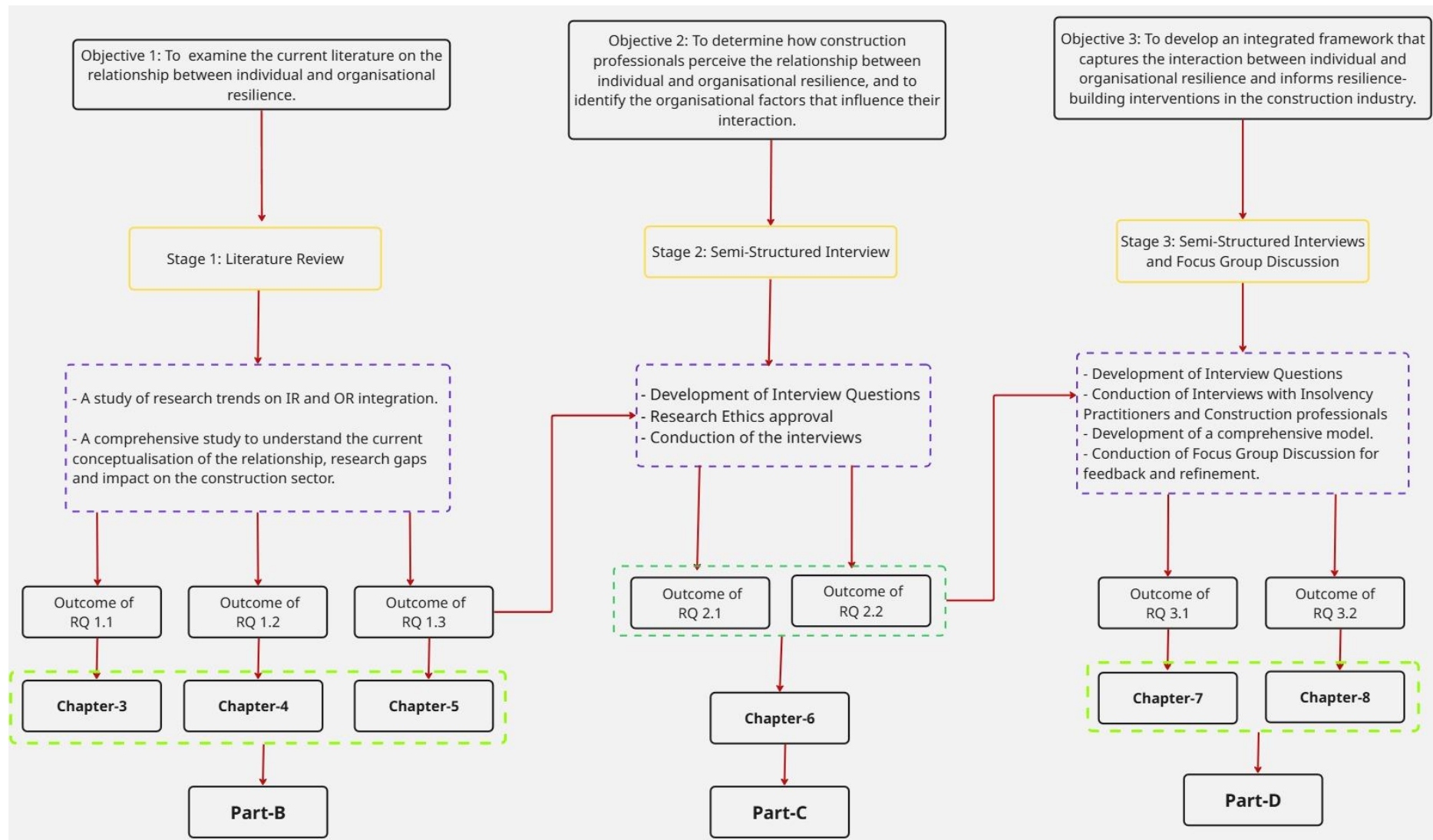


Figure 2.1- Research Framework

A.2. EPILOGUE TO PART A

Part A has been pivotal in laying the groundwork for the current study. By clearly articulating the background, problem statement, research aim, and objectives scope of the study in chapter 1, it has established a strong sense of direction and clarified the significance of examining the relationship between IR and OR. This part also outlines the overall thesis structure, providing a clear understanding of how each research objective is addressed, the chapters in which they are situated, and the ways in which they are interlinked. Furthermore, the discussion of the methodology in chapter 2 offers transparency regarding the research philosophy, approach, methods, and processes adopted, ensuring rigour and consistency in building the conceptual base. All these elements not only justify the relevance of the research but also create a structured pathway for the next phases, where the focus transitions to conceptual framing, empirical exploration, thematic synthesis, and the development of a coherent theoretical framework.

Part B: Literature Review

B.1. PROLOGUE TO PART B

In recent years, resilience has become a central theme in organisational research, particularly within high-risk sectors such as construction. While both IR and OR have been studied extensively, growing attention is now being paid to how these two dimensions interact. Understanding this relationship is crucial as it addresses a core reality of organisational functioning, i.e., organisations do not operate in a vacuum, they are built, maintained, and transformed by individuals. As such, the resilience of an organisation is inextricably linked to the capacities, behaviours, and well-being of its people.

In line with this, the purpose of the literature review in Part B of this thesis is to critically examine existing research on resilience with a focus on the relationship between IR and OR. While both constructs have been extensively explored in isolation across psychology, management, and organisational studies, their intersection, particularly within the construction sector, remains underdeveloped and fragmented. This part, therefore, reviews the conceptual foundations of IR and OR, identifies their similarities and distinctions, and highlights the mechanisms through which they are theorised to interact. Moreover, it establishes the theoretical groundwork for the study, clarifies key gaps in knowledge, and provides a rationale for developing an integrated framework that connects IR and OR within the New Zealand construction sector.

As outlined in Part A, the study is structured around three core research objectives. The first objective, which examines how individual resilience (IR) and organisational resilience (OR) have been conceptualised and interrelated in literature, is addressed through three research questions. Each sub-question (RQ1.1 to RQ1.3) is explored through a focused literature analysis, and the findings are presented as independent yet interconnected research papers. In addition, a brief conceptual background is presented prior to the inclusion of the research papers to establish the basis of the resilience concept. This part outlines the varying definitions and interpretations of individual and organisational resilience, providing the necessary theoretical context for the subsequent analysis.

B.2. Conceptual Background

The purpose of this literature review is to critically examine existing research on resilience with a focus on the relationship between IR and OR. This section, therefore, reviews the conceptual foundations of IR and OR, identifies their similarities and distinctions, and highlights the mechanisms through which they are theorised to interact. Moreover, it establishes the theoretical groundwork for the study, clarifies key gaps in knowledge, and provides a rationale for developing an integrated framework that connects IR and OR in the New Zealand construction sector.

B.2.1. Overview of Resilience

Resilience, in the context of ecosystems, has been proposed as a way to understand their capacity to absorb change and, more specifically, to persist in their original state while being subject to disturbances and changing conditions (Holling, 1973). Holling introduced resilience in the context of multiple stability domains, or basins of attraction, in ecosystems, which was a radical idea at the time (Folke, 2006). Resilience refers to the ability of people and societies to thrive and grow even as they face constant changes in their environment. According to Folke (2006), resilience refers to building strength to support development, whether changes come gradually or as sudden shocks. This idea stresses that management of ecosystems and communities should focus on flexibility and be open to new developments rather than trying to keep things unchanged (Carpenter et al., 2015; Peterson et al., 2003). In this sense, resilience is not about avoiding change, but about navigating uncertainty, complexity, and transformation at every level of society (Berkes et al., 2008; Cash et al., 2006; Cumming et al., 2013), especially in today's human-influenced world (Lubchenco, 1998; Steffen et al., 2007). It involves staying on a development path while learning, adapting, and improving along the way.

B.2.1.1. Socio-Ecological Resilience

The concept of resilience was originally introduced into ecological literature by Canadian ecologist C.S. Holling (Gunderson, 2000). Holling defined ecological resilience as the ability of a natural system to absorb disturbances while retaining its basic structure and functions. In contrast to engineering resilience, which focuses on how quickly a system returns to equilibrium after a disturbance, ecological resilience emphasises persistence and transformation across multiple equilibria.

The concept laid the groundwork for what later evolved into the socio-ecological resilience framework, which views human and ecological systems as intertwined and co-evolving. Folke (2006) expanded on this, arguing that resilience in social-ecological systems is not about resisting change but about the capacity to adapt, learn, and transform in response to change. Such systems are inherently complex and nonlinear, often featuring feedback loops, thresholds, and emergent properties. Importantly, resilience in this context is not merely about survival, but about enabling development and sustainability in the face of shocks such as climate change, biodiversity loss, and socio-political instability.

As per Walker et al. (2004), the key components of socio-ecological resilience include:

- **Adaptability:** The ability of stakeholders within a system to influence its resilience (e.g., through policy, governance, or community practices).
- **Transformability:** The capacity to create a fundamentally new system when the existing one becomes untenable.
- **Diversity and Redundancy:** Multiple, overlapping functions and roles across species, institutions, or strategies to provide backup in case of failure.
- **Learning and Innovation:** Emphasis on experimentation, social learning, and institutional change.

Berkes et al. (2008) outlined that managing resilience requires flexible, participatory governance and institutions capable of responding to dynamic and uncertain change. This means shifting from command and control management to adaptive co-management—a learning-based, iterative process of decision-making under uncertainty.

B.2.1.2. Engineering Resilience

Engineering resilience emerged from systems theory and classical engineering and refers to the ability of a system to resist disturbances and return quickly to a stable equilibrium. This concept assumes a single stable state and linear system dynamics. It is particularly relevant in contexts such as civil infrastructure, mechanical systems, and risk analysis.

In this domain, (Bruneau et al., 2003) quantified resilience as:

- **Resistance capacity:** The extent to which a system can endure external stress without performance degradation.
- **Recovery speed:** The rate at which the system returns to pre-disturbance functionality.
- **Redundancy and robustness:** The design of backup systems and safety margins to prevent cascading failures.

Holling (1996) contrasted engineering and ecological resilience by noting that the former is concerned with efficiency, control, and predictability, while the latter is concerned with persistence, unpredictability, and change.

Engineering resilience is crucial in designing critical infrastructure systems (e.g., bridges, power grids, water supplies) as these systems are increasingly exposed to extreme weather events, cyber threats, and other systemic risks. Tools such as risk-based design, stress testing, and resilience modelling are widely used to prepare systems for both anticipated and unanticipated failures.

B.2.1.3. Psychological Resilience

Psychological resilience refers to an individual's capacity to cope with adversity, trauma, or chronic stress mentally and emotionally. It reflects the ability to bounce back from negative experiences and adapt positively over time. Rather than being an inherent trait, psychological resilience is now understood as a dynamic process influenced by both individual characteristics and environmental factors.

Psychological resilience is often viewed as a dynamic and context-dependent process, rather than a fixed personality trait (Luthar et al., 2000). It comprises both internal factors (e.g., emotional regulation, optimism, problem-solving) and external enablers (e.g., social support, autonomy, job control). Research in organisational psychology (Richardson, 2002; Tugade et al., 2004) shows that resilient individuals can experience post-adversity growth, turning challenges into developmental opportunities. According to Masten (2001), psychological resilience is best described as "ordinary magic", a result of normal, protective systems such as supportive relationships, effective schools, community networks, and adaptive skill sets. As per (Bruneau et al., 2003; Hosseini et al., 2016), key factors that promote psychological resilience include:

- Cognitive flexibility: The ability to reinterpret negative events constructively.
- Social support: Access to trusting, caring relationships that provide emotional and practical assistance.
- Sense of purpose and meaning: Motivation derived from personal goals, values, or spiritual beliefs.
- Self-efficacy and problem-solving skills: Confidence in one's ability to take control and find solutions.

In the context of increasing mental health challenges due to global stressors like pandemics, displacement, or climate change, fostering psychological resilience is crucial at both the individual and societal levels.

B.2.1.4. Organisational Resilience

Organisational resilience refers to an organisation's ability to anticipate, prepare for, respond to, and adapt to both incremental change and sudden disruptions in order to survive and prosper (Duchek, 2020; Lengnick-Hall et al., 2011). It encompasses both proactive and reactive strategies and applies to businesses, governments, NGOs, and educational institutions. It has emerged as a key construct in management and systems theory, particularly in the context of increasing environmental volatility, complexity, and uncertainty. Unlike traditional risk management, which often focuses on identifying and mitigating specific threats, organisational resilience is concerned with building systemic capabilities that enhance survivability, adaptability, and renewal. In organisational studies, resilience has evolved into a complex, multi-dimensional construct that incorporates adaptability, learning, and transformation, not just recovery.

Organisational resilience is a nuanced and evolving construct that defies a single fixed definition. It reflects a system's ability to absorb, adapt, and grow through disruption, and must be understood in light of industry contexts, strategic goals, and internal capacities. Its multidimensional nature which encompasses structures, culture, leadership, and systems, requires flexible interpretation across use cases. Lengnick-Hall et al. (2011) define organisational resilience as the capacity to absorb strain, recover critical functionality, and thrive in altered circumstances. It involves a blend of (Bruneau et al., 2003; Duchek, 2020; van der Vegt et al., 2015):-

- Strategic agility: The ability to pivot direction or strategy quickly when facing environmental shifts.
- Leadership resilience: Leaders who demonstrate clarity, decisiveness, and empathy during crises.
- Culture of learning: Organisational memory, reflection, and openness to feedback.
- Redundancy and decentralization: Distributed decision-making and multiple backup systems.

In a world shaped by complex global challenges, ranging from economic volatility to digital disruption, resilient organisations demonstrate the ability to not just return to normal, but to evolve into stronger, more adaptive forms. This has led to the emergence of Enterprise Risk Management (ERM) and Business Continuity Planning (BCP) as key tools in resilience strategy.

Current perspectives are grounded in the view that systems are complex and adaptive. Correspondingly, resilience can be achieved by a combination of absorbing the challenges faced and by changing, adapting and transforming so as to continue to thrive in the face of challenges. Authors such as (Boh et al., 2023; Gunderson & Holling, 2002) further elaborated on this aspect, illustrating that resilience can be assessed by examining the extent of disturbance a system can withstand while maintaining its presence and efficiently managing its functions.

B.2.2. Organisational Resilience

B.2.2.1. Definition

The examination of OR has evolved considerably since the beginning of the century, reflecting the recognition that it can influence multiple facets of a nation. For instance, McManus (2008) argue that the resilience of organisations directly contributes to the speed and success of community recovery. Lee et al. (2013) support this, noting that if organisations are not well prepared to respond to crises, communities are also unprepared as organisations play a central role in major restoration and rebuilding activities. Moreover, they contribute to a nation's GDP and support poverty reduction and employment generation.

Various scholars (Lengnick-Hall et al., 2011; Limnios et al., 2014) have construed resilience as a competence to endure challenging situations and to return to a standard state. They also highlight the significance of coping strategies and the ability to respond rapidly to restore expected functioning levels. However, it is still debatable as to whether OR is offensive or defensive in nature. Organisational resilience is often considered to be an overarching framework which encompasses and explains a range of varied phenomena (Hirsch and Levin 1999, p. 200). As such, the ways in which OR has been interpreted by scholars is very diverse. They can, however, be broadly classified into three categories: resilience as a process, outcome, or capability.

Table B.1 shows an overview of important resilience definitions in the organisational context. It has been observed that these definitions lay emphasis on certain keywords that explicitly or implicitly answer how OR can be achieved, and what to expect once it has been achieved.

Since organisations cannot foresee and plan for all future events, they must develop the capacity to acquire new knowledge and skills that enable adaption to changing circumstances. This highlights the

importance of awareness, improvement, adaption, and recovery as central components of OR. In practice, organisations need to recognise and anticipate disruptive events, respond effectively to maintain operations, and learn from such experiences to strengthen future performance (Ortiz-de-Mandojana & Bansal, 2016). Therefore, maintaining a clear understanding of an organisation's global context, vulnerabilities, and the factors impacting its operations, while implementing proactive strategies to manage future disruptions, are core aspects of OR (Rahi, 2019). Ultimately, resilience supports an organisation's ability to navigate continuous change.

In light of this, the current study focusses on the dynamic nature of resilience as it evolves over time in response to challenges. Conceptualising resilience as a process emphasises its dynamic state which changes through learning, adaptation, and transformation. Hence, Lengnick-Hall et al. (2011) define OR as “a firm's ability to effectively absorb, develop situation-specific responses to, and ultimately engage in transformative activities to capitalise on disruptive surprises that potentially threaten organisation survival”. In earlier studies (Lengnick-Hall & Beck, 2005; Lengnick-Hall et al., 2009), it is proposed that an organisation's ability to cultivate resilience is a result of distinct capabilities, established routines, and structured processes. These elements help an organisation shape its strategic outlook, take proactive steps, and foster an environment of adaptability and diversity. Moreover, an organisation's resilience capability is deeply rooted in individual expertise, competencies, and structured processes that enable it to respond to disruptions effectively and maintain operational continuity. Scholars such as (Branicki et al., 2016; Liang & Cao, 2021; Prayag et al., 2024; Walker et al., 2020) have conveyed similar ideas regarding OR.

These perspectives effectively capture the interconnectedness between employees and organisations, emphasising how individuals influence and ultimately shape an organisation's ability to adapt and thrive. Therefore, the present study adopts the framework proposed by Lengnick-Hall et al. (2011) which aligns with the research focus, offering a comprehensive basis for further exploration of this dynamic relationship.

Table B.1- Definitions of organisational resilience from literature

Source	Definition	Conceptualisation
(Home III & Orr, 1997)	“Resilience is a fundamental quality to respond productively to significant change that disrupts the expected pattern of event without engaging in an extended period of regressive behaviour”	Process
(Reinmoeller & Van Baardwijk, 2005)	Resilience is “the capability to self-renew over time through innovation”	Process
(Vogus & Sutcliffe, 2007)	Resilience is “the maintenance of positive adjustment under challenging conditions such that the organisation emerges from those conditions strengthened and more resourceful”	Capability

(Somers, 2009)	Resilience “is more than mere survival; it involves identifying potential risks and taking proactive steps to ensure that an organisation thrives in the face of adversity”	Capability
(Robert, 2009)	Organisational resilience is “a firm’s capacity to maintain or restore an acceptable level of functioning despite perturbations or failures”	Process
(Lengnick-Hall et al., 2011)	Resilience is a “firm’s ability to effectively absorb, develop situation-specific responses to, and ultimately engage in transformative activities to capitalize on disruptive surprises that potentially threaten organisation survival”	Process
(Linnenluecke et al., 2012)	Resilience is the “organisational capacity to absorb the impact and recover from the actual occurrence of an extreme weather event”	Process
(Boin & Van Eeten, 2013)	Resilience “prevents budding problems from escalating into a full-blown crisis or breakdown”	Outcome
(Ortiz-de-Mandojana & Bansal, 2016)	Resilience is “the incremental capacity of an organisation to anticipate and adjust to the environment”	Capability
(Sutcliffe, 2003)	“Resilience is an organisational level phenomenon as the power of organisational units to resume, rebound, bounce back, or positively adjust untoward events”	Capability
(Annarelli & Nonino, 2016)	think resilience is a capability to face disruptions and unexpected events in advance thanks to the strategic awareness and a linked operational management of internal and external shocks	Capability
(Holling, 1973)	Resilience is the “persistence of relationships within a system, and indicates the ability of the systems to absorb changes of driving variables, state variables, and parameters, and persist.”	Process
(Gittell et al., 2006)	“Organisational resilience is the result of both relational and financial reserves that Enable organisations to maintain their relational reserves”	Outcome
(Weick, 1996)	“Organisational resilience is the result of designing structures that are a source of resilience for collective perceived power”	Outcome

The literature clearly indicated that OR can be defined in several ways and there is presently no precise conceptualisation of organisational resilience. In line with Suddaby (2010) criteria for a robust conceptualisation, it should consist of a clear definition, context-specific boundaries, semantic links to other concepts, and logical cohesiveness. Whereas these conceptualisations have been varying with

the goal of investigation and according to the perspective of stakeholders, self-esteem and leadership behaviour. In addition, most studies have lacked a structured investigation and thus, has no comprehensive theoretical structure with respect to organisational resilience. Therefore, to arrive at a more refined definition and to set up a base for our study, we analysed 52 descriptions of Organisational Resilience through a word cloud (Fig. B.1).



Figure B.1- Word cloud showing the dominant keywords related to organisational resilience.

Figure B.1 shows that OR can be classified in terms of ability, capacity, and capability. Ability refers to both skills already owned and those which can be learned. Capacity is the ability to gain a new skill. While somewhat synonymous with ability, capability refers to the particular expertise needed to carry out a specific task.

Since organisations cannot foresee and plan for all future events, they must develop the capacity to acquire new knowledge and skills that enable adaption to changing circumstances. This highlights the importance of awareness, improvement, adaption, and recovery as central components of OR. In practice, organisations need to recognise and anticipate disruptive events, respond effectively to maintain operations, and learn from such experiences to strengthen future performance (Ortiz-de-Mandojana & Bansal, 2016). Therefore, maintaining a clear understanding of an organisation's global context, vulnerabilities, and the factors impacting its operations, while implementing proactive strategies to manage future disruptions, are core aspects of OR (Rahi, 2019). Ultimately, resilience supports an organisation's ability to navigate continuous change.

In light of this, the current study focusses on the dynamic nature of resilience as it evolves over time in response to challenges. Conceptualising resilience as a process emphasises its dynamic state which changes through learning, adaptation, and transformation. Hence, Lengnick-Hall et al. (2011) define OR as "a firm's ability to effectively absorb, develop situation-specific responses to, and ultimately engage in transformative activities to capitalise on disruptive surprises that potentially threaten organisation survival". In earlier studies (Lengnick-Hall & Beck, 2005; Lengnick-Hall et al., 2009), it is

proposed that an organisation's ability to cultivate resilience is a result of distinct capabilities, established routines, and structured processes. These elements help an organisation shape its strategic outlook, take proactive steps, and foster an environment of adaptability and diversity. Moreover, an organisation's resilience capability is deeply rooted in individual expertise, competencies, and structured processes that enable it to respond to disruptions effectively and maintain operational continuity. Scholars such as (Branicki et al., 2016; Liang & Cao, 2021; Prayag et al., 2024; Walker et al., 2020) have conveyed similar ideas regarding OR.

These perspectives effectively capture the interconnectedness between employees and organisations, emphasising how individuals influence and ultimately shape an organisation's ability to adapt and thrive. Therefore, the present study adopts the framework proposed by Lengnick-Hall et al. (2011) which aligns with the research focus, offering a comprehensive basis for further exploration of this dynamic relationship.

B.2.2.2. Indicators of Organisational Resilience

McManus (2008) used grounded theory to explore organisational resilience in New Zealand and proposed 15 indicators under 3 major factors of Situational Awareness, Management of keystone vulnerabilities and Adaptive capacity. The Situational Awareness comprises of Roles and responsibilities, Understanding and analysis of hazards and consequences, Connectivity awareness, Insurance awareness and Recovery priorities. Indicators like Participation in exercises, Planning strategies, Capability and capacity of internal resources, Capability and capacity of external resources, Organisational connectivity constitute Management of keystone vulnerabilities. Furthermore, Adaptive capacity included Silo mentality, Communications and relationships, Strategic vision and outcome expectancy Information and knowledge Leadership, management, and governance structure.

ResOrgs (2012) identified 13 key indicators of organisational resilience which is used as the Resilience Benchmark Tools. These 13 indicators are classified into three groups, namely, leadership and culture; networks; and change ready, to help in evaluating the resilience of organisations, monitoring processes over time and comparing resilience strengths and weaknesses against other organisations. The "Resilience Benchmark Tool" helps the organisations to understand their ability to respond and adapt to a disaster. The organisations can use the tool to examine their levels of resilience under the categories of Leadership and culture: with indicators on Leadership, Staff engagement, Decision-making, Situation awareness, and Innovation and creativity. The category Networks deals with indicators on Leverage knowledge, Breaking silos, Effective partnership, and Internal resources; and Change Ready has indicator on Proactive posture, Planning strategies, Unity of purpose, and Stress testing plan.

Furthermore, Barasa et al. (2018) highlighted the factors Influencing the resilience of organisations like Material resources, Planning and preparedness, Information management, governance process, Leadership practice, Collateral pathways and Redundancy, Organisational Culture, Social networking and Collaboration and most importantly, human capital. As Organisational resilience is considered a function of specific abilities, Erol et al. (2009) suggested enterprise flexibility, efficiency, adaptability and

agility, as attributes or capabilities for enterprise resilience. Moreover, Gunasekaran et al. (2011) included responsiveness, sustainability, adaptability, and competitiveness as the characteristics of resilient organisation as they promote dealing with change and resisting environmental jolts or risks.

Starr et al. (2003) suggested eight factors to assess the resilience based on understanding of risk interdependencies, organisation transparency, alignment between the strategy in the organisation and the objectives, organisational knowledge about the efforts on resilience, development of viability studies in the organisation situation awareness, how the organisation uses situation awareness to react in a timely manner, and measures to evaluate resilience and the progress of the organisation. However, there's no definite scale for these eight points.

Moreover, there is a lack of agreement regarding the metrics employed to assess these indicators. In certain instances, distinct metrics were applied to assess identical indicators like (Murray, 2013) and (Otulana, 2011). In fact, the major challenge while designing tools for measuring these indicators is that the indicators employed by researchers to measure organisational resilience are diverse and varying. In some research contexts, indicators have been developed with a sharp focus on very particular sectors, as exemplified in studies like that of (Duarte Alonso & Bressan, 2015), which concentrated on the wine industry. Conversely, other indicators are oriented towards evaluating organisational values, responsiveness, adaptability, internal and external knowledge, and networks.

Although numerous scholars have proposed different sets of indicators to assess organisational resilience, the primary intent of reviewing these frameworks in this study was not merely to adopt a predefined model. Instead, it was to gain a deeper conceptual understanding of what constitutes resilience at the organisational level, particularly in complex and dynamic environments like the construction sector. Organisational resilience is a multifaceted and context-dependent construct, making it difficult to define or measure using a one-size-fits-all model. By examining various indicator sets, this study aimed to unpack the underlying principles, assumptions, and focus areas that different scholars emphasise. This comparative review provided valuable insights into how resilience has been conceptualised across disciplines

B.2.3. Individual Resilience

B.2.3.1. Definition

A significant portion of the psychological literature on OR has focussed on the individual level. Many comprehensive reviews have defined resilience as an inherent trait representing individual attributes such as calmness, adaptability, and persistence (Liu et al., 2020; Oshio et al., 2018; Pangallo et al., 2015). This has become one of the most extensively explored subjects in the field, likely because individuals frequently encounter stress and are, therefore, prone to psychosocial or physical issues. Individuals who strive to grow stronger during such difficult times are regarded as resilient. They possess crucial characteristics such as positivity, confidence, and motivation which enable them to navigate adversities. This observation is based on psychological and cognitive perspectives. Moreover, resilient individuals that are nurtured by an encouraging and motivated organisational culture are reported to have increased physical wellness than those that are less resilient. In other words, individual resilience is shaped by both personal traits and by the broader organisational environment. Some

scholars have regarded resilience as a collection of traits and characteristics that empower an individual to excel within specific organisational contexts (Kinman & Grant, 2017). Meta-analytic findings have shown that trait resilience is inversely related to markers of poor mental health and positively associated with favourable mental well-being (Hu et al., 2015). Other meta-analyses have also highlighted positive connections between trait resilience and personality traits such as extroversion, receptiveness to new experiences, affability, conscientiousness, and lower levels of neuroticism (Oshio et al., 2018).

Research pertaining to individual resilience when dealing with daily pressures has made notable progress, and is closely linked to the field of positive psychology, as indicated by Bardoel et al. (2014). It is mostly related to attitudes (Kaplan et al., 2013; Sommer et al., 2016), behaviours (Chen & Lim, 2012), and learning ability (Youssef & Luthans, 2007). Individual resilience is observed to be strongly associated with social support and the quality of one's interpersonal relationships. Moreover, studies have found that positive feedback and commendations from managers positively influence employee development, resilience, and their ability to thrive (Carmeli & Russo, 2016; Hodges et al., 2005). The study by Branicki et al. (2016) explores individual resilience when faced with profoundly unsettling events, such as the loss of a close relative or encounters with violence or life-threatening circumstances. Overall, the primary goal of research in this area has been to explore how relatively steady and healthy levels of psychological and physical well-being can be sustained, an aspect which can be characterised as psychological robustness.

Scholars have identified Individual resilience in distinct ways and thus, several definitions are enlisted in the literature (Table B.2). These definitions show diversity across and within research disciplines.

Table B.2- Definitions of individual resilience from literature

Source	Definition
(Burton et al., 2019)	“ability of individuals to adapt positively in the face of trauma”
(Clarkson et al., 2019)	“hardiness and ability to cope in adversity”
(Denkova et al., 2020)	“ability to effectively adapt to adverse situations”
(Houston et al., 2017)	“ability to positively adapt in the face of adversity, trauma or stress”

(Lin et al., 2019)	“competency to cope and adapt in the face of adversity, is considered a significant protective factor against the negative effects of job stress”
(Loprinzi et al., 2011)	“the source of resilience is an individual’s innate strength that helps the individual adapt to stressors and pursue life’s meaning and purpose”
(Mache et al., 2015)	“individual protective factors such as resilience”; “ability of an individual to withstand adversity and is often seen as a form of self-recovery with positive emotional and cognitive outcomes, which in turn has an important role in realising greater adaptability and life satisfaction”
(McGonagle et al., 2014)	“positive adaptability or ability to thrive in the face of adversity”
(Pidgeon et al., 2014)	“competence to cope and adapt in the face of adversity and to bounce back when stressors become overwhelming is considered a significant protective factor against instances of compassion fatigue, burnout and mental and physical illness”
(Songprakun & McCann, 2012)	“psychosocial capacity of the person to maintain positive adaptive functioning which minimises negative thoughts and promotes recovery of strength and coping ability and to have a positive outlook in the face of difficult circumstances”
(Sood et al., 2011)	“ability of an individual to withstand adversity”
(Wesner et al., 2019)	“individual’s competence in overcoming stressful life events and adversities”
(Kim et al., 2018)	“refers to the process that allows individuals to adapt positively despite stress or trauma”

(McCann et al., 2016)	“process of coping with adversity, change, or opportunity in a manner that results in the identification, fortification, and enrichment of resilient qualities or protective factors”
(Giovannetti et al., 2020)	“It entails the process of negotiating, managing and adapting to significant stressors or trauma through drawing on internal, and external resources”
(Wild et al., 2020)	“capacity to maintain wellbeing in response to adversity or stress”

Accordingly, individual resilience can be described as:

1. The ability to adapt in tough times or
2. It is a quick recovery post adversities or
3. The ability to foster a constructive attitude amidst difficulties or
4. The capacity to regain original functioning or the enhancement of personal psychological capacities to tackle extreme circumstances.

The points suggest that most of the definitions have focussed on post adversity situations and how exactly should individuals deal during tough times. This indicates that individuals must adapt and be able to get back to their original state as rapidly as possible. Moreover, they must have a positive constructive attitude. However, we observe that there are no pre-crisis abilities of individuals discussed in most of the definitions, which eventually opens a further research opportunity to analyse what abilities does individuals have in pre-crisis phase that helps them to regulate their decision making and coping ability during the crisis phase. Further it would also be interesting to observe how individuals can be benefitted from this aspect. Additionally, we also reviewed critical keywords using word cloud (Fig. B.1) to get a detailed insight on Individual Resilience.

organisational studies. Unlike broader or more complex definitions, this one is concise, universal, and easy to understand, making it highly practical for both academic and real-world contexts. This definition of individual resilience also aligns with the ideas of other scholars that individual resilience is the “positive adaptability or ability to thrive in the face of adversity”. This definition sets the base of our current study as it focusses on adaptability, highlighting that resilience is not merely about enduring hardships but actively adjusting and growing from them. In addition, the emphasis on "adapt positively" reinforces that resilience involves constructive change rather than just survival. Additionally, the definition is generic in nature and is applicable to fields such as psychology, crisis management, and organisational studies. Unlike broader or more complex definitions, this one is concise, universal, and easy to understand, making it highly practical for both academic and real-world contexts. Moreover, this definition of individual resilience also aligns with other scholar's idea such as (Burton et al., 2019; Houston et al., 2017; Sood et al., 2011) who focussed on positive adaptation and bounce back theory.

B.2.3.2. Indicators of Individual resilience

The characteristics of resilient people gained attention since the late 1970s. It was when Kobasa et al. (1983) demonstrated that people with greater hardiness have an internal locus of control, a stronger sense of commitment to self, an ability to view change or stress as a challenge and a sense of meaningfulness. A variety of other salient features were also found to be associated with resilience. For instance, resilient people are capable of engaging the support of others; forming secure and close attachments with both personal as well as social networks; and striving toward personal or collective goals (Rutter, 1985). Such individuals exhibit a greater sense of self-efficacy together with a sense of humor. This provides them strength, strong self-esteem to conduct themselves in tough times. Moreover, resilient individuals can display an action-oriented approach while solving problems.

Furthermore, Rutter (1985) enlisted indicators of individual resilience as engaging the support of others, personal or collective goals, self-efficacy, strengthening effect of stress, past successes or experiences, Sense of humor and most importantly, adaptability to change. Along with this, Patience and Tolerance was indeed recognised as an effective tool in handling traumas (Lyons, 1991). Adding to it, the role of faith and a belief in luck or optimism are important factors in the survival of the expedition, suggesting a spiritual aspect supporting resilience. There are certain skills as well which can help individuals to enhance their resilience like effective communication, goal setting, problem solving, emotional regulation and stress management and building a social support network (Ponomarov & Holcomb, 2009; Southwick & Charney, 2018). It was also observed that the role of the Person-Environment Relationship, Appraisal and Coping techniques in empowering individuals to achieve resilience. Moreover, stress-coping ability and positive psychology are necessary as they are concerned with people's strengths and determine how they grow and thrive. The personal aspect concentrates on physical, intellectual, and psychological assets. They refer to the attributes of individuals in dealing with the adverse conditions. This aspect incorporates a set of innate characteristics and learned attributes to help individuals coping with stress to mentally or emotionally. Soft skills play an important role in adapting in the face of adversities, difficulties, challenges, and threats in different work situations (Turner et al., 2019).

Research pertaining to individual resilience when dealing with daily pressures has made notable progress. This area has been closely linked to the field of positive psychology, as indicated by (Bardoel et al., 2014). It is mostly related to attitudes (Kaplan et al., 2013; Sommer et al., 2016), behaviours (Chen & Lim, 2012), learning ability (Youssef & Luthans, 2007). Individual resilience is observed to be strongly associated with social support and the quality of one's interpersonal relationships. Moreover, studies have found that positive feedback and commendations from managers to their team members positively influence employee development, thriving, and resilience, as demonstrated by the work of (Carmeli & Russo, 2016; Hodges et al., 2005). A limited body of work is dedicated to individual resilience when faced with profoundly unsettling events (Branicki et al., 2016), such as the loss of a close relative or encounters with violence or life-threatening circumstances. The primary goal of research in this category is to sustain relatively steady and healthy levels of psychological and physical well-being, and this aspect is characterized as psychological robustness.

Understanding the indicators of individual resilience is essential because they provide insight into the specific traits, behaviours, and coping mechanisms that enable individuals to adapt and recover in the face of adversity. These indicators such as optimism, emotional regulation, humour, and self-efficacy not only reflect personal capacity for resilience but also inform how individuals' function within broader organisational settings. In high-risk and uncertainty-prone sectors like construction, employees frequently face acute stressors that demand both psychological endurance and adaptive behaviour. As individuals are the most significant component of any organisation, it becomes crucial to understand how their resilience interacts with and influences the organisation's overall capacity to adapt and recover. Therefore, identifying and examining these individual-level resilience indicators is a necessary step toward exploring how individual resilience might influence, support, or even challenge organisational resilience.

The literature provides a comprehensive understanding of the indicators that underpin both individual and organisational resilience such as optimism, self-efficacy, and emotional regulation at the individual level, and adaptability, leadership, and structural capacity at the organisational level. However, what is lacking from previous literature is an explanation as to how these two layers of resilience interact. Over the past two decades, these two domains have evolved largely in isolation, studied by scholars across disparate disciplines and conceptualised through distinct theoretical lenses and operational frameworks (Bardoel et al., 2014; Linnenluecke, 2017). IR, rooted predominantly in psychology, education, and health sciences, is commonly viewed as a set of intrapersonal attributes or adaptive behaviours (Cassidy, 2015; Sabouripour et al., 2021), that enable individuals to bounce back from adversity. These characteristics are often treated as dispositional traits or psychosocial resources that promote wellbeing and individual functioning in challenging environments. In contrast OR has developed primarily within the domains of strategic management, business continuity, and systems theory. It is defined as an organisation's ability to anticipate, absorb, and adapt to disruptions while maintaining core functions and pursuing growth opportunities (Duchek, 2020; Lengnick-Hall et al., 2011). OR is frequently framed in terms of collective capabilities such as strategic agility, leadership adaptability, decentralised decision-making, redundancy, and the capacity to learn and transform post-crisis (Burnard & Bhamra, 2011). This disciplinary separation has led to a theoretical and empirical disconnect, where IR is

examined as a micro-level psychological construct and OR as a macro-level organisational or systemic construct, with minimal integration across levels of analysis. Few empirical studies have explicitly investigated how these two levels interact or influence each other in practice, especially within high-risk or rapidly changing environments (Bardoel et al., 2014; Linnenluecke, 2017).

Additionally, in complex and high-pressure sectors like construction, where individual decision-making and team dynamics are closely intertwined with organisational systems, a more integrated perspective is needed. Specifically, there remains a gap in understanding the conceptual linkages between individual capacities and collective organisational outcomes. The following part explores this conceptual gap and highlights the need for a more unified theoretical approach that captures the interdependence between these two levels of resilience.

CHAPTER THREE

IMPACT OF INDIVIDUAL RESILIENCE ON ORGANISATIONAL RESILIENCE: AN EXPLORATORY STUDY

Abstract

The built environment is designed, maintained, operated, and decommissioned by construction organisations, which play a significant role in providing physical resources and rebuilding infrastructures during major crises and disasters. It is evident that enhancing the resilience of construction organisations allows better responding ability, speedy recovery from disasters and acts as a boon for the nation in the face of significant disruptions. As individuals are the integral component of any organisation, hence, individual resilience is considered a critical aspect, which may boost the organisational resilience of the construction sector. It has been observed that individual resilience is indirectly supported by organisation's citizenship behaviour, job performance, and career success. Not only this, but it also tends to hold a directly proportional relation with job satisfaction, physical and emotional well-being affected by organisation's work culture, whereas the resilience of organisation increases as a result of positive adaption, growth and collective learning of the employees as an entity. Moreover, indicators like Situation awareness in staff and crisis related issues, effective vulnerability management, organisational leadership and culture ensured by approachable, encouraging and people-oriented leaders, are prominent for achieving organisational resilience. It, thus, becomes perceptible that both, organisational and individual resiliencies have the potential to influence each other. Consequently, it arises a major question that how these characteristics are associated and tend to behave with respect to each other. The study, thus, aims to explore the overlapping dimensions of organisational and individual resilience to determine the impact boundaries. The research methodology of the paper would be based on systematic literature review specifically focused on the resilience of construction industry. This would provide a direct comparison of the characteristics influencing individual and organisational resilience and will present the most significant indicators, that can eventually help to enhance the resilience of construction organisations amidst any disaster or crisis¹

¹ This chapter is based on the following research paper:

Mitansha, M., Wilkinson, S., & Potangaroa, R. (2023). *Impact of Individual Resilience on Organisational Resilience: An Exploratory Study*. *International Journal of Economics and Management Engineering*, 17(12), 901-907

3.1. Introduction

Global financial crisis, market demands, pandemic situations and extreme weather events have been impacting countries, companies and individuals at all levels (Steyer & Gilbert, 2013; Sullivan-Taylor & Wilson, 2009; Zagelmeyer et al., 2012). Owing to these adversities, the resilience of construction sector has gained a lot of attention since the past few decades. The reason is its major role in the nation's economy and to carry on recovery activities post-disaster or crisis. Not only this, but the construction organisations also influence communities and helps the government to achieve their policies (Bosher et al., 2007). In order to stand against these disasters, the construction organisations need to be resilient as they can respond and recover against fluctuating scenarios. They plan, design, construct and operate necessary risk reduction infrastructure along with other services to protect the communities exposed to hazards (Malalgoda et al., 2015). Resilient organisations are able to recover from adversities to a balanced state, sustain shocks, and even develop new skills and abilities to achieve breakthrough growth. Organisational resilience is also perceived in terms of employee strengths, as employees are the ultimate executors of organisational strategy. Their behaviour, knowledge and self-regulating features impact the responding abilities of the organisation amidst crisis or disaster. Resilient employees are, thus, considered essential for developing a positive organisational response to counter-act complex events. Employee resilience results from an individual's personality and dynamic ability to interact with the environment to accomplish organisational goals as well as their growth. Resilience in the human context has been observed as the "capacity to stay flexible in thoughts, feelings, and actions when faced by life disruption, or pressurised situations" (Pemberton, 2015). Tonkin et al. (2018) states that employee resilience is channelised in terms of workplace behaviours and can enhance organisational resilience. These two levels of resilience are mutually reinforcing, which implies their significant dependence on each other. Thus, our study aims to investigate that how and why these two concepts affect one another.

3.2. Theoretical framework

3.2.1. Individual Resilience and Organisational Resilience

Organisational resilience is an organisation's ability to anticipate, prepare, respond to, and adapt to sudden risks and disruptions to survive and thrive (Seville et al., 2008). It improves an organisation's ability to withstand emergencies (Markman & Venzin, 2014) and imparts long-term competitive advantages (de Oliveira Teixeira & Werther Jr, 2013). To assess the level of resiliency an organisation possess; it is often measured on the basis of attributes that a resilient system must acquire. Organisational resilience was assessed using the dimensions of change capability, social relationships, organisational commitment, reality perception and team cohesion (Hind et al., 1996). Later, Tierney (2003), in his study on Organisational and Community Resilience, described the four dimensions of a typical resilient organisation as robustness, resourcefulness, redundancy and rapidity. Using the grounded theory method, McManus (2008) explored organisational resilience in New Zealand and mentioned that organisational resilience should include situational awareness, management of keystone vulnerabilities and adaptive capability. It was also observed that a resilient organisation must have the three attributes of readiness and preparedness, response and adaption and recovery/adjustment (Ponomarov & Holcomb, 2009). Further, Akgün and Keskin (2014) developed a

broader scale for organisational resilience, including the attributes of competence orientation, deep social, agility, capital, practical habits, behavioural preparedness, and extensive resource network. Moreover, Kantur and Say (2015) also presented a three-dimension structure of organisational resilience namely robustness, agility and integrity. The factor of robustness describes the organisation's capability to survive, sustain and recover from unfavourable conditions. Agility assessed the organisation's capability to take rapid actions and integrity indicates the cohesion among the workforces in the organisation. These system-based attributes act as an important toolbox to quantify organisational resilience. From a strategic perspective the measure for organisational resilience is based on situation awareness and long-time planning for organisation. While organisational resilience may be observed as a capability manifested at the organisational level, it cannot exist in absence of resilient employees and groups/teams. At an individual level, resiliency illustrates how individuals can overcome adversity and trauma. Basically, resilience is the potential of an individual to exhibit resourcefulness by utilising all available resources in response to existing challenges (Pooley & Cohen, 2010). Individuals who are personally resilient can utilise their proactiveness, prudence and long-term orientation to help the organisation prepare for acute shifts and risks. They can even deploy their diverse of skills, risk tolerance and abilities to promote redundancy, diversity, and modularity in the organisation. Moreover, the imagination and innovation quotient of the resilient employees can enable the organisation to redefine its industry for the future. Riolli and Savicki (2003) highlighted the noteworthiness of individual resilience as individuals are an integral component of the organisation. Consequently, individual resilience and organisational resilience are interlinked and reciprocally influence one other. It also directs us to the fact that an organisation can only be as resilient as its individuals (Home III & Orr, 1997; Mallak, 1998; Shin et al., 2012). Thus, understanding individual resilience is only a starting point to understand organisational resilience.

3.2.2. An Overview of Key Indicators of organisational resilience and individual resilience

ResOrgs (2012) identified 13 key indicators for organisational resilience for benchmarking the resilience of organisations in New Zealand. These indicators are divided into three groups, leadership and culture; networks; and change ready. These groups include Leadership, Staff engagement, Decision-making, Situation awareness and Innovation and creativity in leadership and culture category. The network group comprise of Effective partnership, Breaking silos, Leverage knowledge and Internal resource. Whereas, Change Ready is based on Unity of purpose, Planning strategies, Proactive posture and Stress testing plan. The Resilience Benchmark Tool help construction organisations to analyse their ability to adapt and respond to a disaster. It also enables the organisations to monitor processes over time and compare resilience strengths as well as weaknesses against other organisations. (Hollnagel et al., 2006) described control as an important indicator of organisational resilience. Additionally, some other indicators for resilient construction organisations are strong leadership, awareness and understanding of their operating environment, ability to manage vulnerabilities and adapt in response to changes (Sapeciay et al., 2013). Organisational resilience is also visualised in terms of employee strengths as employees are the ultimate carrier of organisational capabilities. The resilient employees utilise their abilities to allow the organisation to respond effectively and absorb the prevailing disturbances (Liang & Cao, 2021). Therefore, it is evident that a critical source of organisational

resilience capacity lies in employees' characteristics (Lengnick-Hall et al., 2011; Luthans et al., 2007). The analysis of Kobasa et al. (1983) on stressful events and human personality suggested commitment and the tendency to view change or stress as an opportunity are crucial for developing resilience among individuals. Southwick and Charney (2018) validated it and found that having a valued and clear purpose, and adhering fully to a goal, can markedly strengthen one's resilience. Furthermore, Rutter (1985) enlisted indicators of individual resilience as engaging the support of others, personal or collective goals, self-efficacy, strengthening effect of stress, past successes or experiences, sense of humor and most importantly, adaptability to change. Along with this, patience and tolerance of negative affect is indeed recognised as an effective tool in handling traumas (Lyons, 1991). Adding to it, the role of faith and a belief in luck or optimism are important factors in the survival of the expedition, suggesting a spiritual aspect supporting resilience. There are certain skills as well which can help individuals to enhance their resilience like effective communication, goal setting, problem-solving, emotional regulation and stress management, building a social support network, practicing self-care, developing meaning and purpose in life, adopting a positive outlook, improving self-awareness, adopting effective coping strategies (Ponomarov & Holcomb, 2009; Rutter, 1985; Southwick & Charney, 2018). Rotimi et al. (2023) highlighted the role of the person-environment relationship, appraisal and coping techniques in empowering individuals to achieve resilience. Moreover, stress-coping ability and positive psychology are indeed necessary as they are concerned with people's strengths and determine how they grow and thrive (Luthans et al., 2007). As individual resilience is a prerequisite for construction organisational resilience, and it is needed by organisations to cultivate resilient workforces. To better understand how organisations and individuals affect each other, it is important to visualise their common indicators. Thus, based on the existing literature, the study discusses the overlapping dimensions and their limit of extent to get a detailed insight of crucial components of individual as well as organisational resilience.

3.3. Research Methodology

The method to conduct this study is based on a systematic literature review which is fundamentally a synthesis of primary research that presents clear topics and problems, accompanied with critical analysis. Systematic reviews help in presenting more balanced facts by comprehending and integrating the findings of primary research. Thus, the selection and analysis of primary studies is the basis of a quality systematic review. The review entails searching reliable and relevant literature from ScienceDirect and Google scholar, using various single and combined keywords like resilience, individual, organisational or organisational, indicators, crisis, disasters searched through Boolean operators. The time span of the study was 2002-2023. In the course of research, few more articles and research papers were included because of their relevance. The type of source for conducting the review included conference papers, journal articles and books. The language criteria for the search were limited to English. In the first stage, 358 papers were identified and gathered after being subjected to all the inclusion and exclusion criteria. Out of which, 98 papers were found to be common and were removed. The remaining papers were screened in a step-wise manner which involved analysis of paper title, abstract and full paper. As a result, 56 papers were found to be completely eligible for the study, along with 15 more papers from other sources like citation searching and websites. Therefore, total studies retrieved and reviewed were 71.

3.4. Findings

- Work environment and Organisational culture

As per Riolli and Savicki (2003), the individual and organisational levels interact and support each other to produce resilience. Individuals gain strength from the organisation's climate as a whole, and in response, organisations are benefitted from the enhanced capabilities of the individuals. Through organisation's climate, an open and trusting environment is referred where staff are motivated to generate new ideas, time and resources are provided for experimentation, innovation is rewarded, psychological aid is given, and tolerance for failure exists (Mafabi et al., 2013; Nilakant et al., 2013). Such an atmosphere makes employees feel safe to acquire, disseminate, and execute new strategies. As per Caniëls and Baaten (2019), workplace factors like a positive learning culture are positively related to employee resilience. Not only this, but it also nurtures innovation and creativity, promoting organisational resilience (Amabile, 1997). These overlapping influences suggest that certain features of the work environment such as learning orientation, leadership support, and team collaboration—serve as common enablers for both individual and organisational resilience (Bardoel et al., 2014). This evidence suggests that individual and organisational resilience are not only interdependent but also conditioned by the same environmental enablers, particularly work culture and organisational support systems. The workplace, thus, functions as a shared resilience platform, where individual behaviours and organisational structures converge (Cooper et al., 2013). When the work environment cultivates psychological safety, open communication, peer support, and inclusive decision-making, it strengthens both the individual's capacity to cope and the organisation's ability to adapt and respond (Kuntz et al., 2017). For example, individuals are more likely to engage in proactive coping, collaborative problem-solving, and innovation when they perceive that their organisation values autonomy, emotional well-being, and learning from failure. Conversely, organisations benefit from these individual behaviours through faster recovery, sustained productivity, and improved morale during adversity (Vogus & Sutcliffe, 2007).

However, this relationship is also susceptible to misalignment. A workplace that is overly rigid, lacks empathy, or promotes excessive workload without corresponding support mechanisms can deplete personal resources, even in resilient individuals, leading to disengagement, burnout, or withdrawal (Luthans et al., 2006). Similarly, when interpersonal tensions, siloed operations, or misaligned team values exist, they can damage trust and cohesion, weakening the organisation's collective response capacity (Boin & Van Eeten, 2013). This highlights that resilience is not simply an inherent trait of individuals or a static organisational attribute, but rather an emergent property arising from ongoing interaction between people and the systems they operate within (Lengnick-Hall et al., 2011).

Therefore, the degree of synergy between IR and OR largely depends on whether the organisational environment encourages reciprocity, mutual responsibility, and flexibility. When employees exhibit team-oriented mindsets, take ownership beyond their roles, and align with organisational goals and when, in return, the organisation acknowledges and accommodates personal circumstances, emotional needs, and work-life balance, then resilience becomes a co-constructed dynamic (Bardoel et al., 2014;

Mallak, 1998). Such an environment enables the translation of individual adaptive capacity into organisational-level resilience, and vice versa. It also ensures that resilience is not situationally dependent on isolated elements but embedded across organisational layers. In this way, shared cultural values, leadership behaviours, and work design can act as bridge mechanisms that connect the micro and macro levels of resilience into a cohesive, mutually reinforcing system (Duchek, 2020; Linnenluecke, 2017).

- Leadership practice at individual and organisational level

Organisational resilience is the ability of the organisation to manage and sustain during a crisis or disaster. This can be ensured through various approaches including strong organisational leadership practice which can maintain worker's commitment and lead to overall goal achievement in adverse scenarios (Rotimi et al., 2023). Organisational leadership refers to the ability of leaders to carry along the entire unit as an entity on the principals of shared values, commitment and teamwork amongst organisational members. A resilient leader promotes organisational leadership by helping individuals and teams stay motivated and developing a culture of trust and confidence. Clough et al. (2021) described confidence, feeling of control, commitment to the task, and readiness for a challenge as the four Cs of mental toughness that closely align with individual resilience. Mental toughness has been observed as self-assurance in our abilities and dealings with others. Those who lack confidence often perform less well and have a negative attitude towards self-worth. Therefore, Jansen et al. (2009) suggested that leaders must encourage the development of new ideas and creativity to combat problematic situations. Most importantly, they play a vital role in empowering the members to take on leadership roles in their areas of expertise, which eventually promotes leadership at individual level. Individuals who possess strong leadership qualities are confident to step forward and take charge, even if they are not in a formal leadership position. This also influences their decision making and thus, have a quick responding ability.

Thus, it is evident that organisational and individual resilience overlap on the point of leadership. Kirkpatrick and Locke (1991) suggested that while it is essential that a leader is self-confident, it is requisite that he/ she is perceived so by workers. Such leaders are usually admired and trusted; and generally, have a high standard for moral and ethical conducts (Agyekum et al., 2021). This ignites individual as well as team spirit amongst the followers (Alahmad, 2016). Thus, the extent of the overlapping could be the presence of resilient and caring leaders who can strike a perfect balance between leadership style and subordinates' readiness causing a higher level of satisfaction and performance among the individuals. Moreover, it is worth notifying that individuals are more responsive to negative than to positive events, so, if the leaders turn out to be negative and have abusive supervision, it may flow down organisational levels to undermine follower's efficiency and functioning.

- Social support (Engaging the support of others) and communication

Social connections play an important role across numerous aspects of people's lives and is a key driver of wellbeing and resilience (Cohen et al., 2011; Ewart et al., 2002). It has been observed that socially well-connected people are much happier and are better able to take charge of their lives. They are

much competent in finding ways through the problems they are facing. Social support includes Emotional support, which refers to the love, support, sympathy and understanding for one another. Instrumental support is also a kind of social support which focuses on help with practical things, like financial assistance, material resources or any other sort of help. Lastly, informational support is a form of support which is provided to equip the individual with important details and insights which can help them to deal with adversities (Frieling et al., 2018). Social support relates to an improved mental health through the explicit benefit of social relationships and the implicit benefit of a “buffer effect” against stressful situations has been identified (Linden & Vodermaier, 2012). A large volume of research has also shown that low levels of social support link with an increased risk of depression due to occupational stress and common psychological distress (Turner & Brown, 2010).

Social support is the help that individuals get from their peers, family or contemporaries which enhances their resiliency. Likewise, the organisations collaborate with other organisations and share resources to solve challenging problems (Hardy et al., 2003). Comfort (2007) further illustrated that the capacity for coordination depends on effective communication. In case of hurricane Katrina, Communication and collaboration created the sense of unity of purpose among different components of an interacting system. The feeling of shared meanings aligns the organisation's priorities for action and reinforce the likelihood of achieving a common action framework. Moreover, it allows organisations to pool knowledge and resources to solve challenging problems and also increases the capacity for adaptive performance under dynamic conditions (Hardy et al., 2003). Thus, creating and maintaining resonance among the organisation are central to achieving effective crisis management strategies, which is an important part of organisational resilience.

However, it should be well understood that the term coordination assumes that the participating actors align their functioning voluntarily. If it doesn't happen, then it may breed discontent, frustration, and ineffective performance in any group or organisation. Considering about individual resilience, scholars have posited that some forms of social support may in fact reduce wellbeing by lowering recipients' sense of control and self-confidence (Fisher et al., 1982; Tough et al., 2017), making them feel indebted (Gleason et al., 2003), or reinforcing dependency (Bolger & Amarel, 2007). It implies that behaviour signalling a negative emotion while giving social support like giving derogatory comments or pinpointing someone's mistakes may undermine the value of social support for wellbeing (Semmer et al., 2008). Thus, extending help to one another, be it at individual level or organisational level, enhances resilience but the boundary condition is that it only yields the result when everyone joins willingly and do not demean the sense of control and self-confidence.

- Adaptability and change readiness

Adaptation for individual in the workplace is a multilevel phenomenon which can be described in terms of performance like action, response, and result (Baard et al., 2014). As an important component of overall employee performance, the adaptive performance refers to the ability to change one's behaviour to meet the needs of a new environment. Also, it is considered as an emergent process which is based on interact through cognitive and behavioural goal-direct action to keep up with the requirements of the

environment (Maynard, Kennedy, & Sommer, 2015). Successful adaptive performance of individuals in an organisation with complex and volatile business conditions affirms that the individual is able to effectively handle uncertain and unpredictable work situations. It may be a result of organisational restructuring, a change in goals, or a challenge to available resources (Ashford, 1988; Murphy & Kroeker, 1988). Griffin and Hesketh (2004) considered adaptive behaviours at individual level as being proactive, reactive and tolerant. Moreover, Pulakos et al. (2000) conducted a study on adaptive performance, which was based on some distinct professional activities like, creative solving problems, dealing with uncertain work situations, learning ability, demonstrating interpersonal and cultural adaptability, handling work stress, managing emergencies and crisis etc. These activities are directly related to resilience indicating, adaptability and resilience are entirely intertwined. It is because resilience is the ability to recover from difficulty and bounce back, whereas adaptability is learning from old experiences and using them to form a new, more positive outcome. Additionally, the definition by (APA, 2020) which states that resilience is “the process of adapting in the face of adversity, tragedy, threats, trauma, or other major sources of stress”, also emphasises on the concept of adaptability. Successful adaptive performance implies that employees are able to efficiently deal with uncertain and unpredictable work situations that may, for example, arise from organisational restructuring, a change in priorities, or the lowered availability of resources (Ashford, 1988; Murphy & Kroeker, 1988).

From organisational perspective, adaptive capacity denotes the ability of a system to adjust, modify or develop its characteristics to moderate potential damage, utilise opportunities or cope with the consequences of disruptive events. A resilient organisation can handle internal abruptness caused by the external environment by changing itself (Hillmann & Guenther, 2021). It involves adapting to resources, situations, interpersonal processes and organisational routines to combat the impacts of a shock (Danes et al., 2009; Glover, 2012). Jones et al. (2010) argued that a fundamental property of adaptive capacity is linked to the organisation’s ability to foster innovation and support new trends or practices”. Shirey (2012) mentioned the benefit of adaptability in organisations and highlighted that organisational members who has more readiness and commitment to change exhibit more cooperative behaviours, and more influential championing practices. For an organisation to be resilient, it must develop the ability to adapt and reorganise to withstand disruption and change.

However, adaptations may have both positive and negative impacts on individuals and organisations at different levels (Jones et al., 2010). Understanding adaptive capacity calls for recognising the significance of numerous intangible processes like decision-making and governance, innovation practices, experimentation and opportunity look out, plus the structure of institutions and entitlements. Establishing such processes, often, require constant effort and is time consuming as well. Therefore, patience and consistency are crucial for fostering adaptability. No adaptation strategy can be successful without ensuring proper availability of financial reserve, resources, technology, innovation and clear understanding of responsibilities. Also, interventions to facilitate adaptation vary considerably in type, breadth, scope, therefore, each organisation must plan their own adaptation.

- Recognition of limits to control

In the dynamic and uncertain scenarios of disaster operations, it is necessary for organisations to have a strong control on the prevailing environment to absorb their negative impacts. As per Comfort (2007), control refers to the capacity to keep organisation's response focused on the shared goal of protecting property, lives and maintaining continuity of actions. It, further, allows to focus on the critical tasks that will bring the event to a non-escalating and less destructive state. Thus, the purpose of control is to change the consequences of the event from being uncontrolled or unforeseeable to become controlled or foreseeable (Hollnagel, 2015). Evidently, any loss of control during an unexpected situation will shift a well-established and stable organisation to an unstable one. Andersson et al. (2019) highlighted that control is maintained through commonly acquired skills, shared knowledge, and reciprocal adjustment of actions to adjust the requirements of the external environment. It is self-imposed and, when used effectively, sets an example for others to follow in adapting their actions to a changed environment. Besides, a healthy power distribution in an organisation, normative control is also essential for smooth organisational processes. It is because balancing power distribution creates preparedness for local action whereas normative control brings organisational alignment and stability to organisational members. This leads to long-term survival of the organisation which is important for achieving organisational resilience.

Additionally, Moffitt et al. (2011) described individual's self-control as an important personality and cognitive factor that is associated with overall betterment of physical, psychological, and social outcome leading to their resilience. It is often considered as an umbrella-based construct that bridges measurements and concepts from different disciplines (e.g., impulsivity, conscientiousness, willpower, self-regulation, inattention, hyperactivity and executive function. Kobasa et al. (1983) explained control dimension in context of individual resilience. It includes decisional control, implying the capability of autonomously choosing a way to handle a particular situation; cognitive control, which refers to the ability to appraise, interpret and incorporate any sort of stressful event into an ongoing life plan and lastly, behavioural control which may explicitly influence the objective characteristics of a threatening (Averill, 1973). Also, there is a strong relationship between personal control and stress, as it is majorly a function of the control response for the individual.

Despite individual and organisational resilience orient together on control as an indicator, they are wide apart in many instances. Hollnagel et al. (2006) discussed that an organisation is ready or prepared for what happens, if it has the ability to remain in control. If the control persists during both anticipated and unanticipated conditions, then the system is said to be resilient. However, the concept of control is misused many a times, as the exercise of power is withheld by a small group of privileged managers over other members of an organisation. Thus, control, in true sense, should be free-will and not forced to maintain its actual essence. It must be based on organisation's own observation, orientation, decision, and action (Boyd, 1986). Weick (1996) further suggested that the loss of control of a situation often happens because of inexperience of staff, unavailability of equipment or supplies and lack of time. Besides, unrealistic and mindless anticipation also erodes the organisation's ability to stay in control. Similar to organisations, individual control and forming attitudes are somewhat influenced by context and culture. However, the study of Averill (1973) distinguishes the individual control from

organisational control in a way that individual control largely depends on how the person perceives the meaning of control. A positive outlook triggers a robust approach in the individual, by comparison of the same challenge in a negative context, where the individual feels little or no emotional support. Though control is aimed to minimise stress, making individuals more resilient, still the latter case can increase rather than decrease the stress. Thus, control as an indicator of resilience must be carefully planned by organisations and individuals and shouldn't be perceived in an adverse manner.

Though these two levels of control operate differently, but still share a close relationship. For ex. organisational control provides a structure that helps individuals to have a sense of control over their work and functioning through clear description of roles and responsibilities. This, ultimately, enhances individual's ability to exercise control over their work and in response to it, individuals show proactive behaviour and are more likely to embrace changes. Such kind of flexibility fosters innovation and allows the organisation to respond quickly and effectively to challenges, developing the overall resilience of the organisation. It's essential to note that while organisational and individual control can positively impact each other for resilience, but the limiting condition is that excessive control from either side can have negative consequences. It must strike a balance between organisation's support and structure, accompanied with proper alignment of individual control. Thus, control as an indicator of resilience must be carefully planned by organisations and individuals to avoid any kind of confusion, chaos and mishappening

3.5. Conclusion

Organisational resilience is a unique capability which exists at the interplay of individual level resilience, and organisational level resilience, with both of them reinforcing each other. The study explored this point and highlighted the common indicators to discuss the boundary conditions or the limit of overlapping between individual and organisational resilience. The findings suggest that the overlapping indicators are work environment and culture, leadership, social support including communication and collaboration, adaptability to internal and external changes and sense of control. It was also observed that in some cases, both organisations and individuals share common set of boundary conditions, like social support and inter-organisational bonding are productive only if the other isn't trying to dominate or influence negatively. Similarly, control allows to handle and regulate stressful situations, but a forced control seems to diminish its real goal. For both individual and organisations, control is influenced by the internal and external culture. Moreover, it was found that flexible and innovative organisational set-up adapts to emerging challenges and developed new ways to work. They produce new technical processes, organisational systems, and support their workforces which, ultimately, contribute to improved output and well-being of the employees. Nevertheless, the presence of resilient leaders, who can impart unity in purpose and encourage others to be leaders is also a link between the two levels of resilience. However, indicators like adaptability show distinction between the two resilience as for organisation, it is based on all its members and resources. Whereas individual adaptability is based on one single person and is a result of past experiences and psychological capital. A significant detail was also recognised that in some way or the other, all indicators are somehow linked to each other. This implies that the improvement in one, may bring positive results to others as well. Thus, the common

aspects of the indicators need to be utilised by organisations and policy makers to plan strategies related to individual and organisational resilience. Whereas the contrasting aspects must be further explored. The practical implications would be to manage workplace changes effectively and focus on adaptability and learning for retaining competitive edge. It is also essential to look for opportunities, practices, or interventions to integrate the dimensions, that certain can promote both individual and organisational resilience. By leveraging these synergies, organisations can maximize the impact of efforts to build resilience. The study has inevitably some limitations. Firstly, the language of the research papers was confined to English. Hence, there is a scope of broadening the language area of papers to be reviewed. Also, the research is just limited to literature review, which could be extended, and results might be verified using triangulation analysis based on surveys and interviews. Further studies may include some more indicators of organisational and individual resilience to get better observations.

CHAPTER FOUR

AN EXAMINATION ON INDIVIDUAL RESILIENCE TO ACHIEVE ORGANISATIONAL RESILIENCE

Abstract

The construction industry is a diverse and complex sector consisting of projects that include development phases and stakeholders' interaction. However, in a crisis, the industry gets immensely exposed to unanticipated events that disrupt original plans, operation and progress of organisations. After the recent pandemic, the effort to ensure the preparedness of construction organisations against future adversities has become a focus for the sector. Thus, the paper aims to get a detailed insight into the relationship between individual and organisational resilience, exploring whether resilient individuals are sufficient for attaining organisational resilience in the construction industry. The research also investigates the existence of any intermediating factors that can facilitate individual resilience in procuring organisational resilience.

The methodology of the study would be systematic literature review, specifically focused on the resilience of New Zealand construction industry. The results of the paper would present crucial links between employees and resilient organisations. This will help in understanding the role of mediating factors and will foster holistic resilience-building programs across different levels in construction organisation.²

²This chapter is based on the following research paper:

“Mitansha, Wilkinson, S., & Potangaroa, R. (2023). An Examination on Individual Resilience to Achieve Organisational Resilience. International Conference on Resilient and Responsible Architecture and Urbanism”

4.1. Introduction

Environmental uncertainty and continuously evolving scenarios have become a constant challenge for organisations. In such turbulent and fluctuating conditions, only flexible and relentlessly dynamic organisations will thrive (Lengnick-Hall et al., 2011). Thus, it is essential for construction organisations to be resilient as they are responsible for managing the re-building and reconstruction works. Several studies (Sapeciay et al., 2013; Teng-Calleja et al., 2020; Wilkinson et al., 2014) have discussed the crucial role of organisations in the development of built environment and indicated how the organisations must be able to move beyond survival and prosper in complicated, uncertain, and threatening environments.

Resilience at organisational level allows adaptability and quick recovery against adversities and undoubtedly, individual resilience of the employee is a significant aspect that facilitates the process of adaptability and eventually, supports organisational resilience (Lengnick-Hall et al., 2011; Mallak, 1998; Xiao and Cao, 2017). It is because the potential and capacity of a system is shaped by the knowledge, skills, abilities, cognitions, behaviours and self-regulatory processes of the employees (Lengnick-Hall et al., 2011; van der Vegt et al., 2015). In contrast, Alliger et al. (2015) argued that despite individuals being resilient, they tend to focus on themselves at times of stress. They also require a strong organisational culture to be innovative and creative to deal with adversities. This indicates that there exists a mutual dependence between the organisations and individuals to attain resilience, along with some more factors as organisational resilience is a result of complex interplay of several factors at different levels of analysis (van der Vegt et al., 2015).

However, the association between organisational and individual resilience is often presumed (Gittel et al., 2006; Linnenluecke, 2017; Weick, 1993). Nevertheless, the detailed assessment and comprehension of their interplay is lacking (Groschke et al., 2022; Hartmann et al., 2020; Jaaron & Backhouse, 2014; Raetze et al., 2021). Therefore, to unravel the relationship between employee resilience and organisational resilience, a thorough assessment is called for. The study is focused to understand if employee resilience guarantees organisational resilience and what are the possible factors that can contribute to organisational resilience in combination with individual resilience.

4.2. Theoretical Framework

Financial crisis, market demands, political instabilities, pandemic situations and extreme weather events have been impacting countries, companies and individuals at all levels (Momani, 2010; Nijssen & Paauwe, 2012; Steyer & Gilbert, 2013; Zagelmeyer et al., 2012). In order to stand against these disasters, the construction organisations are needed to be resilient since they hold several responsibilities like planning, designing, constructing and operating the risk reduction infrastructures (Bosher et al., 2007; Malalgoda et al., 2015).

The focus of our current study is on the resilience of the construction organisations, which can be visualised through two perspectives. One of them is organisational resilience, which is visualised as a mechanism that functions as a cohesive entity to demonstrate recovery based on positive growth, learning and adaptation (Sutcliffe, 2003; Vogus & Sutcliffe, 2007). It has indeed a multiple level structure

and is associated with the organisational culture, practices, resources, routines and numerous processes. The other perspective of that is employee resilience which is perceived as "behavioural capability to support work resources in order to ensure proper well-being, and growth at work, strengthened by the organisation" (Kuntz et al., 2017). It was further highlighted in the study of Walker et al. (2020) that rather than viewing organisational resilience as the sole responsibility of individuals, it should be recognised as an accumulated response of the work practices, culture, and leadership styles of the organisation.

According to Zhu et al. (2014), an organisation can manage and sustain in adversity by acquiring required resources. Since human resources in the form of employees is one of the most important resources of an organisation, it eventually affects organisational resilience. This brings the attention to employee-organisational resilience dimension during disaster recovery and resilience. It should be noted that the responding ability of the organisations against shocks and stresses are impacted by individual's knowledge, behaviour, skills, coping ability, and abilities of resilient employees (Coutu, 2002; Mallak, 1998; Rioli and Savicki, 2003).

However, the concept still lacks clarity, especially regarding the attainment of organisational resilience in construction industry by virtue of resilient employees. The challenge is that resilient individuals or teams might not directly build resilient organisations, but still their significance is undeniable. This has also been noted in the findings of (Lengnick-Hall et al. 2011, Home and Orr, 1998), that the resilience process related to team or organisations cannot be assumed to be a direct cumulative sum of individual resilience. It, thus, might not explicitly build resilient organisations. Linnenluecke (2017) stated that the resilience of different levels (individual, team, organisation) needs to be further assessed to know the mutual dynamics for attaining organisational resilience.

Therefore, resilience study needs to integrate outcomes derived from research at multiple stages (Britt et al., 2016; Ducheck, 2020; Matheson et al., 2016) to investigate the interaction between the organisation and its employees during confrontations with adversity.

Hence, the paper aims to address two major questions listed below.

1. Do resilient individuals ensure resilient organisation?
2. Are there any positive links that could bridge the gap between resilience of organisations and the individual workforces?

4.3. Research Methodology

This study focuses on the exploration and analysis of resilience at individual as well as organisational level. Though this topic has been addressed in numerous previous research (Coutu, 2002; Lengnick et al. 2011; Xiao and Cao, 2017) but they are scattered in various scientific proceedings and journal articles. The method to conduct this study is based on a systematic review that aims to identify, evaluate, and interpret the results of research that is associated with a particular topic to be studied. Systematic review is basically a consolidation of primary research that highlights distinct subjects, accompanied by analytical comprehension. Therefore, the process of systematic reviews demands

appropriate selection and analysis of primary studies. In this study, the systematic review is based on PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-analyses), a protocol reporting guideline designed to optimize the presentation of systematic reviews. It encompasses an evidence-supported minimum set of items essentially used for reporting in systematic reviews and meta-analyses. The review entails searching relevant and reliable literature from Scopus, ScienceDirect and Google scholar.

In order to explore accurate corresponding articles, various keywords were used such as resilience, individual, organisational or organisational, relationship, teams, indicators, crisis, disasters searched through Boolean operators. The time span of the study was 2002-2023. In addition, some more articles and research papers were also included via other methods based on their relevance. The other methods comprised of snow balling method, Government reports, magazines etc. All the research reviewed in the study were published in English.

The study includes PRISMA flow diagram which allows easy understanding and facilitates rapid comprehension of the numbers of records included or excluded at each stage, presented in Fig 4.1. The flow diagram indicates that the literature review consisted of identification, screening and included results from databases and other sources. The arrows show the records flow from sources to the final set of studies.

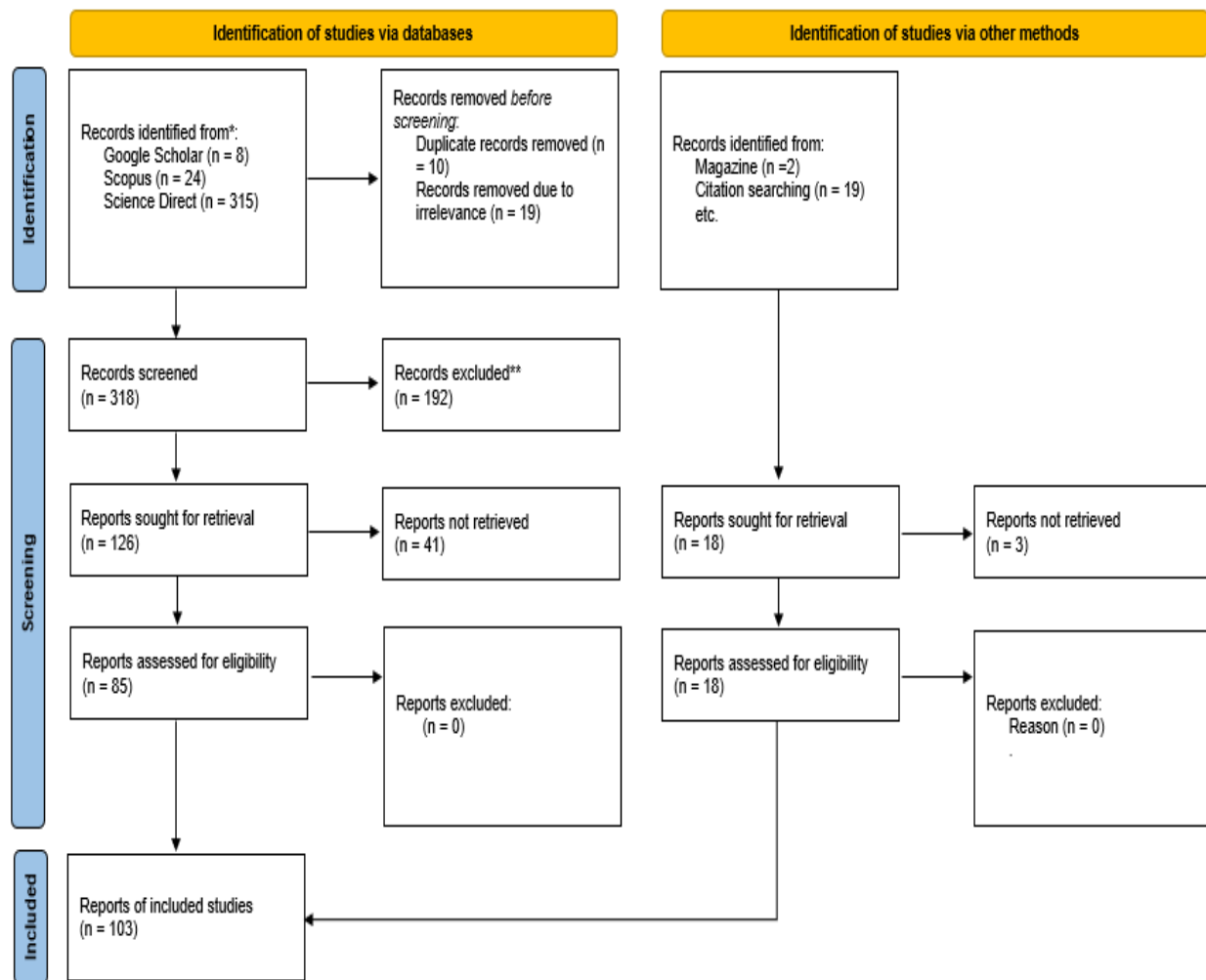


Figure 4.1. PRISMA Flow Diagram

4.4. Analysis and Discussions

In an organisational framework, the employee lies in the core, making individual resilience as the primary source of organisational resilience (Xiao and Cao, 2017). Having resilient individuals in an organisational system, is considered a boon for organisations to leverage resilience quotient. It can be visualised in a way that resilient individuals can deploy their prudence, proactiveness, situational awareness and long-term orientation to help the organisation prepare for long-term adaptations and risks. It is possible to argue that if individuals constitute to form an organisation consequently, more resilient individuals will yield a more resilient organisational system. This prospect has been addressed in the study of Ashmos and Huber (1987) which states that individual capabilities cannot be summed up to yield organisation-level capabilities, in fact the combined response and interaction of individuals matter (Morgeson & Hofmann, 1999). This was further substantiated by the findings of Walker et al. (2020) that it all depends on the contexts one operates in, the people around and individual's own learning and development, that eventually depict how one can make a resilient organisation.

According to Lengnick-Hall et al. (2011) individual and organisational resilience relationships demonstrate the standard interplay between systems and subsystems. This system of organisational resilience is bifurcated into three levels: individual level, group level, and organisational level (Cunha et

al., 2013). Thus, it can be inferred that it is basically the multifaceted social fabric in which the teams are nurtured alters the evolution and realization of organisational resilience in essential ways (Lengnick-Hall et al. 2011).

Resilient employees without leadership culture in the organisation

Construction projects are intricate as they comprise of a series of tasks that are linked and are subjected to various constraints and variables (Larsson et al., 2015; Rotimi & Ramanayaka, 2015) and it requires strong leadership to ensure that all activities meet their expected deadlines on time (Amaratunga et al., 2016; Coetsee, 2001; van Heerden et al., 2021; Wilkinson et al., 2016).

Therefore, to investigate the sufficiency of resilient employees in making a resilient organisation, we consider a construction organisation which has a set of resilient employees, but the managers are not including their ideas in decision-making and not allowing space for creativity. Less transparent, controlling and directive leaders demoralise the employees and thereby, reduce their efficiency, making the organisation more vulnerable to adversities. The leaders have the potential to motivate and empower employees. According to Dubois et al. (2014), effective leadership skills ensure employee allegiance leading to successful target accomplishment. These satisfied workers are likely to put on their utmost effort and completely indulge themselves to organisational goals for project success amidst any crisis. It also plays a vital role in organisational strategies that are employed for combating potential hazards and issues related to procurement (Adeleke et al., 2018; Hwang et al., 2018). In light of this, Liang and Cao (2021) rightfully quoted that “strong generals have no weak soldiers”. Therefore, regardless of the fact that individuals in the organisations possess resilient ability or not, the organisations which plan to align the thought process of employees in a productive manner, support them to channelise their energy in a fruitful way, elicits a sense of teamwork amongst the followers, turns out to be a resilient one (Walker et al., 2020). It is, thus, observed that the absence of an efficient leadership culture leads to a decrease in the resiliency of any organisation.

The case study of Canterbury earthquake in 2011 (Walker et al., 2020), economic crisis in Sweden, California’s water planning and management organisation (Booher & Innes, 2010), also points towards managerial resilience in supporting organisational resilience. It highlighted that workers need their managers to be proactive and take actions as and when required. Furthermore, the workforces in these cases expected the leaders to exhibit genuine concern and be able to understand their perspectives and challenges. Through symbolic and verbal communication, they transmitted the significance of purpose, support, caring for peer workers, and acknowledgement. One of the major duties that leaders are expected to perform is to create a transparent and articulated vision which ensures consensus-driven functioning (Boyatzis & McKee, 2005; Boyatzis et al., 2000; Walker et al., 2020). So, based on our findings in accordance with the existing literature, it can be interpreted that a group of resilient employees can’t ensure resilient organisation in the absence of effective managers and leadership practice. Thus, the managers should be resilient under dynamic and adverse conditions.

Organisational learning and adaptation impact on resilient employees

Organisational resilience is determined by the degree of learning and unlearning cultures (Argote & Miron-Spektor, 2011). Apart from gaining useful information, organisations must learn to relinquish earlier known information to create quantum leaps (Drucker, 2012). This was later explored by Walker et al. (2020), who found that organisations with less reluctance towards acquiring new knowledge are less resilient. In contrast, the organisation that supported innovation and creativity by embracing employee learning were open to change. They consistently adapted and developed various steps to sustain themselves. Some organisations even reported that they exceeded single-loop learning and gradually developed their expertise. In addition, they generated significant variation in their approach to continue with their pace of learning (Wang & Ahmed, 2003).

During the Christchurch earthquake of 2010, the organisations who were majorly affected were the ones who did not give learning due importance (Walker et al., 2020). After getting severely affected by devastating earthquake, the organisations realise the need for change. One of the organisations even reported that the senior officials were physically absent from the region, consequently, they didn't know the real on ground scenario. Moreover, staffs were instructed to abide by procedures which were based on another disaster from some other region. Certainly, that did not align with the existing setting and led to poor work environment and mental issues. Further, during the Colombia shuttle crash, one of the informants described that they made many little mistakes during the first few weeks, but over time, they developed the approach of taking risks and fighting back (Beck & Plowman, 2014).

In order to create a balance between learning and unlearning process for organisational resilience, it is important to change employee's ideology as they refrain themselves from discarding existing beliefs and methods until they showcase satisfactory outcomes (Kuhn, 1997). The organisation must plan to facilitate individual learning and providing a nurturing environment to expand their vision and thinking (Morris, 1996; Pedler et al., 1991).

The study of Ikehara (1999) suggested learning ability of individuals impacts the formation of learning organisation but that does not directly lead to organisational learning. It, therefore, becomes the responsibility of the organisation to blend individual's learning skills into organisational resilience. An organisation cannot resist competitive scenarios if there is no right culture that allows proper contribution of worker's knowledge. Hyland and Matley (1997) claimed that a learning organisation is the sum of individual and collective learning, which cannot occur if organisations hinder and do not support the learning processes of individuals (Kim, 2009; Romme & Dillen, 1997).

The strongest determinants of adaptability among individuals are participation, role clarity and optimism (Parent et al., 2012). To a certain extent, an organisation can influence all three of these factors. Also, organisations offer proactive resources and create changes that help protect their employees, it also holds the capacity to bring ongoing, real-time learning and adaptation among the employees. It is, thus, evident that individual employee resilience cannot replace the significance and role of organisational support require for making an organisation resilient.

Resilient employees without proper Information Management system

Organisational resilience immensely depends on the way information is perceived and processed (Achour & Price, 2010; Andrew et al., 2016; Hassall et al., 2014). An efficient knowledge management system involves execution of planned strategies, organisational goals and accomplishments that are effectively communicated across the organisation (Stephenson et al., 2010). It equips the decision makers to have as much helpful information as possible in case of crisis. Besides, it enables more subjects to recognise the progress and participate in the organisation, making the governance more transparent. As information is considered as a main factor determining timely and appropriately adaption to challenges, hence, during external threat, incomplete knowledge of the scenario can make the situation even worse. It can be attributed to the fact that under potential threats, the transfer of information tends to diminish (Gladstein & Reilly, 1985), resulting in adverse result on their performance.

A key utility of effective information management is by enhancing the situational awareness of organisations. It relates to compassion, care, and empathy (Powley, 2009). Endsley et al. (2003) describes situational awareness as the knowledge or consciousness of what are the needs and demands of the organisations, what are the important resources available, and how vital information can be used by the organisation now and in the future. These could be regulatory changes, social changes, technological development etc., which gradually develops by organisation with due course of time. The organisational practice of information disclosure can promote decision-making and reduces the opportunistic tendency of stakeholders in construction projects caused by information asymmetry (Yang & Cheng, 2020). Thus, the foundation of resilience lies in organisational attributes like work environment, fundamental values and beliefs (Burnard, 2013).

Situational awareness also includes clear designation of roles and responsibilities (McManus et al., 2007). In the study of Beck and Plowman (2014), it was revealed that during the disaster, the employees report that they never faced such scenarios, and the initial phase of response was full of chaos. However, it's the resilient organisations who don't let the situations overpower them and in spite of the topsy turvy, they start taking actions and try new ways to combat the situation. Resilient employees are extremely capable of recognising what resources are required, where to get it from and building situation-based trust with co-workers. It certainly helps the organisation to survive within fluctuating environment. Nevertheless, it is the organisation that cultivates the system of supporting and prioritising resilience and, incorporates processes to establish monitoring frameworks to interpret changes and trends to increase the resilience of the system.

Another way of information and knowledge exchange is through effective partnership and collaboration practices in organisation at internal as well as external levels. In case of any crisis, the resilience of the system is reduced as the network gets divided into isolated clusters and robust communication is impacted (Wehbe et al., 2016). Eventually, the ability of the teams or system to behave as a single entity also diminishes and the overall decision making and responding ability is immensely impacted (Alliger et al., 2015).

Siddiqui (2022) describes that organisational resilience is based on robust bonds, thriving environment, and well-established networks in the organisations. Basically, such relationship advances growth and

serves as a backbone during crisis or disaster. With a view to achieve organisational resilience, it is vital to address group or team resilience as it is a pathway between organisational and individual resilience (Xiao and Cao, 2017). This indicates the significance of teams in organisations, that has steadily gained momentum over the past three decades. Alliger et al. (2015) addressed this topic and added that a team might face clashes despite the presence of resilient people. It could result from difference in coping strategies, opinions, and personal attributes. Additionally, individual staff can gain new knowledge from working alongside other organisations. Still, in case, the parent organisations are not valuing a learning mindset and do not support the gathering and implementation of new insights, then it can turn out to be a substantial catalyst for discontentment among the staff (Walker et al., 2020). Thus, placing the entire liability on employees and ignoring the duty of organisation could be psychologically depleting and may result in burnouts as well (King & McSpedon, 2022). It can be deduced from the aforementioned observation that despite having resilient employees, organisation must foster collaborative skills internally and externally with numerous connections as well as real time communications for a better flow of information.

Andrew et al. (2016) studied the resilience of several organisations during Thailand floods in 2011. It was revealed that the organisations who did not have a cohesive work environment were less resilient than those with more socially connected ones. Moreover, the responders of the 2003 Columbia shuttle crash accident (Beck and Plowman, 2014) also validated the need of collective abilities for encountering an unanticipated problem. The case study of 2010 Christchurch earthquake showed similar results (Walker et al. 2020) For instance, internal collaborations not only provided the organisations with extra resources, and people, but they also shared the immense work with multiple groups. The diverse partnership empowered them to explore novel endeavours (Walker et al., 2020). Also, interaction with such a wide variety of people across the hierarchy in organisations enabled them to expand their learning and thinking process.

Thus, we form the opinion that a silo mentality cannot resolve possible challenges and threats and require cooperative attitude through communication and collaboration to adjust against discontinuity. Moreover, the findings of Burnard and Bhamra (2011) also stated that the mechanisms of organisational resilience are based on improvement in organisation's understanding of the situation, mitigating vulnerabilities to systemic risk environments, and regaining operational effectiveness post disruption.

Rich organisational work culture to support resilient employees

The significance of organisational culture in promoting resilience has been widely recognised by many scholars (Pettigrew et al., 2001; Robinson & Griffiths, 2005). Mitroff et al. (1989) described organisational culture as an important factor for managing uncertainties like financial setbacks, pandemics, political issues, natural disaster. Moreover, in the componential theory by Amabile (1983), the essential role of creativity and innovations between a rich work environment and organisational resilience is highlighted. Fundamentally, creativity is described as forming something from nothing and innovation is putting that something into use. This was also addressed by Mafabi et al. (2013) in their study on the resilience of Uganda public corporations to unspecified acute shocks. Their observations

depicted that when organisations support creativity and promotes staffs to develop innovative techniques, then it can boost resilience of organisations. Creativity can be developed in an organisation by providing resources for experimentation and accepting failure scenario. Whereas staff of poor creative organisations are more guarded and closed (Mafabi et al., 2013; Nilakant et al., 2013). As a result, they are hesitant to suggest innovative and creative ideas as they believe that they would be ignored and not considered.

Although resilient employees possess the strong core abilities to stand against crisis and so, is justified to comprehend that organisation's resilience reflect the resilient attributes of its employees (Bhamra et al., 2011). However, just the presence of resilient employees does not translate to resilient organisations (Home and Orr 1998; Kuntz et al. 2017). According to Kuntz et al. (2016) employee resilience is the competence to utilise available resources for adaptation, fostered primarily by the organisation. This indicates that, employee resilience is based on the foundation of a strong organisational culture and cannot directly lead to a resilient organisation.

It has also been observed by many scholars that organisations fostering resilience of employees through developing their capacity to survive against fluctuations, setback and uncertainty are generally in a better position to manage, address and navigate through unanticipated events (Kuntz et al., 2017; Lengnick-Hall et al., 2011; Prayag et al., 2020). For instance, resilient employee behaviours such as and making suggestions for operational changes are based on organisational environment that can foster autonomous decision making and accountability for results are significant in developing performance and robustness of the individuals (Hackman & Oldham, 1976). Several theories laid emphasis on the importance of resources for achieving resilience as they facilitate anticipatory coping techniques (Bakker & Demerouti, 2007; Lazarus & Folkman, 1984). Thus, resilient employees can deliver positive outcomes in challenging or highly stressful situations when the organisation is able to foster a resilience-building system. Even though, it is known from the findings of Xiao and Cao (2017) that resilient employees are an asset to organisations as they can better adjust to adversities, but they can also experience emotional challenges while working to accomplish the goals (Smith et al., 2016). Hence, protections of a resilient individual and his or her work environment are the direct results of the organisational climate. Individuals may even take strength from the climate of the organisation, and in return organisations will be benefitted from the enhanced appraisal and coping mechanism of its employees. Thus, it is the responsibility of organisations to use employee's gestures as cues for assessing the internal concerns of the organisations

Planning and Preparedness for continued functioning of resilient employees

The construction industry is often perceived as a crisis-prone sector compared to other industries (Galbraith, 1977). In such cases, construction organisations undertake effective planning and preparedness measures through optimum utilisation of resources like financial resources, infrastructural resources, technological resources, and material resources. These resources work mutually and balance one another to contribute to the overall resilience of organisations (Barasa et al., 2018). It indicates that though individual resilience is important but it's not the only factor which ensures effective

planning and preparedness. Often, individuals in an organisation feel more resilience when they have access to enough resources provided by the organisation to cultivate the required proficiencies (Mallak, 1998). With the onset of acute challenge like an abrupt depletion of resources, or an exponential increase in workload, even the resilient employees might feel disconnected from the team and prioritise their individual goals over organisational ones. As a result, team performance, decision-making, and coordination is affected under such circumstances (Alliger et al., 2015). With a view to be fully resilient, the organisations must identify potential risks and hazards, develop contingency plans, train employees, and ensure that necessary resources and infrastructure are accessible to withstand all sort of crisis. Burnard (2013) observed in his study on the resilient response of organisations that the level of readiness and preparedness is built on an organisation's experiences during different stages of an event. It also aligns with the findings of Mitroff et al. (1989) and (Carmeli & Schaubroeck, 2008) which describes organisational culture as a notable primary determinant impacting the organisation's response to a crisis. Although crisis-preparedness activities are both generic and complex, they are rooted in organisational structure, culture and policies. Moreover, effective crisis planning requires the interaction of all relevant stakeholders, including customers, suppliers, and community partners and not just resilient employees.

Crisis planning and preparedness includes redundancy of material and financial resources. McManus et al. (2007) conducted 10 case study on different organisations and examined various factors that influence the resilience against acute shocks in New Zealand. The study discussed that an organisations' financial resource was a primary element for resilience. The importance of financial resources is also highlighted in the findings of (Barasa et al., 2018) that financial backup is crucial to activate other important resources during crisis. Organisations can overcome disruption if they strategically utilise the available materialistic resources (Lembani et al., 2014). Financial backup or redundancy can assist resilient employees to achieve resilience of their construction organisation by acting as a cushion during crises. It enables investment in resilience measures, help in maintaining wellbeing of staff and also in continuity of business. Additionally, it increases stakeholder confidence, providing flexibility to adapt to changing circumstances and enable investment in new opportunities. The report of Williams and Shepherd (2016) on the aftermath of the Haiti earthquake found that organisations faced challenges during post-disaster measures because they were limited to building and creating resources. Organisation require certain resources as buffer to maintain revenue and stay competitive during tough times.

Although resilient employees are a source of human capital and can influence resilience of organisations, but they also require certain resources to keep going and to feel a sense of security with their work. Therefore, surplus resources and financial redundancy is a crucial factor for organisational resilience apart from individual resilience.

4.5. Conclusion

The study provides an investigation into the resilience of construction organisations and illustrates the important role of individual resilience in influencing organisational capabilities required to achieve organisational resilience. It is worth notifying that though resilient individuals are important, but they do

not assure resilience at organisational level. They might struggle with communication gaps, lack of common opinion, or have issues with working together. Hence, our research highlights the role of mediating factors that resilient individuals must accompany. These factors include the presence of approachable and concerned leaders; efficient information transfer system to build a more comprehensive understanding of risks. Additionally, work culture focused on innovation, creativity and mental well-being, learning and improvisation ability to develop more targeted risk management strategies, proactivity and preparedness also serve as bridging links between individual and organisational resilience.

The results of the study present some underlying details that can give an idea to the organisations and decision makers on which aspect they should focus on while developing strategies to improve resilience of the construction organisations. For instance, the research highlights the role of some significant factors that not only plays a vital role in leading to organisational resilience but also helps enhances the individual resilience of employees. In light of this, the study presents some practical implications like resource redundancy, random collaboration, scenario planning/ crisis response rehearsals and anonymous feedback system to make the employees feel acknowledged and valued regarding work culture or conflicts with co-workers or managers. Once the organisations initiate working in these specific directions, they would certainly observe crucial developments in their individual resilience quotient, along with a rise of a more robust organisational system.

However, the limitations of the study need to be discussed. Future research may include analysis using case studies, surveys, and interviews to get more detailed and precise results. This may be used to verify the findings of the current study.

CHAPTER FIVE

INVESTIGATING THE CONNECTION BETWEEN INDIVIDUAL RESILIENCE AND ORGANISATIONAL RESILIENCE

Abstract

Resilience has become a central theme in organisational research, particularly in sectors such as construction that face frequent disruption, complexity, and uncertainty. Although individual resilience (IR) and organisational resilience (OR) have been widely explored, their relationship remains conceptually fragmented and often assumed to be either linear or inherently aligned. This study, thus, examines how the IR–OR relationship has been conceptualised in the literature, explores the nature of their interdependence, and identifies future research opportunities. A reflexive thematic analysis of peer-reviewed literature was conducted using Braun and Clarke's framework, supported by NVivo 14 for data organisation and pattern identification. The analysis revealed gaps in how resilience is theorised and highlighted the absence of cohesive frameworks linking individual and organisational domains. In response, the study introduces three conceptual models: the stacked model, which treats IR and OR as hierarchical; the nested model, which reflects partial overlap; and the modified integrated model, indicating combined action of various factors. While this study draws on literature across all industries, the New Zealand construction sector is referenced as an illustrative example of a highly vulnerable sector where future empirical testing of the proposed models would be valuable. This research contributes to theory by re-framing resilience as a relational construct shaped by numerous conditions. It also provides a foundation for future empirical studies and practical frameworks that embed resilience more holistically into organisational design, leadership development, and workforce strategy.³

³ This chapter is based on the following research paper:

"Mitansha M. & Potangaroa R. (2025). "Investigating the Connection Between Individual and Organisational Resilience". Systems, 13(10), 907. <https://doi.org/10.3390/systems13100907>

5.1. Introduction

The influence of financial crises, market shifts, political unrest, and extreme weather phenomena has been evident at all levels of society, from governments to businesses and individuals (e.g. (Dobrucali et al., 2022; Momani, 2010; Nijssen & Paauwe, 2012; Steyer & Gilbert, 2013; Sullivan-Taylor & Wilson, 2009; Zagelmeyer et al., 2012)). To combat such shocks and stresses, the organisations are expected to enhance their resilience for survival and maintenance of their functioning. Resilience—the capacity to adapt and recover has therefore become an essential capability for sustaining organisational performance (Barasa et al., 2018). This is especially true for the New Zealand construction sector, which is exposed to earthquakes, extreme weather events, and shifting market dynamics (McManus, 2008; Pascua & Chang-Richards, 2018). Yet, despite this vulnerability, there remains limited understanding of how resilience can be systematically embedded across different organisational levels (Pascua & Chang-Richards, 2018).

Several scholars have asserted the role of individuals in promoting organisational change (Jiang et al., 2023; Prayag et al., 2024). Doe (1994) argued that resilient organisations are dependent on resilient individuals who can absorb change or uncertainty and regard it as an opportunity for future development. This was in line with Mallak (1998) who stated organisational resilience requires “people who can respond quickly and effectively to change while enduring minimal stress”. Furthermore, Riolli and Savicki (2003) also discussed organisational resilience is “built on the foundation of the resilience of members of that organisation”. The study of Coutu (2002) also revealed that the characteristics of organisational resilience are influenced by resilient individuals, indicating that both share grounds of commonalities. Thus, individual resilience can prove to be significant while analysing organisational resilience.

Though the role of individual resilience is perceived to hold significant value for organisational resilience, it does not imply that individual resilience would certainly lead to organisational resilience (Lengnick-Hall et al. 2011, Home and Orr, 1998). In light of this, Alliger et al. (2015) stated that even a group of resilient individuals might face clashes due to difference in stress management strategies, goals, and personal characteristics. Resilient individuals may prioritise their own well-being over organisational goals, potentially leading to negative impacts on the organisation. In some cases, misalignment between individual and organisational goals can even undermine organisational resilience (Hillmann & Guenther, 2021). This complexity is particularly relevant in the NZ construction sector, where resilience-building efforts often lack an integrated approach (McManus, 2008; Pascua & Chang-Richards, 2018).

Another influential perspective on the relationship between individual and organisational resilience was advanced by Home III and Orr (1997), who described organisational resilience as “a fundamental quality of individuals, groups, organisations, and systems as a whole to respond productively to significant change.” Building on this view, several scholars (Liang & Cao, 2021; Ma et al., 2018; Tasic et al., 2020; Xiao & Cao, 2017) have conceptualised organisational resilience as a multi-dimensional and multi-level construct, shaped by an interplay of factors such as managerial resilience, group resilience, coping mechanisms, and organisational structures.

Similarly, Walker et al. (2020) argue that organisational resilience emerges from the combined effects of resilient individuals, work practices, organisational culture, and leadership styles—underscoring the importance of interactions across different levels of resilience. However, despite these advances, there remains a lack of conceptual clarity regarding the specific role of resilient employees in fostering organisational resilience. The mechanisms through which individual resilience translates into—or is mediated by organisational processes are still poorly understood. Relatively little research has systematically examined how resilience operates dynamically across individual and organisational levels (Linnenluecke, 2017; Wishart, 2018), creating a knowledge gap. This uncertainty further complicates efforts to understand how individual resilience influences or relates to organisational resilience outcomes (Wang & Ahmed, 2003).

This conceptual ambiguity is especially relevant in the New Zealand construction industry, where systemic resilience is critical but unevenly embedded across organisations (McManus, 2008). Despite organisations such as BRANZ and ResOrgs advocating for greater resilience, there is still limited empirical insight into how individual and organisational resilience operate together in this context.

In response to these gaps, the current study seeks to advance understanding of the dynamic interplay between individual and organisational resilience. Through a systematic literature review and case study analysis, the research addresses the following questions

1. How has the relationship between individual resilience and organisational resilience been conceptualised in existing literature?
2. How are organisational resilience and individual resilience inter-related?
3. What are the implications and future research opportunities in the domain of organisational resilience and individual resilience?

The findings of the study would introduce key concepts, and approaches through various distinct models of organisational resilience and individual resilience. The model will offer in-depth insights into the significant factors that bridge the gap between individual and organisational resilience. One of the major challenges in fostering resilient organisations lies in developing a comprehensive understanding of resilience, both in everyday operations and during crisis response and recovery. To address this, the study aims to establish a more generalised framework for organisational resilience, translating theoretical insights into practical approaches. Furthermore, the findings will provide valuable guidance for organisations and decision-makers, helping them identify key focus areas for strengthening resilience at both individual and organisational levels. By emphasising the role of resilient individuals in building adaptive and sustainable organisations, the study will contribute to more effective resilience strategies and long-term organisational stability.

A significant aspect of the study that is worth noting is that it demonstrates a generic and cross-sector conceptual synthesis of literature related to the relationship between IR and OR. In line with this, no sector-specific data are analysed and the references to New Zealand construction are used only as illustrative context, given its status as one of the most disruption-prone industries globally. Future work

will apply and empirically test the proposed models using New Zealand construction data to validate and refine the framework within a concrete industry setting.

To achieve the overall aim of the research, the study is divided into five main sections. Section 5.2 reviews relevant literature on individual and organisational resilience to set a foundation for the existing research gap and relevance of the current study. Section 5.3 discusses the research methods followed in the study, from literature selection to data analysis. In addition, the findings, including the unaddressed gap between IR–OR, development of conceptual models, and future research opportunities, are present in Section 5.4. Finally, Section 5.5 addresses the conclusion with theoretical and practical implications.

To illustrate the logical flow of the research, Figure 5.1 represents the flow diagram of the current study. The inclusion of the flow diagram is necessary as it provides a visual overview of the logical progression of the research, from the aim, research question formulation, and literature identification through to analysis and model development. It serves as a roadmap that connects the study’s aim, methods, and findings, thereby ensuring clarity and coherence.

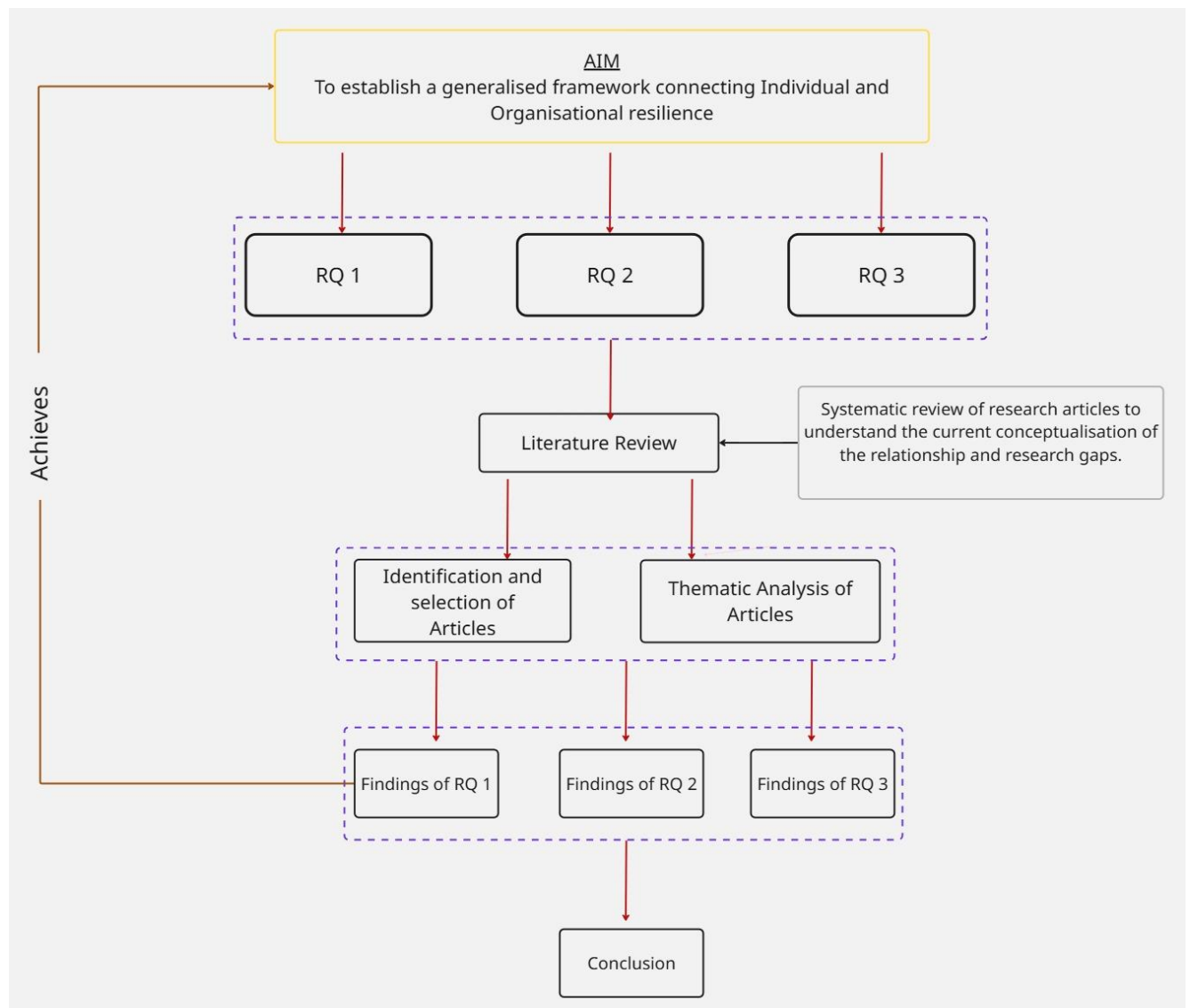


Figure 5.1. Flow diagram of the current study.

5.2. Definitions and Theoretical Background

5.2.1. Organisational Resilience

Organisational resilience is often considered as an overarching framework that encompasses and explains a range of varied phenomena (Hirsch & Levin, 1999). It is such a diverse concept that scholars have interpreted organisational resilience differently and thus, lack unanimity on this. Currently, organisational resilience is conceptualised into three groups: outcomes, processes, and capability.

The current study focusses on the dynamic nature of resilience which evolves over time in response to challenges. Hence, conceptualising resilience as a process emphasises on its dynamic state which changes through learning, adaptation, and transformation. In line with this, Lengnick-Hall et al. (2011) defined “organisational resilience as a firm's ability to effectively absorb, develop situation-specific responses to, and ultimately engage in transformative activities to capitalise on disruptive surprises that potentially threaten organisation survival.” It was based on the study of Lengnick-Hall and Beck (2005, 2009) who propose that an organisation's ability to cultivate resilience is a result of distinct capabilities, established routines, and structured processes. These elements help an organisation shape its strategic outlook, take proactive steps, and foster an environment of adaptability and diversity. Moreover, an organisation's resilience capability is deeply rooted in individual expertise, competencies, and structured processes that enable it to respond to disruptions effectively and maintain operational continuity. Scholars such as (Branicki et al., 2016; Liang & Cao, 2021; Prayag et al., 2024; Walker et al., 2020) have also supported and acknowledged this idea of organisational resilience.

This perspective effectively captures the interconnectedness between employees and organisation, emphasising how individuals influence and ultimately shape an organisation's ability to adapt and thrive. Therefore, the present study adopts the framework proposed by Lengnick-Hall et al. (2011), as it aligns well with the research focus, offering a comprehensive basis for further exploration of this dynamic relationship.

5.2.2. Individual Resilience

A substantial body of psychological research on organisational resilience has mainly focused on the individual level. This emphasis arises from the fact that individuals are inherently susceptible to psychosocial and physical challenges when faced with adversity. Those who actively seek growth and strength in such demanding situations are recognised as resilient. These individuals exhibit key traits such as optimism, self-confidence, and intrinsic motivation, which empower them to navigate hardships and emerge stronger.

In light of this, McGonagle et al. (2014) referred to individual resilience as the “positive adaptability or ability to thrive in the face of adversity”. This definition sets the base of our current study as it focusses on adaptability, highlighting that resilience is not merely about enduring hardships but actively adjusting and growing from them. In addition, the emphasis on “adapt positively” reinforces that resilience involves constructive change rather than just survival. Additionally, the definition is generic in nature and is applicable to fields such as psychology, crisis management, and organisational studies. Unlike broader or more complex definitions, this one is concise, universal, and easy to understand, making it

highly practical for both academic and real-world contexts. Moreover, this definition of individual resilience also aligns with other scholars' ideas such as (Burton et al., 2019; Houston et al., 2017; Sood et al., 2011) who focussed on positive adaptation and bounce back theory.

5.2.3. Theoretical Evolution of the Relationship Between Individual and Organisational Resilience

Although the study related to resilience has received great momentum, however, it has not developed in a straight line but through a series of conceptual shifts. Such shifts reflect the changing assumptions about the nature of adaptation in complex systems. Early perspectives positioned IR as a psychological or behavioural trait, such as emotional regulation, adaptability, or coping (Hartmann et al., 2020; Kuntz et al., 2017) whereas OR is understood as a systemic capability grounded in leadership, governance, culture, and strategic agility (Burnard & Bhamra, 2011; Lengnick-Hall et al., 2011). Both the constructs evolved in isolation; however, scholars assumed that resilient people naturally contributed to resilient organisations (Hillmann & Guenther, 2021; Rioli & Savicki, 2003) as they are the bearers of organisational actions and functioning. This assumption created a largely linear and additive view of the IR–OR relationship.

With further extensive research in this field, this assumption was contested by organisational scholars who argued that resilience is not simply aggregated from individual capacity but emerges from a wide variety of components (Mitansha et al., 2023). Studies on organisational routines, leadership practices, and learning systems reframed resilience as a capability of the organisation itself (Lengnick-Hall et al., 2011; Walker et al., 2020). Empirical evidence shows that resilient individuals can be neutralised by brittle organisational systems, and resilient organisations can coexist with staff burnout or disengagement (van der Vegt et al., 2015). This marked a turning point in the resilience literature, where resilience was no longer seen as residing only in individuals but as a multi-factor dynamic feature which that organisations could design, cultivate, and maintain.

This has led to a recognition that the IR–OR link is non-linear, conditional, and context-dependent, moderated by mediating factors such as governance structures, communication flows, and psychological safety. Nevertheless, contemporary debates revolve around whether resilience should be treated as a multi-level phenomenon spanning individuals, teams, and organisations, or whether these levels retain distinct dynamics that only partially align.

Critically, this evolution reveals a shift from certainty to ambiguity. In other words, it reveals the transition from early linear assumptions to multi-level interpretations. Acknowledging these turning points is vital, as they demonstrate both the progress and the persistent fragmentation in the field. It is within this unsettled theoretical landscape that the current study positions itself, aiming to provide a more coherent framework to explain how and under what conditions IR contributes to OR.

5.3. Research Methodology

The study utilised a qualitative research design, combining a systematic literature review and case study analysis to explore and understand potential models of resilience at individual and organisational levels. This approach allows for a comprehensive examination of theoretical frameworks and practical applications of resilience.

The Systematic Literature Review (SLR) helps to synthesise and interpret primary studies to gather a consolidated overview of the current state of knowledge in the field of organisational resilience and individual resilience. With the help of the inclusion as well as exclusion criteria and transparent reporting standards, systematic reviews enhance the credibility, reliability, and objectivity of the findings. Furthermore, the case studies help in exploring real-world applications of resilience models and identifying factors influencing resilience in individuals and organisations. The cases are selected from diverse contexts (e.g., industries, crises, or geographies) to ensure a wide perspective. The criteria for the selection include presence of resilience-building initiatives in the organisation, clear documentation of challenges faced and responses using individual resilience and availability of data (e.g., reports, interviews, or organisational records).

Based on the findings, the study would propose conceptual models linking both individual and organisational resilience. This would help industry practitioners and academicians in formulating plans, policies, and strategies to safeguard construction organisations during setbacks.

5.3.1. Literature retrieval and selection

The systematic literature review has been performed in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) protocol to examine the existing body of literature (Fig. 5.2). PRISMA establishes an evidence-based, minimum set of recommendations aimed at fostering transparent and comprehensive reporting of systematic reviews. This expanding set of guidelines is designed to help authors accurately report different knowledge synthesis methods (such as systematic reviews, scoping reviews, and review protocols) and ensure that every aspect of the research is transparently documented.

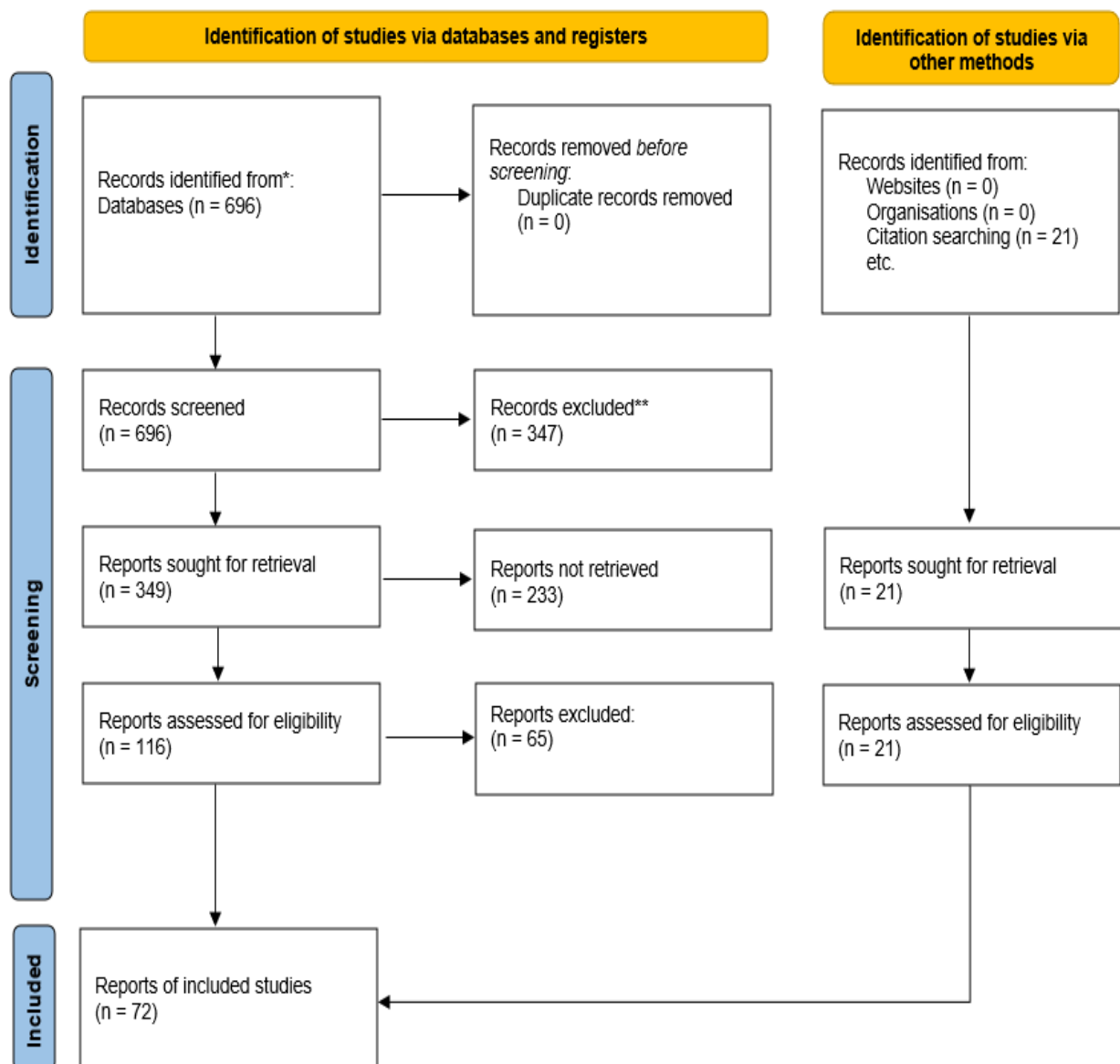


Figure 5.2- PRISMA framework (Source-Author)

In line with PRISMA protocols, the scoping procedures were executed to identify and extract the most relevant articles linking individual resilience and organisational resilience in the existing literature (Qureshi et al., 2020). The search strategy involved a thorough review of the most eminent and reliable databases to collect relevant articles for addressing the research question. This research would chose the Web of Science (WoS) database due to its extensive coverage and reliability. Other databases such as Scopus and Google Scholar were considered before opting for WoS. However, Google Scholar includes various materials such as books, conference papers, working papers, and unpublished materials, requiring more detailed filtration to achieve a focused and reliable result. Despite its wide coverage, the unverified quality of metadata and extraction challenges make using Google Scholar in bibliometric analysis difficult (Martín-Martín et al., 2021). Also, extraction of results from google scholar in plain txt or excel form is not available for analysis, which adds another reason for not utilising it in the current study. In the case of Scopus, the search results showed very an insignificant number of papers

and most of the findings were common with WoS. Therefore, the researchers selected WoS as the most suitable search engine to base their study on.

Owing to the scope and the intricate conceptualisation of organisational resilience, the study utilised the following string using the Boolean operator to identify the relevant literature:

“INDIVIDUAL RESILIENCE” OR “EMPLOYEE RESILIENCE” AND “ORGANIZATIONAL RESILIENCE” OR “ORGANISATIONAL RESILIENCE”.

These basic but important keywords were adopted to gather all the pertinent articles in the field of individual resilience and organisational resilience. The time range was kept between the years 2014 and 2024. The search engine utilised was Web of Science, as it includes most of the noteworthy research papers and offers built-in analysis tools for generating illustrative figures. In addition, the search results of Web of Science can easily be exported to other analysis software. The search resulted in a total of 696 papers, comprising varying scholarly articles from journal papers, conference materials, review articles, book chapters, etc., and the language section was limited to English. The gathered results were then carefully scrutinised based on their relevance.

After identifying the initial pool of articles, the next phase involved a systematic screening process to ensure that each source met predefined quality standards and was relevant to the study's objectives. Clear inclusion and exclusion parameters were established to confirm that the selected research articles were not only credible but also directly supportive of the overall goal of developing the conceptual framework.

5.3.2. Quality Assessment

To ensure quality and rigour, only peer-reviewed journal articles and high-quality articles published in English were considered. The assessment initiated with scrutinising the title and abstract, to check the article's relevance. If the title and abstract did not provide enough information, the full text was assessed against the following criteria before a final decision was made.

The criteria ensured that the articles met the following assessments:

1. Addressed either individual or organisational resilience;
2. Included empirical evidence or a clearly articulated conceptual framework;
3. Provided sufficient methodological detail to enable critical appraisal.

These criteria were also essential when papers discussed related constructs such as psychological resilience or managerial resilience alongside individual or organisational resilience. In such cases, the entire article was carefully examined to determine whether these constructs were meaningfully connected to either IR or OR. Studies were included only if they provided implications for organisational functioning (e.g., team performance, workplace adaptation), individual coping (e.g., stress management), or offered conceptual insights relevant to the IR–OR relationship. If the paper did not fall into any of these categories, it was excluded from the study.

Once the identification and screening process was completed, the total studies included for the review added up to 72.

5.3.3. Inclusion and Exclusion Criteria

Based on the aforementioned criteria, 72 articles were considered eligible and included in the qualitative synthesis and bibliographic coupling. These articles met the following criteria:

1. Original research articles from journals, conference materials, review articles, book chapters.
2. Published in the English language.
3. Indexed in the WoS databases.
4. Published within the timeframe of 2014 to 2024

5.3.4. Data Analysis

To construct robust and evidence-informed conceptual models that could meaningfully explain the interaction between individual resilience (IR) and organisational resilience (OR), a comprehensive and multi-layered process of literature analysis and data synthesis was employed. The process commenced with an extensive retrieval of peer-reviewed academic literature from leading research databases, with search terms aligned to core concepts such as “individual resilience,” “organisational resilience,” “construction sector resilience,” and “resilience frameworks.” The researchers ensured that only empirical and conceptual studies from high-ranking (Q1 and Q2) journals were considered, ensuring the foundational material was of high scholarly rigour and relevance.

As mentioned earlier, a total of 72 articles were retrieved, which met the quality assessment and inclusion-exclusion criteria. These articles were imported into NVivo 14 for qualitative analysis. Using Braun and Clarke’s (2006) six-phase thematic analysis approach, the data were subjected to a structured process that began with familiarisation and initial code generation. Here, each article was reviewed for its conceptual framing, resilience mechanisms, and cross-level linkages, and descriptive and interpretive codes were assigned accordingly. For example, the excerpts “Parties involved in collaboration depend on one another to contribute needed skill sets or resources” was categorised under multi-disciplinary collaboration. Within the code of team synergy and interpersonal trust, the statement “Trust between organisations can indirectly affect performance through enhanced cooperation and co-ordination, and it is often considered necessary for effective” was coded. Likewise, the excerpt “there is a “level transition” phenomenon from the low level to high level.” was interpreted as evidence of the stepwise transfer of resilience across levels. The phrase “The relation interaction between members can promote group resilience and organizational learning can help group to form organizational resilience.” reflects how team resilience contributes to strengthening organisational resilience within a multi-level system. Finally, the statement “resilience is a process which affected by resources and routine of organization.” was coded under access to resources, highlighting the role of organisational structures and routines in resilience development. Based on this, sixty codes were noted that captured recurring elements across the literature, such as leadership, international collaboration, project availability, stakeholder responsiveness, governance influence, etc.

Following Braun and Clarke’s guidance, the codes were then grouped and refined into broader themes. Thirteen core themes were eventually identified and outlined in the Appendix-2. To ensure practical relevance, these themes were then explored against real-world scenarios described in industry case

studies and practice-based literature. This triangulation enabled the research to test the empirical applicability of each theme in the context of the construction industry. For instance, themes such as "national resilience," "staff empowerment," and "project continuity" not only emerged strongly in the literature but were also observable in post-disaster case studies from New Zealand and similar high-risk regions. Two themes, namely, Post-Crisis Branding and Simulation Tool for Resilience appeared less frequently and lacked clear relevance were eventually removed.

Based on the convergence of scholarly support and real-world applicability, a refined set of eleven themes was finalised as the foundational components of the conceptual models. These themes informed the initial sketching of three conceptual models, each designed to represent a unique angle on the IR–OR interface.

The codes mentioned in Appendix-2 provided a clear dataset for deeper qualitative analysis. Building on this foundation, the subsequent section presents the thematic synthesis and conceptual modelling, underpinning the relationship between individual and organisational resilience.

5.4. Findings and Discussion

The synthesis of the reviewed literature revealed several important patterns and conceptual insights regarding the relationship between individual and organisational resilience. The following subsections unpack these findings.

5.4.1. The unaddressed gap between individual resilience and organisational resilience

A central theme emerging from this analysis is the persistent gap between studies of individual resilience and those of organisational resilience. Despite growing recognition that the two levels are interdependent, the existing literature continues to examine them in isolation. Hence, the following subsection will discuss this complex gap in detail.

5.4.1.1. Linear and positive relationship

Building on prior research that suggests a positive link between individual and organisational resilience (Mallak, 1998; Riolli & Savicki, 2003), our findings confirm that resilient individuals can indeed contribute significantly to enhancing organisational resilience. Individual resilience, defined as *"the process and outcome of successfully adapting to difficult or challenging life experiences, through mental, emotional, and behavioural flexibility"* (APA, 2020) is frequently linked to positive organisational outcomes.

The analysis highlights that resilient individuals foster agility, adaptability, and dynamism within organisations, particularly during periods of adversity (Su & Junge, 2023). Employees with high resilience tend to maintain a positive attitude, sustain performance under pressure, and contribute actively to organisational learning (Cunha et al., 2013; Hillmann & Guenther, 2021; Riolli & Savicki, 2003). In line with (Malik & Garg, 2020), the study observed that resilient employees enhance staff engagement and promote the formation of learning organisations, thereby reinforcing organisational resilience. Individual resilience maintains a positive attitude towards adversity and preserves their performance amidst workplace stress (Bardoel et al., 2014; Liang & Cao, 2021; Santoro et al., 2021), which strengthens the resilience of the organisation. Employee resilience has been observed to have

enhanced staff engagement and the formation of a learning organisation that supports organisational resilience, as observed by (Malik & Garg, 2020). Tonkin et al. (2018) argued that employee resilience is channelised in terms of workplace behaviours and can enhance organisational resilience (Liang & Cao, 2021). These two levels of resilience are mutually reinforcing, which implies their significant dependence on each other. This highlights the crucial role employees play in organisational resilience. Moreover, resilient employees possess the strong core abilities to stand against crisis and eventually, their actions and responses allow resilient organisations to possess the resilient qualities of their employees as well (Bhamra et al., 2011). This notion has been in line with the multi-level structure of organisational resilience, indicating the presence of individual resilience at the core, which then channelise to group resilience and further develop to yield organisational resilience (Xiao & Cao, 2017). These narratives establish an explicitly linear and positive connection between the two types of resilience. Furthermore, Individual resilience is not simply additive but promotes the collective processes that drive organisational adaptability.

5.4.1.2. Challenges in Linking Individual and Organisational Resilience

Consistent with emerging critiques in the literature (Home III & Orr, 1997; Kuntz et al., 2017; Prayag et al., 2020), our findings also highlight significant limitations to assuming a direct and universally positive relationship between individual and organisational resilience. The presence of resilient individuals does not automatically result in a resilient organisation. The study identified few aspects that highlights contradiction between the two resilience.

For instance, team resilience plays a critical role in an organisation. However, despite being composed of highly resilient individuals, a team might encounter communication disruptions or leadership disputes, lack a unified strategy for collaboration, or have members who are hesitant to encourage or offer backup support to each other (Alliger et al., 2015). Moreover, resilient individuals may have an adverse impact on the organisations due to their self-priority nature or having a strong opinion, which may not align with organisational goals (Hillmann & Guenther, 2021; Su & Junge, 2023). These findings depict that when individual resilience misalign with organisational culture or strategy, it can become a source of tension rather than strength. Another important point is that organisational resilience comprises organisational learning (Douglas & Haley, 2024), which is the collective result of individual learning within the organisation (Wang & Ahmed, 2003). However, individual learning does not always contribute positively to the organisation. The employees may acquire knowledge that is harmful to the organisation or focus on survival rather than organisational advancement (Field, 1997). This process may not only hinder the resilience of organisation but may also create stress or burnouts impacting the resilience of individuals.

Thus, while resilient individuals are often discussed in organisational resilience context, there is no consensus in the organisational studies literature whether resilience of individuals within the organisation leads to resilience at the organisation level.

5.4.1.3. Mediator/ Moderator of the resilience link

In the study of Walker et al. (2020), it was further highlighted that rather than viewing organisational resilience as the sole responsibility of individuals, it should be recognised as an accumulated response

of the work practices, culture, and leadership styles of the organisation. Numerous scholars have suggested that organisational resilience is a result of a complex interaction of several aspects at different levels of analysis (Clements & Kinman, 2023; Lengnick-Hall et al., 2011; van der Vegt et al., 2015). Organisational resilience operates on multiple levels and is influenced by resources, routines, and processes within the organisation (Ma & Zhang, 2022). It spans across individual, group, and organisational levels, with its strength depending on the interactions between these levels, which are typically supported by organisational resources and established routines. At the individual level, organisational resilience emphasises how employees overcome challenges and adversity to achieve success (Avolio & Gardner, 2005). Key characteristics like optimism, confidence (Bonanno et al., 2006; Fletcher & Sarkar, 2013), faith (Pargament & Cummings, 2010), and social network integration (Pressman et al., 2005) are critical to individual resilience. At the group level, resilience is a vital organisational capability that shields teams from the negative impacts of unexpected events (Morgan et al., 2013), providing psychological safety and accountability. At the organisational level, resilience is reflected in adaptive structures, improvisation, managing internal constraints, and attention to failure (Van Der Vegt et al., 2015). Although overall organisational resilience is influenced by employee traits, social networks, resources, and structure (Van Der Vegt et al., 2015), it is shaped by dynamic interactions across individual, group, and organisational levels. Resilient employees strengthen group resilience, and psychological safety within groups nurtures individual resilience. Moreover, organisational learning among resilient teams promotes resilience at the organisational level, and an organisation's improvisation abilities foster resilience in its teams. This continuous interaction allows the organisation's resilience to evolve over time.

At the perceptual level, cognitive resilience in an organisation refers to its capacity to detect changes and interpret unfamiliar or challenging situations. Elements such as a strong sense of purpose, core values, a clear vision, and the deliberate use of language help foster cognitive resilience, preparing the organisation mentally for unexpected hardships. The second dimension is behavioural resilience, which includes resourcefulness, agility in unexpected situations, and the development of routines and behaviours that help the organisation learn, adapt, and efficiently utilise resources during crises (Lengnick-Hall et al., 2011). This involves having established routines that prepare the organisation to respond and thrive in the face of challenges. The third dimension, contextual resilience, refers to the organisation's interpersonal networks, available resources, and supply chains that allow for swift responses to uncertainties. Deep social capital, extensive resource connections, and reliance on expertise are critical aspects of this dimension, providing a support system for managing the unknown. Cognitive resilience lays the groundwork for behavioural resilience, and individuals who develop behavioural resilience build the social and resource networks necessary for contextual resilience. Ultimately, organisational resilience functions as a multi-level, dynamic capability, integrating cognitive, behavioural, and contextual resilience into a unified model. The framework demonstrates how resilience at the individual, group, and organisational levels reinforce each other, and how cognitive resilience transitions into behavioural and contextual resilience, with each stage enabling the development of the next.

5.4.1.4. Conflicting views and knowledge Gap

Although individual resilience is often assumed to be a key driver of organisational resilience, the correlation is neither straightforward nor guaranteed. Factors such as internal conflicts, misalignment of personal and organisational goals, and ineffective communication can undermine the potential benefits of individual resilience. Moreover, a few research studies have also highlighted an indirect association between individual resilience and organisational resilience. The findings of Liang and Cao (2021) showed the mediating effect of coping mechanisms and managerial resilience in bridging the gap between individual and organisational resilience. Prayag et al. (2020) also revealed that both employee and psychological resilience contribute to strengthening organisational resilience. This generates further possibility of more resilience levels or factors between the individual resilience and organisational resilience dynamics, raising questions on multi-level theory. Moreover, even the multi-dimensional theory which is based on multi-level system cannot justify the negative impact of individual resilience and organisational resilience on one another. These theories have constantly focussed on one level positively leading to another whereas in reality, it is not guaranteed. Moreover, apart from team resilience (as discussed in multi-level theory), there are other forms of resilience as well, like strategic resilience (Chen et al., 2021; Raetz et al., 2021), managerial resilience (Branicki et al., 2016; Liang & Cao, 2021), psychological resilience (Liang & Cao, 2021; Prayag et al., 2020), cultural resilience (Chen et al., 2021) and learning resilience (Chen et al., 2021; Malik & Garg, 2020). It is vital to acknowledge the fact that resilience is subject to a complex interplay of many factors at various levels of analysis (Van Der Vegt et al., 2015). It is still unclear how these forms of resilience can complement individual resilience to attain organisational resilience.

Clearly, the equation between the two resilience entities seems unclear. It is because of the lack of information on the interplay and interaction process of individual resilience and organisational resilience. The literature highlights the connection between individual and organisational resilience as complex, with conflicting viewpoints among scholars. The gap in the existing theories, thus, poses questions on the mutual impact of the two resilience entities. While resilient individuals are often seen as crucial to organisational resilience, this link is not always direct or positive. These existing studies have vaguely defined the association between the two resilience (positive or negative), but they have not discussed what the reason behind such association is. This raises further questions like what determines the response of the two entities with respect to each other or what are the background/ antecedent elements that drive the process of resilience? Another point of discussion is if both types of resilience are important for each other, as they may have adverse impacts. If there exists some form of positive link, the subsequent question is, what is the extent of this importance? Moreover, further exploration of mediating factors may potentially help in linking both the distinct resiliencies. Eventually, such discussions would unfold how both the above constructs shape and exist with each other. This will help in establishing a concrete relationship between individual and organisational resilience.

Although the present study draws on cross-sector literature, the findings hold particular relevance for the New Zealand construction sector. Existing research observes persistent gaps in understanding the multi-level and interdisciplinary dynamics of organisational resilience, as well as the contextual

variables that shape the interaction between individual and organisational resilience, as Tonetto et al. (2023) reports. Pascua and Chang-Richards (2018) further highlight that New Zealand construction organisations face constantly shifting market trends and rapid technological change, yet their resilience processes remain under-investigated and lack a clear link between everyday operations and crisis response. By clarifying how individual and organisational resilience are connected, the conceptual models developed in this study provide a theoretical base that future empirical work can build on to strengthen resilience planning and practice in New Zealand construction firms.

5.4.2. Potential Conceptual Model

The models can help in understanding the association between the two entities. The relationship between individual and organisational resilience is often indirect and multifaceted, which makes it challenging to analyse. Conceptual models can clarify this vagueness by illustrating pathways and mechanisms. These models provide a structured framework to represent the interconnected elements and dynamics at play, making it easier to interpret the relationship.

Model-1

The stacked resilience model is developed on the multi-level concept of organisational resilience as proposed by (Cunha et al., 2013; Lengnick-Hall et al., 2011; Xiao & Cao, 2017). The studies suggest that organisational resilience is impacted by numerous factors and mechanisms present at various levels. The stacked model was derived from codes such as national resilience, community resilience, and project continuity as a resource buffer (Appendix-2). These topics consistently reflected a hierarchical and additive view of resilience, where capacities at one level were assumed to accumulate into resilience at higher levels. For instance, references to national and community resilience showed how resilience out-comes were frequently presented as “layered” above individual and organisational capabilities. Likewise, project continuity was coded as a resource buffer that stabilises organisations and indirectly strengthens community and national systems. Taken together, these codes suggested that a stacked or cumulative framework best represented how much of the literature implicitly treated the IR–OR linkage: as a simple scaling-up from micro to meso to macro. We, therefore, conceptualised the stacked model to capture this dominant but often unchallenged assumption. Following this, Fig 5.3. illustrates resilience as a multi-layered structure resembling a building, with different levels representing national, community, organisational, and individual resilience. At the foundation of resilience lies national stability, emphasising the crucial role of policies, governance, and socio-economic security in a country's ability to endure and adapt to crises. Above this, community resilience manifests through the collective strength of social networks, resource-sharing, and local cohesion in mitigating disruptions. At an organisational level, businesses and institutions contribute to resilience by leveraging leadership, organisational culture, and adaptive strategies to maintain stability and continuity. At the highest level, individual resilience reflects personal strength, adaptability, and the ability to handle difficulties. It highlights how change and instability in lower levels can propagate towards upper levels, thereby signifying the importance of national, community and organisational level resilience. In addition, individual resilience, being at the top is the most vulnerable component. Disturbance at this level may influence the course of action of remaining levels as individuals are the ultimate bearer of work and

responsibilities. Despite supportive work culture, policies and other crucial factors, individuals may not remain compatible with the stacked model if they lack adaptability, skills, and decision-making ability. Therefore, each level has a vital role to play in achieving an overall level of resilience in the society.

The "wind of change," increasing in force as it moves upward, symbolises the growing intensity of disruptions at the individual level, demanding greater adaptability. While lower levels provide essential stability, weaknesses at any level can create a cascading effect, jeopardising the entire system. Since individuals may exhibit diverse resilience responses, organisations must play a unifying role by aligning employees toward shared objectives through training, well-being initiatives, strong leadership, and access to essential resources. Additionally, because the top levels experience the most instability, having a solid foundation at the national and community levels is crucial to prevent collapse. For ex- New Zealand's economy faced serious instability during COVID-19 due to border closures, shifting immigration policies, and lockdowns. This led to widespread job insecurity, restricted movement, and vaccine-related concerns, causing social unrest. While some communities struggled with declining trust in government policies, others showed resilience through empathy and mutual support. Since organisations are embedded within these communities, their success was directly linked to communal strength. Supportive communities enabled businesses to survive by providing customers, adjusting wage expectations, and fostering a collaborative work culture. This created a sense of security and resilience among employees. Any disruption at one level whether community, organisation, or individual can trigger a ripple effect, reinforcing the importance of stability across all sectors.

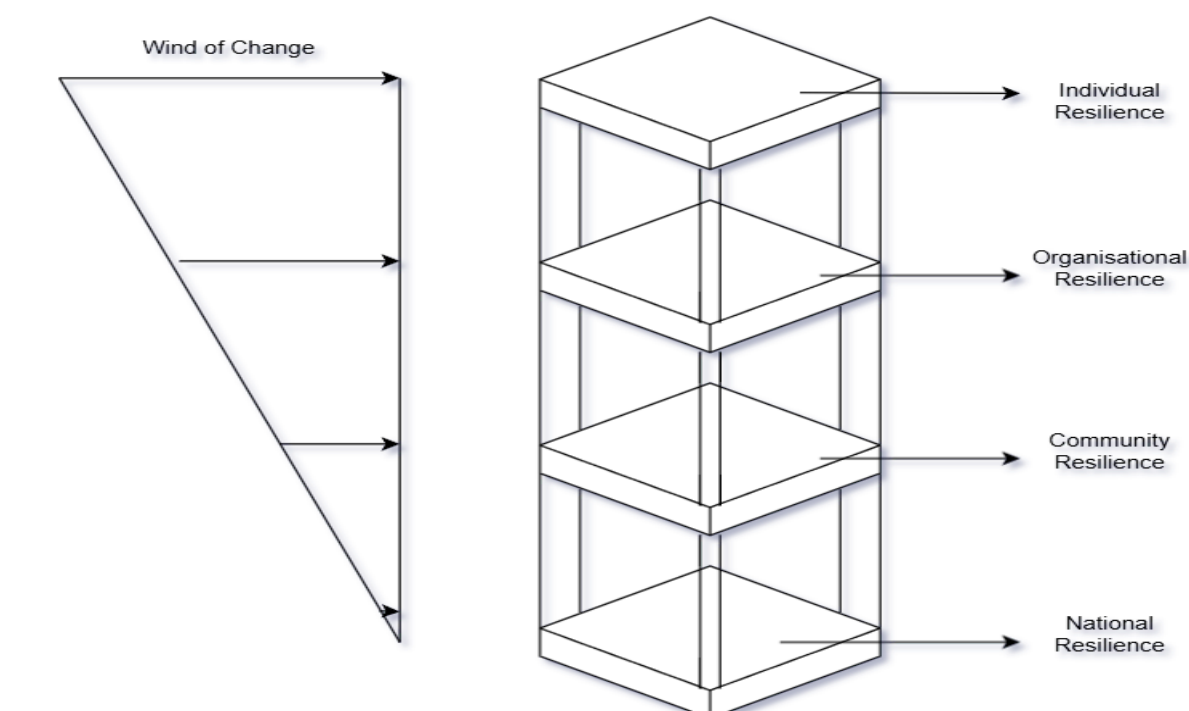


Figure 5.3- Stack resilience model (source- author)

Organisations can use this framework during crises by recognising resilience as a multi-layered system. Strengthening individual resilience through mental health programmes and skill-building initiatives enhances adaptability. At the organisational level, fostering a resilient culture, refining decision-making processes, and implementing flexible strategies bolster overall stability. By actively engaging with communities, businesses can contribute to a broader support network. Moreover, businesses advocating for national policies on economic security and crisis preparedness strengthen the overall system. By applying this approach, organisations can build a robust, adaptable, and future-ready resilience strategy.

Model-2

The integrated resilience model (Fig. 5.4) sets its foundation on the observation of numerous distinct studies. Liu and Yin (2020) explained how organisational resilience and good stakeholder relationships set a solid stage for fostering an organisation's reliability and flexibility, which ultimately builds organisational resilience. Qazi et al. (2024) found that stakeholders' relationships affect supply chain resilience and organisational performance, showing a connected network. In addition, the skills of project staff help organisations in navigating uncertainties, unforeseen situations, and difficulties (Ram, 2023). This eventually is fundamental to building project resilience and is essential for organisations to bounce back effectively from disruptions (Zarghami & Zwikael, 2022). To strengthen this entire process, individual resilience is a key component that can help in achieving a resilient organisation, provided they obtain resources, a supportive working culture, empathetic leaders, etc., by the organisation (Mitansha & Potangaroa, 2024). The integrated model was informed by codes including leadership and governance, collaboration and team trust, stakeholder engagement, and supplier dependence. These themes did not describe resilience as additive, but instead as a function of interactional processes across individuals and organisations. For example, the leadership and governance code repeatedly showed that resilience outcomes depended on how leaders mobilised and coordinated individual efforts with organisational priorities. Similarly, collaboration, team trust, and stakeholder engagement were coded as mechanisms through which resilience is co-produced between people, teams, and systems. Supplier dependence further highlighted how external relationships mediated organisational continuity, demonstrating that resilience cannot be explained solely by internal accumulation. These patterns collectively indicated the need for a model that emphasises mutual reinforcement and interdependence. Hence, the integrated model was conceptualised to reflect the evidence that resilience arises from dynamic relationships rather than hierarchical stacking. Based on the above observations, Figure 5.4 illustrates the concept of organisational resilience and how it is influenced by various interconnected factors, with individual resilience playing a critical role. At the centre of the model is organisational resilience, which represents the ability of an organisation to adapt, withstand disruptions, and continue operating effectively. It is supported by key components such as suppliers, stakeholders, staff, and projects, indicating that resilience is not developed in isolation but is instead a product of coordinated efforts across different domains.

Based on the above observations, Fig 5.4. illustrates the concept of organisational resilience and how it is influenced by various interconnected factors, with individual resilience playing a critical role. At the

centre of the model is organisational resilience, which represents the ability of an organisation to adapt, withstand disruptions, and continue operating effectively. It is supported by key components such as suppliers, stakeholders, staff, and projects, indicating that resilience is not developed in isolation but is instead a product of coordinated efforts across different domains.

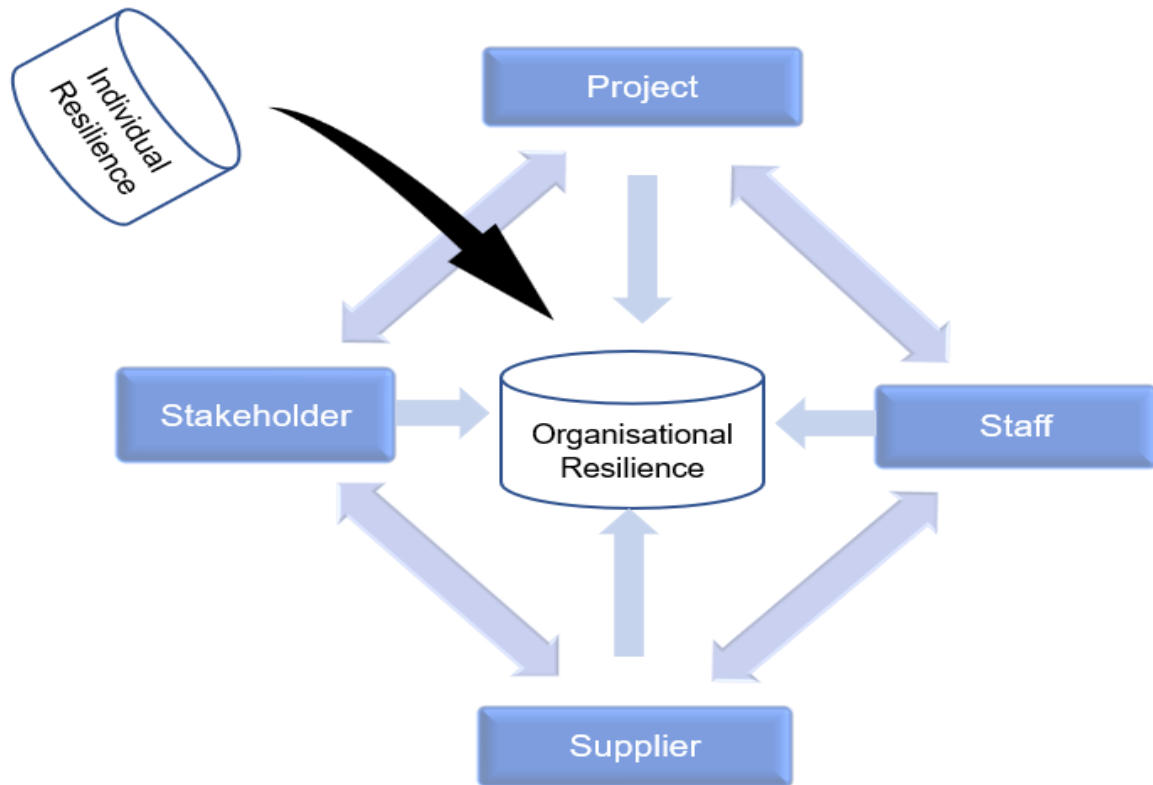


Figure 5.4- Integrated Resilience Model (source- author)

A significant feature of the model is the connection between individual resilience and organisational resilience, suggesting that the resilience of an organisation is heavily dependent on the resilience of its individuals. Consequently, an organisation's resilience is significantly enhanced when employees, leaders, and key contributors demonstrate strong problem-solving skills, adaptability, and emotional ability. Likewise, suppliers and stakeholders play a crucial role in resilience by ensuring resource availability, maintaining external partnerships, and supporting financial stability. Internally, staff and project initiatives reflect operational strength, workforce capabilities, and strategic growth. Since all these elements are interconnected, resilience is best viewed as a shared effort rather than an individual trait. The model emphasises that organisations must foster strong collaboration, adaptability, and support systems at every level to be truly resilient. This framework illustrates that resilience is a continuous and dynamic process, where different components influence and reinforce one another. By adopting a systems-thinking approach, organisations can recognise that both internal operations and external relationships contribute to long-term strength, with individual resilience as a key foundation.

For instance, when a financial crisis hits, businesses struggle due to lower customer demand, cash flow problems, and supply chain disruptions. In response, if the employees exhibit adaptability by taking on multiple roles and reducing expenses through shared responsibilities, they can significantly enhance

the survival of the organisation. Strong relationships with suppliers can play a critical role in ensuring timely delivery of quality materials, preventing inventory mismanagement and cost overrun. Furthermore, businesses must focus on securing ongoing projects, as revenue generation relies heavily on project availability. Without ongoing projects, financial stability becomes a challenge. Another important aspect is support from stakeholders, such as landlords offering flexible lease agreements or investors providing financial relief, which can help stabilise operations. Above all, individual resilience in the form of leadership, strategic planning, and collaboration can help in improving the entire inter-connected network to achieve organisational resilience.

Hence, during crises like natural disaster and economic crises, organisations can apply this framework by fostering a culture of adaptability, well-being, and problem-solving. Investing in employee development, mental health support, and work-life balance strengthens individual resilience, creating a more agile and stable workforce. Additionally, transparent communication and collaboration with stakeholders and suppliers help build a robust external network. Embedding resilience into project management by emphasising risk assessment and strategic flexibility further strengthens an organisation's capacity to navigate crises. Ultimately, this model underscores the fundamental role of individual resilience in sustaining organisational adaptability and long-term success.

Model-3

The concept of organisational resilience and individual resilience has been analysed through multiple lenses in different sectors. One of the most prominent theories on organisational resilience is given by (Xiao & Cao, 2017), focussing on the multi-level theory of resilience given by (Cunha et al., 2013; Lengnick-Hall et al., 2011). The levels comprise of individual level, team resilience and organisational resilience. However, it lacked one of the most important forms of resilience called public resilience, which shares a positive relationship with individual resilience, especially during post-war recovery (Kimhi & Eshel, 2009). Considering this theory, Kimhi (2016) formulated another model and highlighted the relationship between three other levels of resilience, namely individual, community and national levels. Both the theories hold significant potential and carry a huge scope for further development. Hence, the current study proposes the Nested Resilience model (Fig. 5.5), which is developed by integrating the two findings together for a concrete and widely applicable model. In addition, the nested model emerged from codes such as overlapping IR–OR functions, cascading resilience logic, access to technology, and financial resilience. These themes suggested that resilience processes are embedded within and across levels, often with blurred boundaries between individuals and organisations. For instance, the overlapping functions code showed that individual coping strategies frequently feed into organisational routines, while organisational systems simultaneously shape individual capacity. Similarly, cascading resilience logic indicated that disruptions and responses rarely stay confined to one level but spill over in nested ways. Access to technology and financial resilience reinforced this embeddedness, as both are systemic resources that support individuals and organisations simultaneously. From these codes, it became clear that a nested conceptualisation best represents resilience as an interlocking system of micro, meso, and macro processes. This model

therefore addresses the literature's recognition that resilience is not only cumulative or relational, but also structurally embedded across overlapping levels.

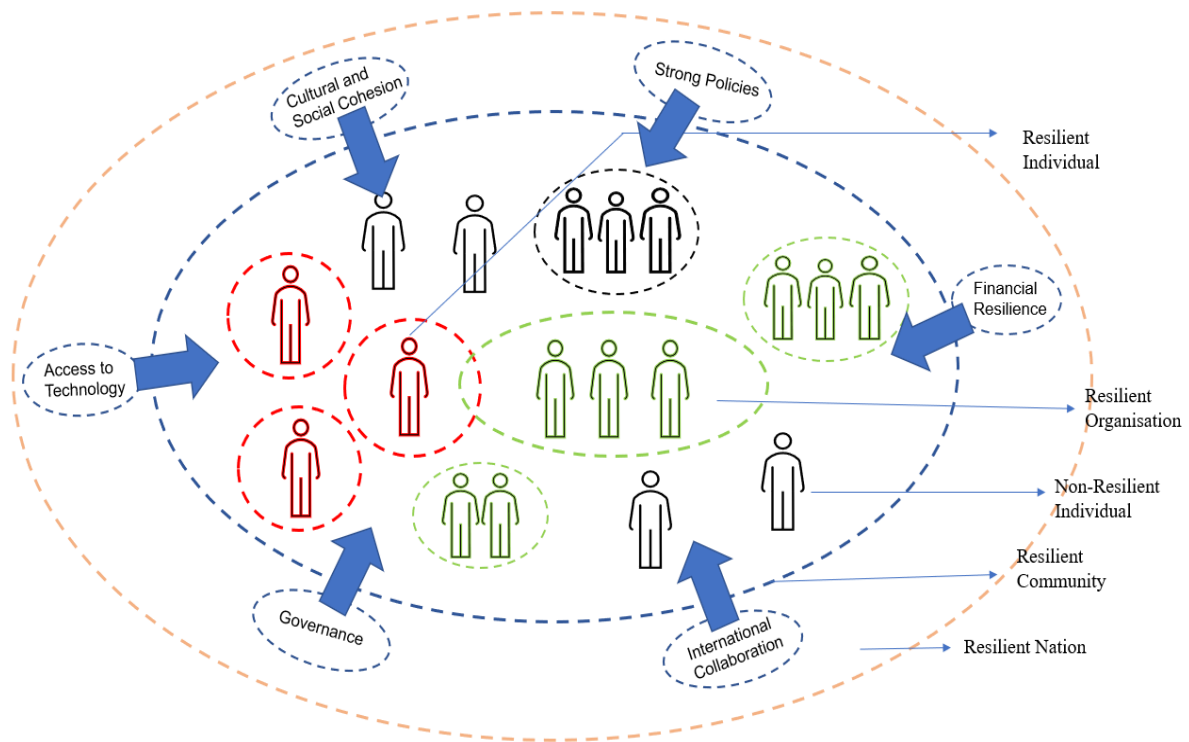


Figure 5.5- Nested resilience model (source- author)

The core idea of this model is based on the perspective of viewing individual and organisational resilience as distinct yet interconnected concepts. It is unlikely for an organisation to consist entirely of resilient individuals, as resilience is inherently contextual. An individual's resilience fluctuates depending on their situation, shaped by past experiences, emotional regulation, and learned skills. Furthermore, resilient individuals may encounter challenges like stress, burnout, team conflicts, past trauma, miscommunication, or lack of managerial support, which can hinder their ability to contribute to organisational resilience. This relationship is not a straightforward cause-and-effect but rather a complex interplay. Figure 5.5 illustrates this through partial overlap, representing their interaction as influenced by various external factors. Additionally, achieving true resilience at a community level involves a mix of resilient organisations, resilient individuals, and non-resilient elements. Communities play a vital role in shaping the dynamic between individual and organisational resilience. Their support, needs, and demands help organisations sustain operations and continuity. By fostering close ties with the community, organisations can better understand local culture, which in turn influences their vision, strategies, and planning. In addition, a resilient nation is fundamentally built upon resilient communities, as they serve as the foundation for national stability and strength. When communities are equipped with strong policies, financial resilience, social cohesion, effective governance, and access to technology, they become more capable of withstanding economic, environmental, and social challenges. As multiple resilient communities collaborate and thrive, they contribute to a unified and adaptable society, reinforcing the nation's overall security and sustainability. Additionally, national policies and international collaborations are most effective when implemented at the community level, ensuring that

resilience is cultivated from the ground up. When communities achieve financial stability, they help in alleviating the demand on national resources, driving economic prosperity and sustainable growth. This connection emphasises that national resilience is built upon robust local communities, making grassroots development a cornerstone of long-term national success.

The model can be applicable in case of a natural disaster, or threat as robust policies and systematic governance at the national level can ensure effective emergency response measures for communities to respond. In addition, a focus on international collaboration can help in securing aid in the form of special task forces, funds, and resources. Social engagement and financial stability can strengthen communities to support each other and receive the necessary survival materials. Moreover, the advancement of technologies can tie up all the above foundational elements through efficient information channels, early warning signals, resource mobilisation, etc. This can eventually create a resilient community with the support of national-level measures. However, a resilient community is an accumulation of individuals, and communities, which includes resilient as well as non-resilient categories. All these entities are impacted by the overall resilience of the communities through mutual support, business, etc. Resilient individuals and resilient organisation are two distinct entities, which often share commonalities. Hence, the focus should be based on partial overlapping, which includes factors like adaptability, communication, collaboration, leadership, etc., to enhance this relationship. It is because no matter how resilient communities are, if resilient individuals and resilient organisations are not working for a common goal, the entire process may collapse. Hence, the core of this model needs to be strong in order to realise the process initiated by resilient nation and community. Ultimately, no matter how strong a community is, if individuals and organisations do not align with a common goal, the entire resilience framework may weaken. Therefore, the core of this model must remain strong to sustain the process initiated by a resilient nation and community, ensuring long-term stability and adaptability.

5.4.3. Future Research Opportunities

The review and conceptual synthesis presented in this paper have advanced understanding of the complex relationship between individual resilience (IR) and organisational resilience (OR), but they also reveal several targeted avenues for future re-search. Importantly, these opportunities are directly connected to the conceptual models developed in this study and to the mediating variables identified in the literature.

First, future studies should empirically validate the three proposed models stacked, integrated, and nested resilience models across different organisational settings and cultural contexts. While the Stacked Model conceptualises resilience as an accumulation of individual and organisational capacities, the Integrated Model emphasises their mutual interdependence, and the Nested Model frames resilience as embedded across levels. Comparative empirical studies could determine which of these models best captures resilience dynamics in specific industries, such as construction, healthcare, or critical infrastructure, and under what conditions each model is most explanatory.

Second, future research should focus on testing the mediating and moderating mechanisms identified in this review, rather than assuming a direct and uniformly positive IR–OR linkage. Leadership, organisational culture, communication quality, and stakeholder engagement repeatedly emerged as mediating factors, yet their relative influence remains underexplored. Quantitative methods, such as structural equation modelling, or mixed-method approaches combining survey data with qualitative case studies, could provide clarity on how these factors shape resilience pathways. Similarly, moderators such as project delivery structures or governance arrangements may determine whether IR translates into OR in practice.

Third, further superimposition of the response of individuals, organisations and communities during, before, and post-crisis can help in understanding the scope of the models. Longitudinal studies would be particularly valuable in tracking resilience development and its influence on organisational adaptability. Additionally, studies should consider sector-specific and cultural differences for more applicable insights.

Finally, future research should move toward the development of diagnostic and assessment tools based on the proposed models. By operationalising the key constructs and mediating variables, such tools could enable organisations to measure resilience at both individual and organisational levels, monitor alignment across levels, and design interventions to strengthen weak links in the IR–OR chain. This would not only refine the theoretical models but also generate significant practical value.

In this way, anchoring future studies to the models and mechanisms identified here will ensure that subsequent work builds directly on these theoretical contributions, bridging the gap between conceptual advancement and actionable practice. Consequently, the study successfully explores all the RQs. For instance, addressing RQ1, the study challenges this linear assumption and instead reveals a contextually mediated and conditional bond. For example, while resilient employees may demonstrate adaptive behaviours during disruptions, their efforts can be constrained or neutralised by rigid organisational structures, limited decision-making authority, or weak communication systems. Conversely, organisations with robust leadership and supportive cultures can amplify individual capacities, transforming individual adaptability into coordinated organisational action. Thus, rather than being a simple, direct process, the IR–OR link is indirect, shaped by organisational, cultural, and systemic contexts that determine whether individual resilience translates into collective resilience outcomes.

Further, the coding and thematic analysis identified multiple patterns of interaction that were captured through the development of three conceptual models. This eventually answered RQ2 by proposing the stacked model, which illustrates a step-wise relationship, where resilience builds progressively across levels. Additionally, the integrated model highlights mutual and dynamic interactions between individuals and organisations, demonstrating bidirectional influence. Finally, the nested model depicts overlapping and interconnected layers of resilience, recognising that IR and OR are embedded within wider systemic and community contexts. Together, these models provide a structured yet flexible understanding of the different ways IR and OR interact in practice.

RQ3 addressed the implications and future research opportunities emerging from this synthesis. The study highlights the need for empirical validation of the proposed models across different organisational and cultural contexts, including the New Zealand construction sector. Future research could examine mediating and moderating variables such as leadership, organisational culture, and stakeholder networks to refine the understanding of how IR–OR dynamics unfold. Additionally, developing diagnostic tools and sector-specific frameworks based on these models would enable organisations to systematically assess and strengthen resilience at multiple levels.

5.5. Conclusion

The research emphasises the sharp difference between organisational and individual resilience, referring to the need for an integrative and overarching approach to develop resilience. By critically examining the fragmented literature on IR and OR and integrating key insights into a conceptual framework, this review moves beyond a descriptive overview and provides three conceptual theoretical models that clarify how individual and organisational resilience interact. The proposed conceptual models directly focus on the research gaps identified by challenging the linear and straightforward relationship. The illustration of how leadership, governance, policies, stakeholders, and community resilience can mediate or moderate this relationship, the models offer a more nuanced and realistic account of how resilience is built or constrained in practice. Moreover, the models contribute to bridging the micro–macro divide in resilience research. Rather than treating individual and organisational resilience as separate or additive concepts, the models conceptualise them as dynamically interlinked. The stacked, integrated, and nested frameworks reflect how resilience evolves through interaction across levels. This aligns with multi-level theories of organisational behaviour but extends them by embedding resilience-specific pathways derived from literature-based synthesis and empirical insights from contextual case studies.

The key theoretical contribution of this study lies in the development of the conceptual framework that integrates individual and organisational resilience within a single analytical model. By synthesising fragmented literature, the model clarifies the mechanisms through which individual capabilities and organisational systems interact to produce resilience outcomes. It challenges the common assumption that resilient individuals automatically create resilient organisations, and instead demonstrates that the IR–OR relationship is complex, non-linear, and multi-dimensional.

Emphasising the need for an integrative framework, the models propose that organisations should formulate strategies that promote individual resilience while remaining consistent with community and national goals. Such practical contributions have an immense impact on policy development and strategic planning because they can help leaders create more successful interventions for workforce well-being, engagement, and productivity. Furthermore, the development of these aspects of resilience is critical for improving crisis management and business continuity, allowing organisations to deal more effectively with uncertainties.

While this study provides important theoretical insights, several limitations must be acknowledged. First, the conceptual models developed are based solely on a systematic synthesis of existing literature,

without direct empirical validation. This limits the ability to generalise or test the models in real-world organisational contexts. Second, although the review was rigorous, it relied on articles published in English and indexed in a single database (Web of Science), which may have led to the omission of relevant non-English or non-indexed studies. Third, the study is generalised in nature and does not analyse sector-specific data. Therefore, its application to this context re-mains theoretical at this stage. Finally, despite the depth of thematic synthesis, the qualitative coding process is interpretive in nature and may be influenced by re-searcher judgement, which future studies can address through inter-coder reliability checks and triangulation.

Building on these limitations and the findings of this study, several targeted re-search opportunities emerge. Future research should empirically test and validate the stacked, integrated, and nested models proposed here across different organisational and cultural contexts to determine their applicability and explanatory power. Mixed-method approaches, including surveys, interviews, and longitudinal case studies, could be particularly valuable in capturing the dynamic evolution of resilience over time. There is also a scope to examine mediating and moderating variables such as leadership, organisational culture, communication structures, and stakeholder networks that shape how individual resilience translates into organisational outcomes. Furthermore, future work may test these models, offering an opportunity to contextualise and refine the frameworks in a high-risk, multi-actor sector. Finally, developing diagnostic tools and metrics based on these models could bridge the gap between theory and practice, enabling organisations to assess and strengthen resilience at multiple levels in a systematic way.

B.3. EPILOGUE TO PART B

The previous three literature-based chapters collectively lay the conceptual foundation for this research by addressing the first core objective: to examine how IR and OR have been theorised in existing literature, and what relationships exist between them. Each chapter consists of a targeted exploration, and together they offer a progressive and interlinked understanding of resilience discourse.

The third chapter, addressing RQ1.1, focuses on mapping how IR and OR have been independently defined and theorised. The relevant literature was identified and analysed through a structured three-stage process. First, a keyword-based search was undertaken using Boolean operators. The search terms included combinations of resilience, "individual resilience", organisational/organizational resilience, "relationship", "teams", "indicators", "crisis", and "disasters". The searches were conducted primarily through ScienceDirect and Google Scholar, covering literature published between 2002 and 2023. Second, the retrieved records, including journal articles, conference papers, and books, were screened based on their titles and abstracts to assess their relevance to the study. Third, the shortlisted publications were reviewed in full to determine whether they met the inclusion criteria. Publications were retained if they addressed either individual resilience or organisational resilience, and if they provided evidence or conceptual discussion on processes linked to the strengthening, weakening, enhancement, or decline of either form of resilience. The analysis revealed considerable conceptual divergence, where IR is largely framed around psychological traits and coping mechanisms at the individual level, and OR is viewed through a systemic lens centred on strategic, cultural, and structural capabilities. Yet despite these distinctions, the literature suggests some degree of overlap, particularly in how resilience is described as adaptive and capacity-based across both domains. Moreover, it highlights the conceptual co-existence and distinctions between IR and OR but fails to explain the conditions or mechanisms that govern the relationship.

This conceptual groundwork is expanded upon in the fourth chapter, aligned with RQ1.2, which examines the nature of the relationship between IR and OR. Similar to the previous chapter, a keyword-based search was undertaken using Boolean operators. The search terms included combinations of "resilience", "individual resilience", "organisational/organizational resilience", "relationship", "employee", "crisis", and "setback". The searches were conducted primarily through Google Scholar, covering literature published between 2002 and 2023. Second, the retrieved records, including journal articles, conference papers, books, government reports, magazines, and other relevant sources, were screened based on their titles and abstracts to assess their relevance to the study. Additional publications were also identified through the snowballing method, where relevant references cited in the selected literature were further reviewed. Third, the full paper were examined in full to determine whether they met the inclusion criteria. Publications were retained if they identified indicators associated with individual resilience and/or organisational resilience, explored the relationships or interconnections among these indicators, and discussed the distinctions and/or interactions between individual resilience and

organisational resilience. While a link between the two constructs has been acknowledged in earlier research, the relevant literature critically establishes that this relationship is not linear nor deterministic. The assumption that resilient individuals automatically produce resilient organisations is, therefore, challenged. The findings show that the connection between IR and OR is moderated by several factors including leadership, learning, and information sharing. This study supports the idea that IR may contribute to OR but is not sufficient in isolation. Likewise, OR can enable or constrain IR depending on how an organisation function. This marks an important progression in research, moving from mere conceptual overlap to a conditional, relational understanding of resilience across levels.

The fifth chapter, developed around RQ1.3, steps back to assess the gaps, inconsistencies, and limitations within the existing resilience literature. The associated articles were retrieved and analysed through a systematic search and screening process. First, a keyword-based search was carried out using Boolean operators. The search terms included combinations of “individual resilience”, “employee resilience”, “organizational/organisational resilience”, and “resilience framework”. The search was conducted through Web of Science, with the time range limited to literature published between 2014 and 2024. Second, the retrieved literature, including conference papers, journal articles, and books, was screened by reviewing the titles and abstracts. Additional relevant publications were also identified through the snowballing method, where references from selected studies were examined to locate further suitable literature. In the last stage, the articles were reviewed in full to determine their suitability for inclusion. Publications were retained if they addressed both individual resilience and organisational resilience, included empirical evidence or a clearly articulated conceptual framework, and provided sufficient methodological detail to allow critical appraisal. The analysis underscores the fragmented nature of existing research in which IR and OR are often studied in isolation or within narrow disciplinary boundaries. The study argues that cross-level dynamics remain under-theorised, particularly in sectors like construction where disruption is routine, and resilience must be enacted in real-time. The review highlights a clear lack of integrated models capable of explaining how IR and OR interact through enabling conditions, and calls for a shift toward context-sensitive, relational, and operationally grounded frameworks. This critical reflection has laid the groundwork for the next stage of this study, leading to the development of three conceptual models. These models have been necessary to visualise the complex, multi-factor dynamics observed in the literature, and to translate abstract relationships into testable, practitioner-relevant frameworks. They also serve as a starting point for empirical exploration, allowing further validation and refinement through real-world insights gathered in subsequent phases.

Overall, these three interrelated studies offer deep insight into the IR–OR relationship. They include the recognition of overlap and distinction (RQ1.1), a clarification of the conditional nature of the relationship and the existence of mediating factors (RQ1.2), and finally proposes three models by identifying the theoretical and practical gaps that require empirical attention (RQ1.3). Collectively, these findings fulfil the first research objective of exploring the current state of IR–OR relationships as observed in the existing literature.

Part C: Developing the Modified Integrated Resilience Model: Empirical Findings and Thematic Synthesis

C.1. PROLOGUE TO PART C

Building upon the conceptual foundation established in Part B, this section transitions from theory to empirical investigation. While the literature-based studies in Part B clarify the distinctions, relationships, and conceptual gaps between IR and OR, they also reveal the limitations of relying solely on theoretical models, particularly in complex, real-world settings like the construction industry. To address these limitations, Part C, comprising of Chapter-6, focuses on Objective 2, which seeks to understand how IR and OR are experienced, enacted, and mediated in practice.

The research in this section is based upon semi-structured interviews with professionals from various roles within the New Zealand construction sector. It addresses RQ2.1 by exploring how practitioners perceive and articulate the relationship between IR and OR within their organisational contexts. The study also responds to RQ2.2 by delving deeper into the factors that enable or constrain this relationship, and how these dynamics manifest in the construction sector. Ultimately, this phase of the research provides an empirically grounded view of the IR–OR interface, offering insights into both individual-level and organisational-level conditions that shape resilience outcomes. It also serves to critically evaluate and refine the conceptual propositions developed in the earlier stage, setting the foundation for the Integrated Model presented as part of the findings of this study.

CHAPTER SIX

EXPLORING THE INTERPLAY BETWEEN INDIVIDUAL AND ORGANISATIONAL RESILIENCE IN THE CONSTRUCTION SECTOR: A COMPREHENSIVE ANALYSIS

Abstract

Environmental complexities and continuously evolving scenarios like natural disaster, political instabilities, pandemics have become a major challenge for construction organisations. Since no system or organisation can be designed to anticipate all possible risks, resilience has become a fundamental necessity. To achieve resilience at the organisational level, it is vital to consider, assess and utilise individual resilience of employees as they constitute the core of the organisational system. Though the concept of individual resilience has been extensively applied across a plethora of academic fields, there is a lack of unified understanding of the relationship between individual resilience and organisational resilience. While prior research has acknowledged both constructs independently, their interplay within high-risk sectors such as construction remains underexplored. Thus, the current study employs qualitative research methods, including case studies and semi-structured interviews with 20 construction professionals from various construction organisations of New Zealand. The collected data were analysed through NVivo to identify crucial factors and mechanisms involved between resilient individuals and resilient organisations. The results include mediating factors and a relevant model that can help in establishing the link between individual resilience and organisational resilience of the New Zealand construction industry. The study contributes theoretically by re-conceptualising resilience as a dynamic-mediated construct, and practically by offering targeted strategies for resilience-building within project-based environments. Future studies may explore the gap between resourcefulness and resilience to formulate robust plans and policies to support organisations, government, and other stakeholders during setbacks.⁴

⁴ This chapter is based on the following research paper:

Mitansha, M., & Potangaroa, R. (2025). "Exploring the Interplay Between Individual and Organisational Resilience in the Construction Sector: A Comprehensive Analysis." *Sustainability*, 17(16), 7229.

6.1. Introduction

Resilience in New Zealand's construction sector has become a critical concern over the past decade, especially in light of major disruptions like the 2010–2011 Canterbury earthquakes and the COVID-19 pandemic, Gabrielle Cyclone etc. These events have underscored the need for construction organisations to build and maintain resilience (Mitansha et al., 2025; Yang & Cheng, 2020), given their pivotal roles in planning, designing, constructing, and managing infrastructure essential to risk reduction and recovery (Denny-Smith et al., 2021; Malalgoda et al., 2015). Barasa et al. (2018) asserted that Organisational resilience is the blend of managing challenges and adapting to sustain. While this ability encompasses several levels and dimensions, there is growing recognition of individual resilience in conjunction to organisational resilience. Individual resilience is the ability to cope with stress, recover from setbacks, and remain effective under pressure. In light with this, several scholars have asserted the role of individuals in promoting organisational change (Jiang et al., 2023; Prayag et al., 2024). Doe (1994) suggested that resilient organisations rely on the existence of individuals who can withstand changes and perceive them as opportunities to advance further.

However, recent studies also note that while resilient people are valuable, having resilient individuals alone may not automatically translate into a resilient organisation, indicating a multifaceted and context-dependent interplay. For instance, a study by (Walker et al., 2020) underscored that organisational survival and adaptation are critically dependent on a broader set of supportive elements. These include strong leadership, an employee-centric orientation, fostering collaboration, and promoting robust knowledge sharing and continuous learning. Without these foundational organisational pillars, individual resilience may not only be less effective but could even be negatively impacted, potentially leading to an inability to function effectively and overwhelming stress. This was discussed by (Mitansha & Potangaroa, 2024) that organisational resilience is a distinct capacity that emerges from the interaction and mutual strengthening of individual, team, and organisational levels of resilience. Mitansha and Potangaroa's research specifically highlighted shared indicators to discuss the precise limits or boundary conditions of the overlap between individual and organisational resilience.

Moreover, In the context of the New Zealand construction sector, literature has predominantly focused on organisational resilience frameworks Like (BRANZ., 2024a; McManus, 2008; ResOrgs, 2025). While these studies provide valuable insights into how NZ firms can withstand and recover from external shocks, they often neglect the nuanced conjunction between individual and organisational resilience. This absence of integration results in limited understanding of how the resilience of individual employees contributes to, or is constrained by, broader organisational systems. The concept, thus, lacks clarity regarding the attainment of organisational resilience by virtue of resilient employees. Moreover, in construction projects, which are inherently multifaceted and require collaboration among numerous stakeholders across varying roles and timelines (Choi, 2018), there remains considerable uncertainty about how employee resilience translates into organisational resilience (Wang & Ahmed, 2003). As a result, the interaction between these two dimensions of resilience has become increasingly complex and difficult to delineate.

Despite growing interest in both individual and organisational resilience, limited attention has been given to how these two constructs interact—especially in complex and disruption-prone sectors such as construction. While existing literature tends to examine resilience at either the individual or organisational level, few studies explore how professionals within the industry conceptualise their relationship in practical terms. This disconnect between theoretical models and practitioner perspectives can lead to resilience frameworks that are abstract, incomplete, or misaligned with real-world needs. Moreover, limited attention has been given to the underlying source, purpose, and contextual drivers, which are essential for understanding how resilience truly emerges and is sustained in dynamic, high-pressure environments like the construction sector. As a result, resilience planning in construction organisations may be fragmented or ineffective, failing to fully leverage the dynamic interplay between individual and organisational capacities.

To conceptually ground the relationship between individual and organisational resilience, this study recognises both constructs as interdependent yet distinct. Individual resilience is often rooted in psychological capacities such as adaptability, self-efficacy, and emotional regulation (Houston et al., 2017; McGonagle et al., 2014), while organisational resilience arises from systemic attributes including leadership, governance, culture, and resource mobilisation (Barasa et al., 2018; McManus, 2008). Although these operate at different levels, recent studies (Clements & Kinman, 2023; Mitansha & Potangaroa, 2024) highlight their dynamic interplay, mediated by contextual conditions such as trust, learning orientation, and autonomy. This study hypothesises that organisational attributes act as moderating factors that can either facilitate or inhibit the transfer of resilience across levels. When these conditions are favourable, resilient individuals contribute to organisational learning and adaptability, while resilient organisations reinforce individual agency and psychological safety. Conversely, misalignment between levels such as strong individuals within rigid or toxic systems can obstruct resilience outcomes. The conceptual framework developed here provides the foundation for the integrated model introduced in the subsequent section.

Thus, the current study aims to analyse the relationship between individual resilience and organisational resilience by addressing three major research questions:

- What is the current level of understanding amongst the construction professionals of New Zealand?
- What are the crucial factors that influence both individual resilience and organisational resilience?
- How can the relationship between individual and organisational resilience be conceptualised to inform an integrated framework?

Enhancing resilience in this dual context would allow construction firms to craft crisis response plans that are more effective. This will also help in establishing connections within fields like psychology, organisation behaviour, sociology, and other relevant disciplines. Therefore, the current study would help in deepening the knowledge of the association between individual and organisation factors to create a more resilient, agile, and sustainable organisational system. Through a detailed background

study and qualitative research approach, the study provides significant themes to highlight what major processes and aspects govern the relationship between individual resilience and organisational resilience. The study recommends future research to utilise the factors provided to develop a concrete model to help industry practitioners and academicians. The final model will aid in formulating plans, policies, and strategies to safeguard construction organisations during setbacks.

Accordingly, the paper is structured into five sections: Section 2 reviews the relevant literature on individual and organisational resilience, particularly in the construction sector, to understand the existing research gap and relevance of the current study. Section 3 outlines the qualitative research design, including sampling, data collection, and analytical methods to illustrate the process behind data acquisition and analysis. Section 4 presents the thematic findings derived from interview data and discusses these findings in light of existing research, drawing out conceptual linkages and practical relevance. Finally, Section 5 includes the conclusion by outlining the theoretical and practical implications of the study, along with its limitations and recommendations for future research.

6.2. Literature Review

Resilience has become a cornerstone concept across disciplines concerned with systems, people, and performance under conditions of disruption. While the concept has been widely applied, research often treats individual resilience (IR) and organisational resilience (OR) as distinct constructs, examined through separate disciplinary lenses. However, it is unclear that how these two resilience entities are deeply intertwined, particularly in high-risk, people-driven sectors like construction. To build a comprehensive understanding of how resilience functions in such environments, it is essential to establish the conceptual foundations of IR and OR, before exploring the nature of their interaction. The following sections examine each construct, setting the groundwork for later discussion on their interdependence and implications for practice.

6.2.1. Organisational and Individual resilience

6.2.1.1. *Organisational resilience*

The present study adopts a dynamic perspective on resilience, viewing it as a capacity that develops progressively in response to external pressures. Conceptualising organisational resilience as a process underscores its evolving nature, shaped by continuous cycles of learning, adjustment, and transformation. Reflecting this view, the study adopts the definition proposed by (Lengnick-Hall et al., 2011) which states that “organisational resilience is a firm's ability to effectively absorb, develop situation-specific responses to, and ultimately engage in transformative activities to capitalise on disruptive surprises that potentially threaten organisation survival” (p. 244). Scholars such as (Branicki et al., 2016; Liang & Cao, 2021; Prayag et al., 2024; Walker et al., 2020) have also supported and acknowledged this idea of organisational resilience.

6.2.1.2. *Individual resilience*

Amongst the various definitions proposed by scholars, the current research adopts the framing proposed by McGonagle et al. (2014), which describes individual resilience as the “positive adaptability or ability to thrive in the face of adversity” (p. 387). This interpretation underscores that resilience is not simply about withstanding challenges but about evolving through them an active, constructive process

of adaptation and growth. Its emphasis on “positive” adaptability is particularly meaningful, signalling that resilience involves not just resistance, but purposeful transformation. Moreover, the definition’s clarity and versatility make it applicable across various domains, including psychology, organisational research, and crisis management, making it both academically robust and practically relevant. Moreover, this definition of individual resilience also aligns with other scholar’s idea such as (Burton et al., 2019; Houston et al., 2017; Sood et al., 2011) who focussed on positive adaptation and bounce back theory.

6.2.2. Relationship between Individual and Organisational resilience

Across global literature, the relationship between individual resilience (IR) and organisational resilience (OR) has been described as inter-dependent and complex. This complexity has made it difficult to arrive at a unified understanding of how resilience functions across different levels.

Several scholars argue that resilient organisations are built on the foundation of resilient individuals. For example, Rioli and Savicki (2003) emphasise that OR is “built on the foundation of the resilience of members of that organisation,” while (Mallak, 1998) posits that organisations require people who can respond effectively to change while maintaining low stress levels. Similarly, Coutu (2002) suggests that the characteristics of resilient individuals significantly influence OR by fostering adaptive behaviours and mindsets across the system. This aligns with the broader view that individual adaptability, optimism, and perseverance form the micro-foundations of organisational capacity to recover from crises. In contrast, Lengnick-Hall et al. (2011) stress that while individual traits matter, OR is fundamentally a system-level capacity involving strategic planning, leadership, knowledge sharing, and process alignment. In this sense, resilience is not merely an aggregation of individual traits, but an emergent outcome shaped by organisational context. De Vries and Hamilton (2021) in a longitudinal study following the Christchurch earthquakes, found that even highly resilient individuals struggled to sustain operations if their organisational models were structurally weak. Their findings suggest that IR may be necessary but not sufficient for OR to materialise.

Moreover, conflicting interests and coping mechanisms may undermine organisational cohesion. As noted by Alliger et al. (2015), differences in how individuals manage stress or prioritise tasks can create internal misalignment, which may disrupt team dynamics or distract from collective goals. This concern is echoed by Hillmann and Guenther (2021), who argue that resilient individuals can inadvertently pose risks if their priorities clash with those of the wider organisation. For instance, an employee focused on self-preservation might resist organisational change, impeding adaptability at a systemic level.

Recent reviews have also pointed to the fragmentation in definitions and frameworks, which contributes to confusion. Studies on individual resilience are often grounded in psychology, focusing on personal traits, stress responses, and mental health strategies (Houston et al., 2017; Sood et al., 2011; van Heerden et al., 2021), while organisational resilience is typically examined through the lenses of management, strategy, or systems theory (Lengnick-Hall et al., 2011; Linnenluecke, 2017; Sapeciay et al., 2017). This disciplinary divide results in fragmented frameworks and inconsistent definitions, where resilience is either reduced to personal coping or inflated to abstract organisational capacity. As a result,

few studies effectively integrate both perspectives to capture how individual and organisational resilience interact dynamically in practice. Wishart (2018) and Linnenluecke (2017) argue that this conceptual disconnect leads to resilience models that fail to account for cross-level mechanisms that can mediate the relationship between IR and OR.

6.2.3 Unclear link between the Individual and Organisational resilience

Resilience is increasingly recognised as a critical capability for organisations operating in dynamic and high-risk environments, especially in construction industry. Characterised by project-based structures, fragmented supply chains, workforce fluidity, and exposure to environmental, financial, and regulatory disruptions, construction organisations face unique challenges in both anticipating and responding to crises (Bosher et al., 2007; McManus, 2008). These operational complexities demand not only resilient individuals capable of adapting under pressure, but also robust organisational systems that can coordinate, absorb, and respond effectively both of which are essential for sustained performance, project continuity, and long-term survival in the construction sector. However, despite growing academic and industry interest in construction sector resilience, empirical studies that analyse the interdependence between individual and organisational resilience remain scarce, and existing frameworks often fail to capture it. While studies point to an intertwined relationship, explicit investigation of how these two dimensions interact dynamically remains limited. Conceptual inconsistencies and differing definitions of resilience further complicate efforts to map these interactions. As a result, there is still insufficient understanding of how individual and organisational resilience co-evolve, often leading to uncertainty and errors in resilience planning. This points to an emerging understanding: resilience may reside not only in structures or individuals, but in how they align and respond together. Hence, the current study would discuss how these dimensions relate in practice, to identify shared enablers of resilience across levels, and to develop a conceptual model that reflects how resilience is enacted, understood, and sustained in real construction settings. Moreover, due to the existing studies tending to focus predominantly on either individual (Luthans et al., 2007; Riolli & Savicki, 2003) or organisational resilience (Duchek, 2020; Linnenluecke, 2017) in isolation, there is a pressing need for a unifying framework that bridges this divide. The present research responds to this need by offering a practical model that connects individual and organisational perspectives, thereby providing a more holistic understanding of resilience in complex, real-world construction settings. Such explorations foster organisational adaptation that require actionable strategies beyond abstract concepts and checklists. By combining individual strength with organisational learning and supporting factors, this research contributes a practical model that would enable organisations not only to survive disruption but to evolve through it.

6.3. Materials and Method

6.3.1. Procedure of conducting the study

The core objective of this study is to conceptualise how IR and OR interact in practice and to identify the mediating factors between individual and organisational resilience. As the associated research question are exploratory in nature and demand a method capable of capturing complex, subjective, and context-dependent insights, semi-structured interviews were utilised for this purpose. The use of interviews allowed for flexible, open-ended engagement with participants, facilitating the collection of

rich, contextually grounded data. This flexibility enables the researcher to probe deeper into specific examples of resilience, clarify meanings, and uncover nuanced mechanisms, particularly those mediating the link between individual and organisational levels. Unlike structured surveys or closed-ended tools, semi-structured interviews generate the rich, detailed data necessary to understand dynamic relationships, reveal emergent themes, and build an evidence-based conceptual framework grounded in real-world construction industry contexts.

Interview questions were developed based on findings from the background literature and analysis of relevant case studies across sectors such as healthcare, consultancy, and security. These sources helped identify thematic gaps and practical insights that shaped the content and structure of the interview guide.

The responders included consultants, contractors, infrastructure firms, real estate developers, and material suppliers which are actively engaged in the New Zealand construction sector. The shortlisting criteria included factors such as company history, prior exposure to crises, firm size, employee satisfaction, and financial performance. These indicators helped identify organisations that had demonstrated resilience under challenging conditions.

Based on qualitative research standards, the objective is not statistical generalisation but rather depth, richness, and contextual relevance (Patton, 2002). Accordingly, 20 construction professionals were purposefully selected and contacted for interviews. Given the niche focus of the study, that is exploring individual and organisational resilience in the construction industry, the number of participants with the requisite combination of experience, seniority, and topic relevance was inherently limited. Moreover, the New Zealand construction sector is comparatively small and tightly networked, which constrained access to senior-level professionals. This challenge was especially evident when targeting individuals with decision-making authority in areas such as human resources, project delivery, or resilience planning. Despite these access limitations, the participants who were successfully recruited possessed deep domain knowledge and diverse project experience, qualifying them as information-rich cases capable of offering meaningful insights.

This sampling approach is methodologically sound and well-supported in the literature. Guest et al. (2006) found that data saturation in thematic analysis typically occurs within the first 12 interviews, and that basic themes are often well established after six interviews. Their findings support the notion that large sample sizes are not necessary when the sample is homogeneous in terms of expertise and relevance to the topic. Similarly, Mason (2010) reported that the modal sample size was 20, particularly in research fields that required contextual and interpretive depth rather than generalisability. (Vasileiou et al., 2018) also argue that smaller sample sizes are justified when the participant pool is narrowly defined and selected for theoretical relevance, rather than statistical representativeness. In line with these criteria, this study used purposive sampling to select professionals who could offer thematic diversity across leadership levels, firm types, and project scales.

Hence, the study's sample of 20 construction professionals is consistent with established qualitative guidelines and sufficient for achieving data saturation, especially given the specificity of the sector and

the complexity of the phenomenon under investigation. Their input enabled the development of a nuanced and empirically grounded model of resilience that reflects the lived realities of the New Zealand construction industry.

The interviews were structured into two sections: Section A gathered background information on the participants and their organisations; Section B explored topics directly related to resilience at both individual and organisational levels.

All interviews were transcribed and analysed using NVivo 14 software, following Braun and Clarke (2019) six-step reflexive thematic analysis process. The study followed an inductive approach to allow new themes to emerge directly from the data. Key segments were coded, annotated, and linked to analytical reflections through NVivo's memo and node features, facilitating a comprehensive and traceable thematic analysis.

To enhance validity, the co-author independently reviewed the transcripts and any discrepancies in coding were discussed and resolved through reflexive dialogue until consensus was reached. An audit trail was maintained to ensure transparency in code refinement and theme development.

Codes were organised into higher-order categories that aligned with the research questions. For example, the codes "autonomous decision-making" and "freedom to deviate from protocols" were clustered into the theme Empowerment and Autonomy, with illustrative quotes such as the following:

"We weren't told what to do—we made calls ourselves, and that freedom made us faster" (Participant MS1). Similarly, the code "Managerial support" and "Guidance from senior officials" were grouped under the theme Leadership and Governance, illustrating how resilient leadership dynamics contribute to both individual and organisational resilience. These new factors observed were eventually compared with the existing literature to increase the trustworthiness of the findings by linking them to established theories and findings.

To improve the clarity, coherence, and grammatical accuracy of the manuscript, the authors used OpenAI's ChatGPT as a language-support tool. The software was applied solely for linguistic refinement such as grammar checking, sentence restructuring, and improving readability, without altering the substantive content, interpretation of findings, or originality of the research.

6.3.2. Details of the participants

From the research data analysis, 79.7% were male and 20.3% were female. This could be interpreted that the construction industry is still dominated by males, but the number of females entering are steadily increasing. The data collected reflected a wide spread of construction professionals opinions with significant project experience. Approximately 84% were involved in 10 or more projects and have been in construction sector for at least 5 years. Approximately 70.7% of the respondents had a qualification of either a; Certificate of achievement (Level 4), Certificate (Level 5), Diploma (Level 6) or a bachelor's degree (Level 7). The respondents came from the four top sectors, i.e., Commercial/ Retail (25.3%), Residential (20.3%), Industrial (19.4%) and Infrastructure (14.1%). The relevant details of the responders are included in Table-6.1.

Table 6.1. Respondents profile for interview phase

Number	Code	Type of Firm	Designation	Experience (Years)
1	CC1	Consultancy + Contracting	Team leader	13
2	CC2	Consultancy + Contracting	Engineer	8
3	CC3	Consultancy + Contracting	Principal lead	6.5
4	CC4	Consultancy + Contracting	National Head	18
5	CC5	Consultancy + Contracting	Engineer	7
6	CC6	Consultancy + Contracting	Associate Engineer	7
7	C1	Consultancy	Project Engineer	11
8	C2	Consultancy	Director	29
9	C3	Consultancy	Project Manager	10
10	C4	Consultancy	Principal Engineer	13
11	C5	Consultancy	Engineer	5
12	C6	Consultancy	Engineer	5.5
13	C7	Consultancy	Principal Engineer	12
14	RE1	Real Estate	Vice President	16
15	RE2	Real Estate	Cost Estimator	6
16	MS1	Manufacturer and suppliers	Site and Quality Assurance Engineer	9
17	BI1	Building and Infrastructure development	Deputy Project Manager	8
18	CT1	Construction	Site Engineer	6
19	HR1	Human Resource	Manager	11
20	E1	Engineering	Site Engineer	5

6.4. Analysis and Discussion

6.4.1. Relationship between Individual and Organisational resilience

This subsection addresses RQ1 by identifying key individual and organisational factors that influence resilience development, along with the conditions that shape their interaction.

The interviews revealed two main dimensions, Source and Purpose which carves the behaviour and response of the two resiliencies. These two dimensions can potentially explain why there is not a fixed relationship between the individual resilience and organisational resilience. The dynamic nature of both individual and organisational resilience contributes to the difficulty in drawing a clear boundary between them. This conceptual fluidity explains why scholars have arrived at differing interpretations, some viewing the relationship as direct, while others argue for a more mediated or indirect connection.

6.4.1.1. Source of Resilience

Source refers to the fundamental factors that help build resilience for both individuals and organisations. It addresses the question, "What enables resilience?"

While describing the individual and organisational resilience, the responders pointed towards the root cause and objectives of resilience. Responder RE1 mentions Organisational Resilience is to combat any challenges within the market. This process is based on a solid foundation, effective processes and procedures. MS1 says "Organisational resilience is like an umbrella that is built over individuals and the stakeholders. It's their ability to adjust and respond to tough times". Resilience is a resultant of consistent learning, to improvise oneself. Having the motivation to stay ahead of the contemporaries to maintain the market position is also responsible for resilience. Sources of resilience include internal systems, external market dynamics, adaptability, continuous learning, and engagement of stakeholders. These are the key drivers that foster or enhance resilience and are entirely distinct from that of the individuals.

In contrast, CT1, HR1, C7 mentioned that individual resilience originates from life experiences, traumas, social support. This in turn determines the strength and determination of a person, shaping his/her resilience. C4 added that having the support of family or involving in some form of hobby as a part of "me-time" is vital for resilience. It is because it prevents one from burning out and imparts more productivity.

These instances indicate that an individual's resilience is based on their inter-personal relationships, their attitude on how they perceive the challenge and navigate through it. The central aim of resilience for individuals is to equip them to face personal and professional challenges, preserve their well-being, and keep moving forward despite difficulties. It involves personal growth, stress management, and overcoming obstacles in their careers or personal lives.

6.4.1.2. Purpose of Resilience

The purpose highlights the objectives that resilience is designed to accomplish. It responds to the question, "Why is resilience essential?" or "What is its end goal?" The objective of organisational resilience is to guarantee that the organisation can take proactive steps to thrive in response to disruptions, including market shifts, financial challenges, or unexpected external events such as natural disasters (Somers, 2009). It aims to protect its stakeholders, ensure business continuity, and sustain a competitive advantage. CC4 quoted "this is the ability to bounce back from adversity and to continue to grow and evolve. For this, an organisation has to be competitive and evolving." The general notion indicated in the interview is that since resilience is about maintenance and survival, organisations can

do so by being at par with the market instabilities. Whereas CC6 mentions it as an ability to bounce back from adversity and to continue to grow and evolve. Mohit mentioned “it’s just the ability to face and deal personal and professional risks.” CC2 noted it’s the strength and determination which shapes people’s resilience. CC5 said “balance between one’s work life and personal life like spending time with family, kids, or if you just have hobbies can help in building resilience. C2 mentions “at the individual level, it’s how people cope with, or their ability to bounce back from in situations that you know might be quite stressful and to deal with a lot of change that’s kind of what resilience is, the ability to deal with quickly changing stuff in a fairly short period of time.” CT1 said “resilient people demonstrate their capability when crisis situations like you don’t have some, some planning lacking or something like that and then you overcome that by stepping up and solving some issues on site.”

6.4.1.3. Mutual Impact

The discussion on the importance of individuals in creating a resilient organisation showed unanimous opinion of all the interviewees wherein they stated that organisations are made out of people and to create a resilient organisation at a higher level, there must be an individual level resilience at the lower level. Interviewees C6, MS1 and CC6 highlighted that since organisations are made up of people and thus, having right people in the right position can help a lot in gaining resilience at upper levels. However, there are some conditions along with this, for instance, individuals must be trained to direct their actions towards organisational goals achievements, or they must not have a self-centered attitude. Further, responders C5 and CC4 mentioned about organisational components such as systems, processes, procedures, Culture, governance which play a major role in channelizing the resilience of employees. On the other side, responders CC2, CC3 and C1 suggested that organisations must build a culture that encourages the sets of behaviours that one need to be able to respond in tough situations. Moreover, it is the organisation which can make individuals feel like they are being heard and they’re adding values to the system to encourage the feeling of inclusivity within the organisation is one of the things that we would terms we would use a lot is does everybody who is employed with us feel as though they’re adding value and does the organisation enable that or do they shut that down because they only want One Direction and one style. CC1 stated that “a drop can create the whole sea, so each and every individual matters, and every person has some certain skills.” The strength of individual contributes to-wards the strength of organasation if individual is having same goals with the organisation.

The responders unanimously supported that resilient organisations are more likely to enable people to be resilient as the individuals will know what to do, have confidence in recovery and have a framework for decision-making. Resilient individuals may make an organisation seem resilient through effective action in crisis, but unless they are able to affect change at the organisation, they can only do so much as individuals.” The relationship is majorly governed by Organisational elements according to 62% responder.

6.4.1.4. Limitation

Despite the strong connection, responders clearly stated that there’s a difference between having resilient individuals and achieving resilient organisation. During the interview, responders were asked

to rate the dependence of individual resilience on organisational resilience, 75% of the responders rated 7 and above out of 10. Overall, all of them rated above 5, indicating a significant but not absolute reliance. CC2 clarified the reason saying "The Organisation is not reliant on a single person. Not only the strength's of individual is the only thing that creates an organisation to survive a crisis."

Organisationsal resilience is all about the processes and systems for being prepared, whereas individual resilience is about personal situation, mental health, relationships etc. C4 said as long as you know which resources to keep fair and how to get the maximum out of them, you can use any individual. C5 highlighted that the organisation should be structured in such a way that the right people are in the right places and we have to monitor their performance quite carefully because sometimes something can look perfect on paper but isn't effective.

There's no direct relationship between the two because any policies, step or procedures are only as good as the people enacting them. People need to be trained and practiced, to build their resilient-type responses. Individual can help make organisations resilient by enacting policies, but there's no guarantee that resilient individuals will make an organisation resilient. In light with this, responders indicated several bridging factors that could link the gap between Individual resilience and organisational resilience.

6.4.1.5. Factors determining the relationship between Individual resilience and Organisational resilience

Table 6.2. Identified themes from transcripts (Source-NVivo)

	Identified Codes	Respondent																			
		CC1	CC2	CC3	CC4	CC5	CC6	CC7	C1	C2	C3	C4	C5	C6	RE1	RE2	MS1	BI1	CT1	HR1	E1
1	Leadership and Governance	✓	✓	✓	✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
2	Communication and Information flow							✓	✓		✓									✓	
3	Team Collaboration and Trust	✓	✓		✓		✓		✓	✓	✓	✓			✓	✓	✓	✓		✓	✓
4	Support System (Counseling, Peer, support group)	✓				✓			✓			✓	✓		✓				✓		✓
5	Working Culture and Psychological safety					✓			✓	✓	✓		✓				✓				
6	Proactive planning and scenario training			✓						✓		✓									
7	Adaptive Capacity										✓	✓									✓
8	Community engagement and Connectivity	✓	✓						✓			✓									
9	Continuous Learning	✓		✓	✓	✓	✓		✓		✓		✓		✓		✓				✓
10	Empowerment and Autonomy	✓			✓			✓	✓	✓		✓		✓	✓		✓		✓	✓	✓
11	Resource/Technology Management		✓	✓	✓	✓			✓		✓				✓	✓		✓		✓	
12	Shared Vision and Goal	✓	✓	✓		✓		✓	✓		✓		✓	✓		✓		✓		✓	✓
13	Innovation and Creativity		✓							✓										✓	
14	Feedback and reflective Practices			✓	✓										✓						✓
15	Mental Well-being initiative									✓				✓					✓		

The analysis of the interview data led to the identification of 15 key themes associated with both individual and organisational resilience (Table 6.2). Among these, five themes, Leadership and Governance, Continuous Learning, Team Collaboration and Trust, Shared Vision and Goal, and Empowerment and Autonomy were discussed in depth by more than half of the respondents. Given their prominence and perceived influence, the current study places particular emphasis on these five factors as the core mediating elements that shape the dynamic relationship between individual and organisational resilience. To enhance clarity, Figure 6.1 illustrates the distribution of interviewee responses across these main themes, highlighting their relative significance in the data.

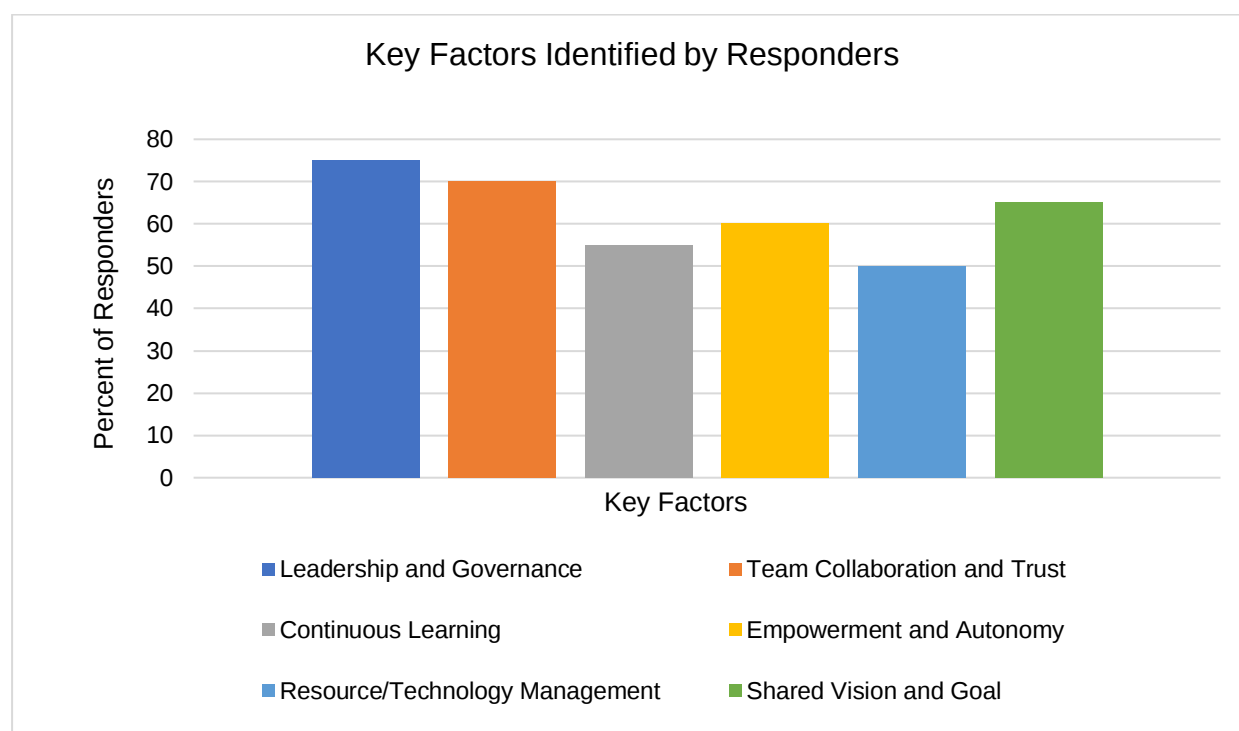


Figure 6.1. Distribution of key factors as per the interviewee's responses

The following subsection present a detailed discussion of the key themes that emerged most prominently across the dataset:

- **Leadership and Governance**

The most dominating factor related to Individual resilience and organisational resilience was found to be Leadership and Governance. Responders CC2, CC3, CC4, C5 and RE2 reflected on the responsibility of leader stating that leaders lead by examples which means they can create an environment of trust and comfort in the organisation which allows individuals to perform in a more efficient ways. They must have the ability to influence other's resilience, in fact, when discussed about the utilization of non-resilient individuals, responders CC1, BI1, and CT1 explained the importance of training and development offered by leaders can eventually allow to develop, maintain, promote reinforced, resilient behaviours and attitudes. This, in a way, also shed light on the role played by non-resilient individuals as almost 60% responders confirmed that everyone has a role in the making of organisation and mostly it's the leaders, organsational policies and the trainings which guide them to

achieve the ultimate goal. This is even in line with the findings of (Sapeciay et al., 2017; van Heerden et al., 2021; Walker et al., 2020) which suggested that leadership is a central enabler of both individual and organisational resilience, particularly in high-stress, high-risk contexts like the New Zealand construction industry. Sapeciay et al. (2017) identified several indicators of organisational resilience, highlighting leadership as the most influential factor. Their findings suggest that the application of resilience assessment frameworks, when guided by effective leadership, can greatly enhance an organisation's ability to navigate and recover from crises. Similarly, van Heerden et al. (2021) found that organisational leadership plays a key role in shaping levels of workplace stress within New Zealand's construction sector. They argue that leadership behaviours such as open communication and creating a supportive work environment are crucial for reducing stress and fostering individual resilience among construction professionals. At the organisational level, leadership was again deemed the most impactful factor, followed closely by the work environment. Whereas at the individual level, it shapes the work environment in ways that protect mental health and support coping. This has been supported by (He et al., 2022) which states that leadership has a positive impact in employee's performance. Such dual influence makes leadership a lever for aligning the two forms of resilience.

- **Continuous Learning**

Learning emerges as a vital connective tissue between individual and organisational resilience. Responders C5, CC6, and MS1 strongly asserted that organisations must embed a culture of continuous learning and improvement so that individuals are prepared not just to react in times of crisis but to actively bounce back and grow. This preparedness emerges from both internal reflection and external benchmarking drawing on lessons from other organisations or international case studies to identify what went wrong and how responses could have been improved. Respondent CC5 further emphasised the importance of a learning culture that empowers individuals to adapt and encourages iterative learning, making it safe for staff to acknowledge gaps and pursue solutions. A commonly discussed point across interviews was that learning should not be static or confined to documentation. Majority of the participants, thus, highlighted the need for live learning mechanisms such as regular debriefs, team discussions, after-action reviews, and informal peer exchange, so that insights from past disruptions are continuously fed back into operational planning. Several responders also identified that visible leadership participation in learning activities such as post-crisis evaluations or simulations not only reinforces accountability but encourages adaptive behaviour for employees. For instance, one responder CC4 noted that when leaders openly acknowledged lessons learned from previous errors, it created a ripple effect that encouraged staff to reflect and self-correct. In addition, responder such as C1 and C3 and described how employees who had undergone structured post-event learning workshops were significantly more confident and composed during subsequent disruptions—indicating that individual resilience was strengthened through organisationally supported learning structures. Responder CC1 also mentioned that organisations with mechanisms for capturing informal learning, such as post-project feedback loops or cross-functional forums, were better at aligning day-to-day individual experiences with long-term system-level improvements.

In support, participant CC3 specified that a lack of knowledge sharing infrastructure could weaken this link: when frontline experiences weren't fed upward into strategic processes, or when insights were siloed, organisations repeated mistakes and staff became disillusioned. MS1 also stated that "If I learn something that could help the organisation, but there's no platform to share it or no one listens, it demotivates you." This illustrates how the absence of learning pathways not only obstructs organisational adaptability but can also suppress individual engagement and resilience. Taken together, these findings underscore that learning is far more than a supportive function—it is a bidirectional bridge that enables resilient individuals to inform and shape resilient organisations, and vice versa. Without mechanisms to translate individual learning into organisational adaptation, or to cascade organisational insights back to individuals, resilience remains fragmented and shallow.

This is even supported by literature highlighting organisational learning acts as a vital link between individual and organisational resilience. Training, exercises, and scenario-based planning not only prepare staff for crises but also enhance their confidence, clarity, and responsiveness core traits of individual resilience (McManus, 2008). When embedded systematically, these practices elevate organisational readiness by aligning employee actions with broader crisis protocols. Chih et al. (2022) asserted that a learning-oriented culture is a key mediator between individual behaviours and system-level resilience. ResOrgs (2025) further highlights the importance of capturing lessons through immediate post-crisis debriefs, ensuring that individual insights are institutionalised to improve future responses. However, as Walker's study of the Christchurch earthquake reveals, when organisations fail to absorb and act on individual learning, it leads to frustration and disengagement, weakening overall resilience. Conversely, Wilkinson et al. (2024) found that individuals with prior crisis experience could influence organisational systems effectively, especially when supported by enabling structures like pre-existing contracts. Together, these insights show that learning when shared and reinforced bridges individual capability with organisational adaptability.

- **Team Collaboration and Trust**

Team spirit emerged as a key relational mechanism linking individual resilience with broader organisational adaptability. Several participants suggested that individuals feel more confident, emotionally supported, and better prepared to respond to crises when embedded in cohesive, collaborative teams. For instance, CC4 emphasised that "culture, systems, and the way people work together influence how they respond to stress," implying that shared norms and interdependence within teams create a buffer against pressure. Similarly, E1 mentioned that "in those early weeks, it wasn't just the systems that got us through, it was everyone having each other's back," highlighting how peer support compensates for structural gaps during uncertainty. CC2 also noted, "when communication is strong and everyone is on the same page, the team's energy helps carry individuals who might be struggling," linking collective cohesion directly to individual coping. RE2 described a project scenario where "the team stepped in for each other without waiting for permission," which not only stabilised operations but also reinforced trust among staff. Even newer employees reportedly adapted faster when placed in teams with clear communication and mutual respect, suggesting that resilience can be enhanced by team support. One respondent RE1 observed, "you learn a lot, just by seeing how your

teammates react under pressure, it gives you a model to follow.” In contrast, another participant B11 mentioned that “a lack of communication between project teams made it feel like you were alone during the hard times,” which weakened morale and delayed recovery. Importantly, the benefits of strong team spirit extend beyond individual well-being. Cohesive teams are more likely to identify issues early, share workload dynamically, and improvise collectively. These aspects speed up the decision-making and maintained continuity in adverse situations, enhancing the organisation’s ability to adapt in real time. Moreover, team cohesion fosters a culture of shared accountability, enabling organisations to absorb disruption with less friction, coordinate responses with greater efficiency, and recover faster, making it a critical enabler of both individual and organisational resilience.

A growing body of NZ literature from academic studies to industry reports makes it clear that “teamwork and collaboration” are foundational to resilience at all levels. For instance, (Mitansha et al., 2023; ResOrgs, 2020; Wang & Wang, 2024; Wilkinson et al., 2024) clearly described that construction firms should invest in building trust and clear communication within project teams. This empowers mutual support and enables crisis planning as a team exercise. Such team-level investments pay off during crisis as construction professionals are less likely to experience burnout and are better positioned to sustain their individual resilience over time. Simultaneously, the organisation becomes more capable of responding effectively to disruption, enabling quicker recovery and improved adaptability

- **Shared Vision and Goal**

A consistently emerging insight from the data was that a clearly communicated shared vision, paired with meaningful organisational goals, plays a pivotal role in aligning individual actions with organisational resilience strategies. When employees understand not only their roles but also the broader organisational purpose, they are more inclined to adapt, engage, and persist through adversity. This alignment transforms individual resilience into a collective asset that enhances the organisation’s capacity to navigate disruption.

C4 captured this dynamic succinctly and stated, “A commitment to a shared vision or kind of end goal” is what enables people to pull in the same direction. The responder further explained that “leadership behaviours aren’t just about formal titles, it’s about motivating people around a common goal,” reinforcing the notion that shared purpose fosters both direction and cohesion. Similarly, RE1 emphasised the power of a unifying objective, saying “Having a goal is essential to make the company a success and this is something that made people get together and work together.” This sense of collective purpose acts as an anchoring force during uncertainty. Moreover, CC6 noted that clarity around goals plays a crucial role in enabling people to contribute meaningfully: “Do they have ongoing conversations with their line leaders? Are they clear on what they need to deliver and how they are tracking?” The responder linked resilience to environments where individuals know their targets, see their impact, and trust that their effort matters to something larger than themselves. When individuals feel their work is meaningful, they are more willing to adapt, persist, and recover in the face of disruption. This sense of alignment is what enables individual resilience to increase and eventually, become a part of a larger, systemic response.

In addition to goal clarity, many participants highlighted the emotional and motivational value of alignment. CC1 being a team lead quoted “In a crisis, people don’t follow policies, they follow purpose. When the vision is clear, they’ll find ways to contribute even when systems break down.” RE2 further reflected that “During the early COVID lockdowns, our team didn’t wait to be told what to do. We all knew the goal was to keep our clients operational. That shared aim gave us the energy to keep pushing.” These examples illustrate that shared vision is not just a strategic tool, it is an emotional driver. It reinforces intrinsic motivation, gives direction to individual decision-making, and sustains engagement when stress is high. In this way, alignment between personal and organisational purpose serves as a coordination mechanism, ensuring that autonomous, resilient behaviours contribute to rather than diverge from the organisational response.

Conversely, a lack of shared purpose can fragment resilience. E1 shared, “In my previous company, no one really knew what we were working towards. Everyone just did their own thing. When disruption hit, we pulled in different directions. This possessed a risk on our job security, leading to decreased level of individual resilience. Consequently, it also impacts organisational functioning and resilience” This reinforces that shared vision is not optional, it is foundational for optimizing individual and organisational resilience. Thus, shared vision and common goals create a framework within which individual resilience becomes organisationally meaningful. They channel effort, reduce ambiguity, and bind the organisation together during adversity. Rather than relying solely on hierarchy or policy, resilient organisations depend on their ability to generate alignment giving individuals the clarity and confidence to act, adapt, and support collective recovery. This approach is reinforced by the industry insights from Resilient organisations and BRANZ, which has repeatedly emphasised that breaking down silos and uniting around common objectives is key to transforming the construction sector’s performance and resilience (Brown et al., 2020; ResOrgs, 2012). Similarly, academic articles by (Sapciay et al., 2017; Wilkinson et al., 2016) have also underlined that construction firms must be prepared not only to recover their own operations but also to serve as key enablers of broader societal recovery. This dual responsibility requires an internal culture of resilience underpinned by common values and clear organisational objectives, aligning individual roles with collective outcomes.

- **Empowerment and Autonomy**

A strong and recurring theme across interviews was the idea that organisational resilience is not simply built through systems or leadership but is deeply dependent on the agency and empowerment of individuals at all levels. It allows individuals to make decisions, adapt roles, and respond to disruption without excessive oversight emerged as a vital mechanism that links personal resilience with broader organisational outcomes.

C2 explained from a leadership perspective, that when staff feel trusted to make decisions, such as adjusting work hours during periods of stress, they are more likely to remain engaged and contribute constructively, even under pressure. E1 stated that “There’s no such thing as ‘organisational’ decision-making, it’s always people. Resilience lies in enabling them to act meaningfully.” Similarly, CC7 observed: “You often see people stepping into the void to do what needs to be done.” In moments of

uncertainty, decentralised, empowered individuals filled leadership gaps, demonstrating how autonomy supports organisational continuity when formal processes falter. MS1 added: “We were never told ‘here’s what to do’ during COVID, we had to make calls ourselves based on the big picture. That freedom made us faster.” Several participants like C4, CC1, CT1 described how the freedom to deviate from standard procedures, when circumstances demanded, was essential to timely problem-solving. A senior operations manager stated: “During the supply chain crunch, our team leads didn’t wait for head office. They negotiated alternatives, restructured deliveries. That initiative kept us running.” C6 also described how “frontline staff revised their existing plans and took spontaneous decisions, they didn’t wait for approval, and it saved us days.”

When discussed about the post effects of the autonomous decisions, the participants clearly highlighted that the decentralisation is not chaotic, if it is supported by clear principles and mutual trust. CC4 commented: “We had a general framework, but we were told ‘if you need to act, act.’ That made all the difference when things got tight.” Empowerment in this sense became a conduit as it allowed individually resilient behaviours (problem-solving, adaptability, confidence) to scale up into organisational advantage. Importantly, respondents noted that lack of empowerment could actually suppress resilience. In light with this, C6 reflected: “In my old firm, everything had to go up the chain. Even small issues. It slowed us down and made people afraid to take initiative.” This not only delayed recovery efforts but discouraged learning and autonomy qualities central to both personal and organisational resilience. Thus, the discussions clearly highlight that while individual resilience enables coping, it is empowerment that enables contribution. When staff are trusted to act within shared values and frameworks, their actions support not just their own adaptation, but also the continuity, flexibility, and learning capacity of the organisation. In this way, empowerment transforms isolated resilience into collective resilience, making it one of the most critical mediating factors in resilience-building across levels. Studies across both academic and industry literature increasingly affirm that employee empowerment and autonomy are foundational enablers of resilience at both the individual and organisational levels (Bardoel et al., 2014; Duchek, 2020). Empowered individuals those who have the authority and psychological safety to act are more likely to engage proactively with uncertainty, take initiative, and contribute meaningfully during disruption (Duchek, 2020). Projects benefit from individual accountability and ownership, as they promote disciplined execution and immediate problem-solving, preventing delays and excessive costs (Wilkinson et al., 2024). This link is especially important in construction, where operational complexity demands real-time, context-specific decision-making.

- **Technology and Resource Management**

Technology and resource systems emerge as critical enablers that connect individual resilience to broader organisational adaptability. Several participants highlighted that the pace of technological change in the construction and infrastructure sectors demands that individuals remain current and skilled to stay effective. As CC2 indicated that resilience is built through capital value and resource availability, indicating that the organisation’s investment in resources provides individuals with the tools they need to withstand disruption. BI1 reinforced this by stating that systems, processes, and organisational structures are causal factors shaping employee experience and response, suggesting

that a well-resourced and strategically aligned organisation creates an ecosystem where individuals can thrive during adversity.

Additional participants underscored the role of technology in fostering real-time coordination. For instance, one respondent CC3 mentioned that “having a shared platform where we could all see updates live reduced confusion when our site was impacted,” showing how digital tools enhance clarity and control during uncertainty. Another interviewee C1 reflected that “being able to access project data remotely made me feel like I could still contribute even during lockdown,” linking personal agency directly to tech-enabled flexibility. Similarly, RE1 pointed out that “without the right procurement system in place, we couldn’t get essential materials on time,” demonstrating how resource systems directly shape the effectiveness of individual efforts. Responders C1 and C3 also noted the psychological benefit of visible resource stability. C3 stated, “when you know the tools and people you need are going to be there, it takes pressure off and lets you focus on solving problems,” showing how perceived access to resources enhances individual composure and decision-making. Conversely, CC3 added that “during one crisis, we had the knowledge, but none of the resources to act on it. It was frustrating and demotivating, leading to destabilising effect on the staffs and the organisation.”

These insights confirm that resources and technology do more than support operations, they shape the capacity of individuals to act, adapt, and connect, directly influencing how well an organisation as a whole can absorb and recover from shocks. Therefore, embedding technological infrastructure and maintaining resource readiness not only strengthens organisational resilience, but also empowers individuals to contribute meaningfully under pressure. In addition, the literature suggests that both resources and technology play a pivotal role in linking individual and organisational resilience. McManus et al. (2007) and Lee et al. (2013) emphasise the importance of internal and external resource capacity for adaptive planning, where individual performance relies on the organisation’s ability to mobilise and support resources during crises. In the construction sector, SMEs demonstrate greater resilience when they effectively manage cash flow, resource allocation, and adopt technologies such as cloud-based systems to streamline operations (BRANZ., 2024a). Moreover, standardising and centralising data enables individuals to access critical information on vulnerabilities and resilience planning (Livermore, 2024), while interoperable technologies enhance real-time coordination during emergency response (Wilkinson et al., 2024). Together, these elements facilitate a more integrated response, aligning individual actions with broader organisational capabilities.

Alongside, there were some other minor factors like Communication and Information flow, Support System, Working Culture and Psychological safety, Proactive planning and scenario training, Adaptive Capacity, Community engagement and Connectivity, Innovation and Creativity, Feedback and reflective Practices, Mental Well-being initiative.

6.4.1.6. Theoretical Linkages: Relating Key Themes to Broader Constructs

To deepen the interpretation of the identified themes, it is valuable to situate them within broader theoretical frameworks that explain how resilience emerges and operates across organisational systems.

First, the Resource-Based View (RBV) of the firm provides a useful lens for understanding themes such as Leadership and Governance and Team Collaboration. According to Barney (1991), internal resources that are valuable, rare, and difficult to imitate form the basis of sustained competitive advantage. In this context, resilient individuals and cohesive teams can be seen as strategic resources that enhance an organisation's adaptive capacity during disruptions (Santoro et al., 2021).

Second, Systems Theory explains resilience as an emergent property of interactions among system components, rather than the sum of isolated parts (Walker et al., 2020). This aligns with the findings that individual, team, and organisational levels mutually reinforce each other. For instance, organisational learning and psychological safety function as connective mechanisms enabling bidirectional influence, implying individual insights shape system-level adaptation, and system-level support enhances individual resilience.

Third, the role of Empowerment and Autonomy can be interpreted through the lens of Sociotechnical Systems Theory, which posits that effective performance depends on the alignment between social subsystems (e.g., people, relationships) and technical subsystems (e.g., procedures, tools). In the current study, decentralised decision-making and freedom to deviate from protocol were found to be critical for organisational continuity during disruptions, suggesting that resilient systems are those that grant agency to individuals while maintaining overarching coherence (van der Vegt et al., 2015).

Finally, Conservation of Resources (COR) Theory explains how individuals strive to acquire, protect, and retain valuable resources such as social support, control, and self-efficacy (Hobfoll et al., 2018). In the construction sector, when individuals are embedded in supportive teams with access to training and well-being resources, they are more likely to maintain resilience over time. Conversely, resource loss such as disempowerment or knowledge silos, can lead to burnout and disengagement, weakening the broader system.

By connecting these empirical insights to theoretical constructs, it becomes evident that resilience is not merely a collection of traits or practices but a dynamic capability developed, supported, and activated through multi-level interaction. This theoretical grounding strengthens the argument for an integrated model of resilience and supports its relevance beyond the construction sector.

6.4.2. Integrated Resilience Model

The previous chapter outlined a series of conceptual models developed to capture the relationship between individual and organisational resilience. Each of these models represented a different lens through which the IR–OR connection could be understood, but their primary purpose was to provide a foundation for empirical testing and refinement. When the qualitative findings from New Zealand construction professionals were examined, it became evident that their perspectives aligned most closely with the central logic of the Integrated Model. Participants described organisational resilience not as the simple sum of resilient individuals but as the result of several interacting elements, including leadership, organisational learning, communication practices, and team collaboration. These discussions confirmed the model's emphasis on the collective and multi-factorial nature of resilience, while also extending it by highlighting how such factors operate in dynamic, context-dependent ways.

As a result, the Integrated Model was treated as a backbone against which empirical insights could be critically layered. Based on the discussion with interviewees, the model was elaborated and refined to present the dynamic, mediated, and context-dependent relationship between individual and organisational resilience. This refinement led to the development of the Modified Integrated Resilience Model (Fig. 6.2).

The Modified Model introduces several critical refinements to better capture the complex, mediated, and dynamic relationship between individual resilience (IR) and organisational resilience (OR), as observed in the empirical data.

- Central Position of Organisational Resilience

At the centre of the model is Organisational Resilience (OR), conceptualised as an organisation's capacity to absorb shocks, adapt to changing conditions, and sustain operations during disruption. However, rather than treating OR as an isolated construct, the model portrays it as an emergent outcome, shaped by an intricate web of internal and external factors. This positioning reflects the notion that resilient organisations are not built solely on formal systems or top-down planning but evolve through the interactions among people, processes, and context-specific enablers.

- Bidirectional and Conditional Relationship Between IR and OR

A dotted, two-way arrow symbolically connects IR and OR, representing the bidirectional, moderated, and conditional nature of their relationship. This design choice aligns with findings from the interviews, which revealed that resilient individuals can significantly strengthen OR—but only when certain enabling conditions are present. Conversely, a resilient organisational environment can reinforce individual resilience by offering psychological safety, clarity of roles, and supportive infrastructure. This mutual reinforcement is not automatic; it depends on the presence or absence of mediating organisational conditions.

- Contextual Mediators and Enablers

Surrounding this core relationship are a set of key mediating and enabling factors, identified through thematic analysis. These include leadership clarity, team collaboration and trust, continuous learning, empowerment and autonomy, and a shared sense of purpose. These elements function as gateways that either facilitate or inhibit the transformation of personal resilience into collective organisational capability. Their role is crucial—they determine whether the energy and adaptability of individuals translate into broader systemic resilience, or whether such potential is stifled.

- Virtuous Reinforcement or Breakdown Loop

The model also accommodates two potential trajectories based on the strength of these mediators. When enabling conditions are strong, a reinforcing cycle emerges: resilient individuals contribute to organisational adaptability, which in turn nurtures and sustains individual resilience. This positive feedback loop was reflected in multiple interviews, where employees described an environment that promoted initiative-taking, knowledge-sharing, and trust. However, when these conditions are absent—

such as in rigid hierarchies, toxic cultures, or under-resourced systems—the flow is disrupted, resulting in a breakdown loop. In such scenarios, even highly resilient individuals may become disengaged, overburdened, or ineffective, and organisational resilience deteriorates as a result.

- Grounded in Participant Narratives

These theoretical propositions were consistently reflected in participant narratives. For instance, one interviewee shared, “I was encouraged to take initiative without fear of being blamed if something didn’t work,” highlighting the role of psychological safety in enabling personal risk-taking and adaptive action. Another respondent remarked, “The team covered for me when I struggled, we had a sense of trust,” indicating how strong interpersonal relationships can buffer stress and create a collective resilience capacity. These quotes illustrate that the IR–OR linkage is enacted in daily practices, cultural norms, and the invisible scaffolding of trust, autonomy, and purpose.

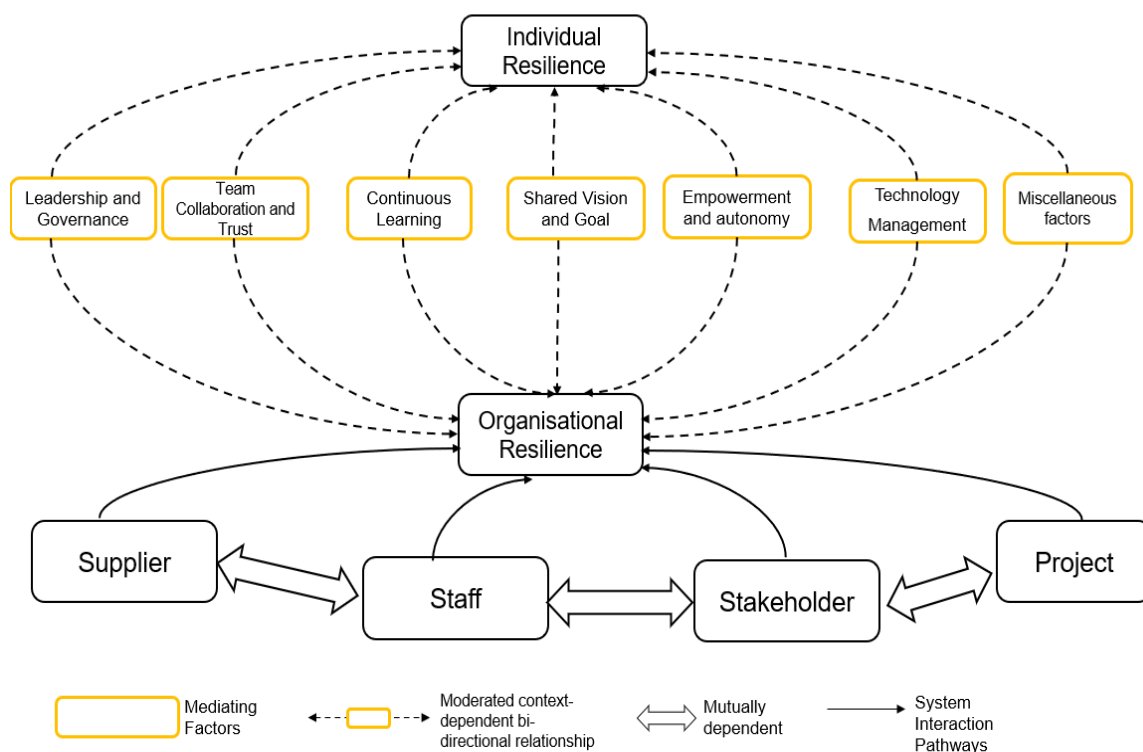


Figure 6.2- Modified Integrated Model of Individual and Organisational Resilience

However, an important issue that warrants deeper examination is whether the mere presence of these supportive factors/ resources necessarily leads to the development of a resilient organisation. While these factors are widely recognised as foundational to resilience, their presence alone may not guarantee an organisation's capacity to adapt, recover, or thrive amid disruption. The distinction between possessing resilience-enabling conditions and demonstrating resilient outcomes remains blurred. In other words, the relationship between these enabling resources and the realised state of resilience is not fully linear or causative. Is it valid to equate the availability of enablers such as a positive work environment, effective leadership, strong team cohesion, and organisational support systems, with the actual attainment of resilience? This assumption remains contentious and thus, the ambiguity raises

critical questions: What is the precise role of these resources in fostering resilience? Are they necessary but insufficient on their own? How do they interact with individual and systemic capacities to produce organisational resilience in practice? These unresolved questions form the basis for further investigation in our research, which aims to clarify how resilience-enabling factors function, interact, and manifest within the organisations.

6.5. Conclusion

The findings of the study have clearly indicated that strengthening both individual and organisation resilience can improve overall crisis readiness and decrease the impact of unexpected events. The analysis of how individual resilience contributes to organisational resilience allows organisations to develop strategies that support employee well-being to better prepare for and respond to crises. Moreover, the identified factors which can bolster organisation resilience, can be utilised by the organisations to prioritise investments in initiatives that have the greatest impact on overall resilience outcomes.

In response to RQ1, the study revealed that there is a current need to educate and develop awareness about the concept of resilience, especially amongst the junior employees because the senior management employees showed better understanding on this subject as compared to the relatively subordinate or inexperienced employees. Since the government is the major stakeholder, they can initiate bootcamps or information sessions in a fun or active manner to make it more engaging.

RQ2 was addressed through the identification of the process behind individual and organisational resilience dynamics. It suggested that both individual and organisational resilience function as per their source and purpose. The responders unanimously reported a strong co-relation between the individual and organisational resilience. The gap between resilient individuals and resilient organisations was found to be driven by factors such as leadership, team spirit, continuous learning etc.

To address RQ3, the study developed a modified integrated resilience model. This model builds on existing tiered frameworks by introducing cross-level interactive loops and highlighting mediating influences that condition the flow of resilience between levels. The model provides a practical and diagnostic tool for evaluating and designing resilience strategies in complex organisational settings such as construction. Moreover, it contributes to resilience theory by re-conceptualising the micro–macro link not as linear or automatic, but as contextually dependent and dynamically evolving. Although the model offers a valuable lens to understand the dynamic interaction between individual resilience (IR) and organisational resilience (OR), several limitations must be acknowledged. First, the model is grounded on qualitative data drawn from a specific industry context (New Zealand's construction sector) and a relatively small sample size. Although the approach ensured in-depth and context-rich insights, it may limit the model's applicability in the sector and generalisability across different cultures, or nations. Additionally, the mediating factors, such as leadership, shared vision, team collaboration, and empowerment, etc., were identified inductively. Their relative influence or weighting within the IR–OR relationship has not yet been quantified, which could be critical for practical implementation or policy formulation. Thus, to strengthen the model's validity and broader applicability, future research should

aim to empirically test the framework using quantitative or mixed--method approaches and targeting a broad sample size. Survey instruments could be developed to measure each construct (e.g., IR, OR, mediators) and applied across diverse organisational contexts. Structural Equation Modelling (SEM) or multi-level modelling techniques could be used to assess the directional influence and strength of relationships among variables. Furthermore, longitudinal studies would help track how resilience capacities evolve over time, particularly during different phases of disruption and recovery. These approaches would not only confirm the model's components but also provide evidence of its predictive power and practical utility.

The study offers both theoretical and practical contributions. Theoretically, it advances understanding of resilience as a dynamic, multi-level construct, highlighting that the interaction between individual and organisational resilience is neither linear nor automatic, but moderated by contextual factors such as leadership, empowerment, and learning orientation. The integrated model reframes resilience as a bidirectional process, contributing to ongoing debates in resilience theory. Practically, the findings provide actionable insights for construction organisations seeking to enhance resilience. These include embedding resilience-building into HR practices through training and recruitment, strengthening leadership capacity to support decentralised decision-making, fostering team-based structures that promote trust and adaptability, and institutionalising learning through structured feedback loops and knowledge-sharing. Together, these strategies enable the transformation of individual adaptability into collective organisational strength and vice versa.

Such ideas of targeting multiple challenges through common research and aiming to come up with a robust challenge will make the industry more resilience in a true sense. Eventually, it will help in planning for policies, plans and steps that will help in utilising individual's resilience to create a more resilient and adaptive organisation, better equipped to navigate the complexities of today's dynamic business environment.

C.2. EPILOGUE TO PART C

Part C of this thesis fulfils Research Objective 2 which aims to explore the empirical dynamics of the relationship between IR and OR, and to identify the conditions under which this relationship is strengthened, constrained, or transformed. This objective has been addressed through two peer-reviewed studies based on qualitative data collected from 20 professionals working across various organisational tiers within the New Zealand construction industry.

Chapter six addresses RQ2.1, which explores how construction professionals perceive the relationship between IR and OR in practice. The participating organisations and individuals were selected using a purposive sampling approach to ensure that the interview data were drawn from participants with relevant experience of resilience-related challenges in the construction sector. Organisations were considered suitable where they had direct exposure to disruptions, crises, setbacks, or project-level uncertainty, and where organisational processes such as decision-making, planning, resource coordination, adaptation, and recovery were relevant to their operations.

Individual participants were selected based on their professional experience, role within the organisation, and involvement in resilience-related processes. The main group of participants comprised experienced professionals who had previously managed or contributed to responses to challenging project or organisational situations. Many participants held senior management, leadership, project management, or human resources roles, and were therefore directly involved in decision-making, planning, strategising, coordination, and resource allocation during periods of disruption. These participants were considered important because they could provide informed insights into how organisational resilience is developed, activated, and sustained in practice. In addition to senior and HR-level participants, junior and mid-level employees were also included to capture how organisational resilience is perceived across different organisational levels. Their inclusion helped explore how individual resilience is experienced by employees, how it influences day-to-day responses to adversity, and how it may contribute to or affect organisational resilience. This ensured that the study did not rely only on managerial perspectives but also considered the views of employees who experience organisational resilience processes in practice.

Participant identification and recruitment were undertaken through professional networks, industry contacts, and targeted invitations to individuals and organisations within the construction sector. Potential participants were approached based on their relevance to the research aims and their ability to comment on individual resilience, organisational resilience, or the relationship between the two. Before participation, individuals were informed about the purpose of the study, the voluntary nature of involvement, and the confidentiality of their responses. Overall, the participant pool represented an experienced construction-sector sample. Approximately 84% of participants had been involved in 10 or more projects, and all participants had at least five years of experience in the construction sector. This helped ensure that the interview data were informed by participants with sufficient practical knowledge, project exposure, and organisational experience to comment meaningfully on resilience processes.

The selected responders provided insights through a semi-structured interview which was transcribed and analysed using NVivo software, guided by Braun and Clarke (2019) six-phase reflexive thematic analysis process. This includes familiarisation with the transcripts, systematic coding of meaning units, theme construction, and iterative refinement. An inductive approach had been adopted to ensure that themes emerged organically from the data, allowing the analysis to remain grounded in the lived experiences of participants from the New Zealand construction sector. Thematic saturation was achieved through an iterative and meaning-focused process of data collection and analysis. Richness of the data was ensured by carefully selecting experienced participants and conducting semi-structured interviews supported by probing and continuous refinement of questions. During analysis, attention was given not only to recurring codes and themes but also to contradictory or disconfirming perspectives, which strengthened the robustness of the emerging thematic structure. Saturation was assessed by examining whether new interviews contributed genuinely new insights or merely reinforced existing patterns and meanings. Consistent with recommendations in qualitative research literature, saturation was considered reached when additional interviews no longer generated new themes or understandings and only repeated previously identified ideas (Hennink & Kaiser, 2022). To further confirm saturation, two additional interviews were conducted, which produced no substantially new issues or concepts. This approach aligns with studies suggesting that saturation is best established when no new information emerges across consecutive interviews or focus groups (Coenen et al., 2012; Francis et al., 2010). Additionally, the achieved sample size falls within the range commonly recommended for qualitative studies aiming for thematic saturation.

The analysis confirms that while IR and OR are conceptually distinct, they are often relationally interlinked in day-to-day organisational life. However, participants did consistently recognise that resilient individuals do not automatically translate into resilient organisations, and vice versa. Instead, the connection between IR and OR is experienced as context-dependent and mediated by organisational features including leadership style, team culture, communication systems, and support structures. This insight challenges any deterministic or linear assumptions found in earlier models, and highlights the non-hierarchical, emergent nature of the IR–OR relationship.

The study extends these insights by answering RQ2.2, which focuses on identifying the specific organisational factors that mediate the interaction between IR and OR. Through the coding in the initial phase, a total of 72 open codes have been generated from the transcripts. These codes capture recurring patterns in participant narratives ranging from leadership behaviours to emotional coping strategies, decision-making freedom, and team culture.

For example, codes such as “shared responsibility”, “the team covered for me”, and “people trusted each other” have been consolidated under the theme Team Collaboration and Trust. This discussion illustrates how interpersonal support helps buffer emotional strain at the individual level, while simultaneously enabling seamless project continuity. Ultimately, it exemplifies how individual resilience translates into organisational performance.

Excerpts such as “I was encouraged to take initiative without fear of being blamed” and “we had the freedom to act fast without waiting for formal instructions” have been coded under Empowerment and Autonomy. These codes reflect conditions of psychological safety, decentralised authority, and trust, which allow employees to act decisively in high-stress situations. Participant statements along the lines of “We always debrief after a crisis, not to blame, but to learn. That helps us not repeat the same mistake again” have been coded under Continuous Learning. This highlights how resilience is maintained not through perfection, but through improvisation, reflection and adaptation.

The 72 codes have been categorised into 15 overarching themes based on semantic similarity, theoretical relevance, and frequency of occurrence. These codes and their categorisation into themes are presented in Appendix 4. Of the 15 themes, five mediating themes were discussed by more than 50% of the respondents. This has allowed the analysis to be precise and grounded in the dominant patterns emerging from the data.

The five core mediating themes identified were:

- Leadership and Governance: sets the tone for resilience through clear direction, trust-building, and responsive decision-making.
- Continuous Learning: reflects the importance of feedback, reflection, and an adaptive capacity in the evolution of both individual and organisational resilience.
- Empowerment and Autonomy: allows individuals to take initiative and contribute meaningfully to organisational responses without fear of blame.
- Shared Vision and Purpose: ensures that resilience efforts are aligned toward collective outcomes rather than fragmented responses.
- Team Collaboration and Trust: enables horizontal resilience and mutual support across teams during disruption.
- Resources and Technology: allows organisations and individuals to respond effectively and to plan strategically for subsequent phases.

These themes are not only individually significant, but collectively form a network of enablers that either reinforce or obstruct the IR–OR connection depending on their strength and presence in the organisational environment.

Importantly, the empirical findings from both studies do not align neatly with hierarchical or siloed models of resilience (e.g., stacked or nested models). Instead, participants’ accounts consistently reflect a relational and bidirectional dynamic wherein IR and OR mutually influence one another under certain enabling conditions. This justifies the study’s decision to adopt the Integrated Model as the most appropriate base for theory-building. Unlike linear or cumulative frameworks, the Integrated Model depicts the combined role of several individual–organisational related factors, making it both empirically valid and practically relevant for the construction sector.

By triangulating practitioner perspectives with earlier literature-based findings, Part C contributes to both theory and practice by empirically grounding the notion that resilience in organisations is co-

constructed, and not simply transferred across levels. The insights generated here directly inform the development of the Modified Integrated Resilience Model, which not only visualises these complex relationships, but also reflects the lived realities of resilience work in disruption-prone environments. This stage also establishes the basis of Part D, which includes a refinement of the model and further refined through a second round of semi-structured interview and a focus group discussion.

Part D: Model Refinement

D.1. PROLOGUE TO PART D

The preceding chapters progressively deepened our understanding of the relationship between Individual Resilience (IR) and Organisational Resilience (OR). Part B laid the theoretical groundwork by critically reviewing the conceptual distinctions, overlaps, and modelling attempts that characterise this relationship in existing literature (RQ1.1–1.3). Part C provided an empirical investigation into how professionals in the New Zealand construction sector perceive the IR–OR link and identified the mediating organisational factors that shape it (RQ2.1–2.2). However, these findings also left two fundamental questions:

1. Does the mere presence of such resources guarantees resilient outcomes, or are additional capabilities required to unlock their full potential?
2. How these insights can be systematically synthesised and refined into a single, practical model to more effectively capture the complex, mediated relationship between IR and OR within the construction sector?

In line with this, Part D addresses Research Objective 3 to develop an integrated framework that captures the interaction between individual and organisational resilience. Building on the empirical base of Part C, chapter 7 addresses RQ3.1 by examining the conditions and mechanisms through which the earlier identified mediating factors are transformed into effective, adaptive action. It shifts the focus from “what resources exist” to “how resources are creatively mobilised and strategically deployed”, thereby testing the limits of the resource–resilience link. Such exploration is crucial for establishing a robust conceptual foundation for the final model, ensuring that its components are clearly defined, internally consistent, and free from gaps or unresolved ambiguities.

Moreover, to address Research Question 3.2, chapter 8 seeks to examine the contextual factors that influence the dynamic interaction between IR and OR. The exploration of contextual factors adds deeper situational, relational, and environmental conditions that framed these responses. These contextual factors also included resourcefulness as a key parameter which determines the transfer of resilience between individual and organisational level. Further, to refine and enhance the robustness of this model, a Focused Group Discussion (FGD) was conducted. This participatory validation ensured that the revised model is not only analytically sound but also grounded in practical relevance. The FGD further helped in incorporating crucial details like the model structure, flow, re-phrasing of texts etc to enhance clarity and readability. Thus, Part D offers a finalised resilience framework that brings together insights from all preceding parts. It effectively captures how IR and OR co-evolve through mediating factors, resourcefulness enablers, and contextual factors. This chapter, thereby, completes the thesis’s central objective of developing a comprehensive, empirically grounded, and contextually embedded model of resilience for the New Zealand construction industry.

CHAPTER SEVEN

RESOURCES VERSES RESOURCEFULNESS- THE NEED FOR ACHIEVING ORGANISATIONAL RESILIENCE

Abstract

Construction organizations are particularly vulnerable to crises that disrupt standard operations and render traditional planning approaches ineffective. While prior research on organisational resilience has often emphasised the importance of tangible resources, such as financial reserves, infrastructure, and personnel questions remain regarding whether the mere possession of resources guarantees resilience. This study investigates the nuanced relationship between resource availability and the actual attainment of organisational resilience. Drawing on 18 in-depth qualitative interviews with industry professionals and financial experts in the construction sector, the research uncovers the critical role of resourcefulness, which is defined as the capacity to creatively mobilize, adapt, and optimise available assets under constrained conditions. Rather than treating resources and resilience as directly proportional, the findings reveal that resourcefulness acts as a dynamic mediator between the two, shaping how effectively organisations can restructure and respond in times of crisis. Future studies in this direction could help in exploring the link between individual resilience and organisational resilience. The findings can be utilised to create a comprehensive model or framework for smoother recovery and functioning of the organisations amidst crisis or disaster. Ultimately, the research would contribute to a more integrated understanding of resilience, positioning resourcefulness as a core capability necessary for organisations to not only survive but adapt and thrive amidst uncertainty.⁵

⁵ This chapter is based on the following research paper:

Mitansha, & Potangaroa, R. (2025). "Resources verses Resourcefulness- The need for achieving organisational resilience." AUBEA, Canberra, Australia (ACCEPTED)

7.1. Introduction

In increasingly volatile and uncertain environments, organisations are under constant pressure to adapt their operations, decision-making, and strategic priorities in order to survive and succeed. Among the various capabilities required in such conditions, organisational resilience, which is the ability to absorb shocks, respond effectively, and maintain core functions has emerged as a central theme in both academic and industry discourse (Kantur & Say, 2015; Lengnick-Hall et al., 2011). Within the construction sector, resilience is particularly critical due to the industry's exposure to complex project-based work, fluctuating market conditions, resource constraints, and external shocks such as labour shortages, material cost surges, and regulatory uncertainty. A significant body of research has emphasised the role of resources like financial, human, material, and infrastructural, as foundational elements of organisational resilience (Do et al., 2022; McManus et al., 2007; Pal et al., 2014). Financial capital, in particular, is often viewed as a primary enabler, providing organisations with the means to mobilise other key assets during a crisis (Barasa et al., 2018). The underlying assumption in much of this literature is that greater access to resources naturally leads to greater resilience.

However, the presumed direct correlation between resource availability and organisational resilience remains insufficiently explored, particularly in high-risk industries such as construction. While the importance of resources is well acknowledged, research by Burnard and Bhamra (2011) and Lengnick-Hall and Beck (2005) underscores that organisational resilience is not the result of any single system property or resource. Instead, it is a multidimensional construct, shaped by the interaction of various cognitive, behavioural, and contextual factors across multiple organisational levels.

This perspective challenges the assumption that well-resourced organisations are inherently more resilient. In reality, the presence of ample resources does not guarantee successful recovery from disruption. Conversely, some organisations with limited resources demonstrate a remarkable capacity to survive and adapt. For example, in their study of organisational responses to the Christchurch earthquake, Walker et al. (2020) observed that several organisations managed to recover effectively despite resource shortages. This success was largely attributed to their ability to draw on strong internal and external networks, which effectively compensated for the lack of material resources.

The inconsistencies observed between resource availability and actual organisational outcomes raise important questions about the underlying mechanisms and contextual conditions that determine whether resources truly support resilience in practice. Hence, the current study aims to address the critical gap between resource possession and the attainment of organisational resilience. In line with this, the study investigates the following research questions:

1. How do construction professionals and insolvency practitioners perceive the role of resource availability in shaping organisational resilience during crises?
2. Under what conditions does the presence of resources contribute effectively to resilience in construction organisations?

Understanding the nuanced relationship between resource availability and organisational resilience will offer practical and theoretical value to the construction sector. The insights gained from this study can guide industry leaders, policymakers, and practitioners in designing more targeted strategies for crisis response and resource planning. This is especially critical in a sector often burdened by uncertainty and resource volatility, where resilience can no longer be assumed solely on the basis of resource possession.

7.2. Literature Review

7.2.1. Resource role in Organisational Resilience

Bruneau et al. (2003) mentioned that capacity to recover an impaired system's function is needed, but more than just that is needed for resilience. Agusti et al. (2022) and Tognazzo et al. (2016) outline that resilience is also dependent on how resources are mobilised, adapted, and engaged. During environmental shocks, organisations of any kind will have to innovate new ways to effectively use their available resource base (Tognazzo et al., 2016).

Within the New Model of Organisational Resilience developed by McManus (2008) and further elaborated by Lee et al. (2013), both external and internal resources are conceptualised as being at the hub of an organisation's adaptive capacity. Internal resources describe the organisation's capacity to deal with and call upon its assets in order to sustain critical functions under both business-as-usual and crisis situations. On the other hand, external resources involve developing relationships and access to necessary help from other organisations. Such dynamics and support requires deliberate designing and planning in order to prove useful during a crisis (Lee et al., 2013).

These principles of resources are particularly relevant to the construction sector, where small and medium-scale enterprises (SMEs) are highly susceptible to economic uncertainty and disruptions in supply chains. Research has shown that SMEs with excellence of practices such as cash flow management, resource management, strategic planning, and tech adoption are more likely to handle uncertainty (Wilkinson & Potangaroa, 2022). With ongoing problems of skills shortages, materials delays and cost overruns, investment in a stable, flexible resource base is essential to improving industry-wide resilience.

Practical post-disaster experience also serves to further underpin the need for having resources with which to develop resilience. As a case in point, the adoption of interoperable technologies, everything from software to communications tools to platforms for real-time data, was essential to facilitating emergency coordination and situational awareness across systems (Wilkinson et al., 2024).

7.2.2. Challenges in the Resource–Resilience Link

While access to tangible resources, such as financial reserves, technical capacity, and supply redundancy, is often seen as a foundation for resilience, recent research challenges the notion that slack alone is sufficient to ensure robust organisational performance during crises (Essuman et al., 2022). This subsection explores three interrelated dimensions that clarify why resilience cannot be reduced to resource abundance: the limitations of slack, the failure of resource-rich organisations, and the need for foresight, diversification, and planning.

7.2.2.1. The Limits of Slack Resources

Slack resources, defined as excess capacity, buffer inventory, or reserve funding, have traditionally been viewed as insurance against disruption. In theory, they enable firms to absorb shocks, continue operations during shortages, or buy time to adjust strategies. However, this perspective is increasingly considered reductive. Scholars argue that while slack can support stability in the short term, it does not inherently promote long-term adaptability or innovation (Schäffer, 2020). Over-reliance on slack may even discourage proactive planning, leading to complacency and inefficiency once the immediate crisis subsides (Dolmans et al., 2014).

Indeed, popular narratives often simplify resilience to having financial reserves, redundant supply chains, or surplus labour. However, without strategic redeployment and attention, such slack can become static overhead that stifles agility (Bogetoft & Kerstens, 2024). As Essuman et al. (2022) demonstrate, slack must be coupled with organisational attention and adaptive processes to yield resilience; otherwise, it remains undirected asset that fails to support effective crisis response.

7.2.2.2 Uncertainty with Resource-Rich Organisations

Case-based and empirical studies increasingly challenge the assumption that greater resource availability automatically leads to more resilient outcomes. For instance, research on organisational safety systems indicates that improving resilience is not dependent solely on the possession of resources but instead requires attention to behavioural, cognitive, and process-based factors that shape how those resources are mobilised (Hollnagel et al., 2006; Woods, 2017). In other words, it is not merely what an organisation has, but how it thinks, adapts, and acts that ultimately determines its capacity to withstand and recover from disruption.

Several high-profile corporate failures provide evidence of this disconnect. Well-capitalised firms have collapsed under crisis conditions not due to lack of resources, but because of their inability or unwillingness to reconfigure existing routines and mental models in response to emerging threats. Rigid decision-making hierarchies, siloed communication, and outdated emergency procedures often rendered these organisations vulnerable despite their resource-rich profiles. Scholars have described this phenomenon as the “double-edged nature of slack,” where excessive resources have adverse impact on entrepreneurial management (Bogetoft & Kerstens, 2024; Bradley et al., 2011). Such conditions breed operational inertia that actively undermines adaptive capacity at the very moment it is most needed.

7.2.2.3 Implications for the Construction Sector

The challenges associated with the disconnect between resource possession and resilience capability are particularly evident in the construction sector. Due to the construction industry’s complex and often fragmented environment marked by decentralised project teams, variable subcontracting arrangements, multiple stakeholder interests, and high exposure to external risks such as regulatory shifts, market volatility, and supply chain disruptions (Bosher et al., 2007; Choi, 2018; McManus, 2008), this disconnect tends to be further amplified. In such contexts, merely having access to resources is often insufficient; the ability to adaptively mobilise and apply these resources in real time becomes

critical. These sector-specific characteristics make the operationalisation of resilience especially difficult, as traditional resource-centric approaches frequently overlook the importance of responsiveness, coordination, and human factors that are essential to resilient performance in practice. While several frameworks have addressed organisational resilience within the construction context, such as the BRANZ Resilience Framework (BRANZ, 2024), the ResOrgs model (ResOrgs, 2025), and McManus' performance-based resilience framework (McManus, 2008), these models have largely emphasised system-level factors like business continuity planning, structural redundancy, and governance mechanisms. Although valuable, such approaches tend to treat resilience as a top-down capability, with insufficient attention paid to the micro-level dynamics and human factors that may either enable or constrain resilient performance on the ground.

Moreover, most studies have approached resilience either from an organisational or an individual lens, rarely addressing the interdependence between the two resilience (Linnenluecke, 2017; Riolli & Savicki, 2003). Given the project-based and relationally intensive nature of construction work, this separation is problematic. In construction environments, where decision-making, adaptation, and learning often occur at the frontline, the interaction between resilient individuals and organisational structure is likely to play a critical role in shaping resilience outcomes. Yet, existing models do not sufficiently explain how this interaction unfolds, particularly in the New Zealand construction sector (Sonenshein & Nault, 2024). Therefore, this highlights a critical gap in the resilience literature pointing to the need for a more integrated understanding of how resilience is shaped not only by the availability of formal resources and organisational structures, but also by the collective behaviours, adaptive capacities, and interactive practices of individuals operating within those systems. Traditional resource-centric models often fail to account for the dynamic, relational, and situational aspects of how organisations actually respond to disruption. As construction environments are marked by decentralised operations and high uncertainty, this disconnect becomes especially pronounced. In response, emerging studies increasingly points to the concept of resourcefulness, referred as the ability to creatively and effectively mobilise, reallocate, and apply available resource in the resilience context. The following subsection, therefore, explores resourcefulness to examine how it is conceptualised in the literature and in what ways, it contributes to turning static resource potential into organisational resilience.

7.2.3. Resourcefulness as a Mediating Construct in Resilience Theory

While the presence of tangible resources like financial capital, staff, technology, and materials, is often assumed to underpin organisational resilience, a growing body of research suggests that resources alone are insufficient for navigating disruption. Studies have shown that well-resourced organisations can still falter under crisis conditions, while resource-constrained entities may recover more effectively due to agility, adaptability, and innovative problem-solving (Burnard & Bhamra, 2011; Do et al., 2022). This observation has led to a shift in resilience theory, from a static, resource-based view toward a more dynamic understanding of resourcefulness.

Resourcefulness is increasingly regarded as a core dimension of resilience (Furniss et al., 2011; Furniss et al., 2014), reflecting a system's ability to respond adaptively and effectively even under adverse

conditions, whether those conditions arise from poor behaviour, flawed design, or unfavourable external circumstances. In other words, resourcefulness refers to an organisation's or individual's ability to creatively mobilise, combine, and reconfigure available assets in response to unexpected challenges. Rather than focusing solely on resistance or robustness, resilience is framed as the intelligent adaptability of a system: its capacity to identify and apply practical strategies that enable continued functioning. Such strategies might include creating reminders to aid memory, separating similar tasks to minimise errors, or verifying resources before action to avoid missteps (Furniss et al., 2011). These techniques, when paired with the skills and competencies of individuals or teams, form a system's resilience repertoire, which symbolises its collective ability to cope with and recover from disruptions.

However, the presence of strategies alone is not enough. The availability and quality of resources, such as time, information, personnel, and tools, play a critical role in determining whether these strategies can actually be implemented (Furniss et al., 2014). If a disruption exceeds the system's coping capacity, or if available strategies are misapplied or poorly timed, system performance may deteriorate or collapse altogether. Therefore, resourcefulness is not just about having resources, but about the ability to creatively and effectively mobilise them under pressure (Kuijer et al., 2017). This underscores its essential role in resilient systems: enabling adaptation, improvisation, and recovery when normal procedures or protections fail.

Resourcefulness encompasses cognitive traits (e.g., problem anticipation), behavioural capacities (e.g., improvisation), and social processes (e.g., team-based adaptation and cross-boundary collaboration). Scholars such as (Barasa et al., 2018; Lengnick-Hall et al., 2011) have argued that resourcefulness acts as a mediating capability, bridging the gap between what organisations possess and how they actually perform in high-pressure scenarios.

In construction environments, where complexity, time pressure, and resource volatility are inherent, resourcefulness becomes especially critical. Projects are often delivered through fragmented structures with decentralised decision-making, making it difficult to deploy standardised crisis responses. Case evidence (McManus, 2008; Wilkinson & Potangaroa, 2022) has shown that construction firms that empower employees, allow flexible role reallocation, and maintain feedback-rich environments tend to respond more effectively to disruption, even when working with limited formal resources.

Despite this emerging emphasis, resourcefulness remains under-theorised in resilience literature, especially in construction-specific contexts. Its role as a linking mechanism between individual and organisational resilience has not been sufficiently explored. Most existing frameworks treat resilience at either the individual or system level, without adequately examining the behavioural and organisational conditions that allow resilience to scale and transfer across levels.

This gap forms the basis for the current study, which seeks to validate and explore the existence of resourcefulness within the New Zealand construction sector. In addition, the research also assesses how resourcefulness shapes resilience outcomes, and how it mediates the evolving relationship between individual and organisational resilience in the context of New Zealand's construction sector. By placing resourcefulness at the core of this inquiry, the study deepens understanding of the

mechanisms through which resilience is developed, sustained, and applied across levels in real-world, high-risk project environments.

7.3. Research Methodology

7.3.1. Research Design

This study employs a qualitative, exploratory research design to investigate the relationship between resource availability and organisational resilience within the construction sector. Given the complex and context-specific nature of resilience during crises, a grounded, inductive approach was used to allow pattern and theme to emerge organically from empirical data without deference to a prior framework. Such design is best suited to the rich insight into the lived experiences and perspectives of industry practitioners for understanding how construction organisations learn to adapt in the face of disruption. The approach informs the development of context-rich findings that can inform more practical and adaptive approaches to resilience strategies for the industry.

7.3.2. Data Collection Method

In line with qualitative research standards that prioritise depth and contextual insight over statistical generalisation (Patton, 2002), this study used purposive sampling to recruit two key stakeholder groups: construction professionals, including project managers, site engineers, and operations directors; and insolvency practitioners with first-hand experience managing organisations under distress. A purposive sampling strategy was employed to ensure that participants possessed relevant experience in crisis response and organisational adaptation within the construction context. Each interview was conducted individually, either face-to-face or via video conferencing platforms, and lasted between 45 to 60 minutes. The semi-structured interview format provided a balance between consistency and flexibility, allowing the researcher to guide conversations around key themes while remaining responsive to participant insights.

Given the niche focus of individual and organisational resilience in the construction sector, the sample size was limited due to numerous factors. Firstly, the sector is relatively small and interconnected in nature. Secondly, there is a limited pool of professionals with relevant seniority and expertise and lastly, the access to decision-makers in areas like HR, project delivery, and resilience planning was especially constrained. Therefore, Data was gathered through 18 semi-structured interviews. The selected participants brought substantial domain knowledge and diverse project experience, qualifying them as information-rich cases capable of offering valuable insights. This sampling strategy aligns with established qualitative guidance. Guest et al. (2006) found that thematic saturation is typically reached within 12 interviews, while Mason (2010) reported 20 as a common sample size in interpretive studies. Vasileiou et al. (2018) further support the use of small, theoretically relevant samples in focused research contexts. Accordingly, this study's sample was sufficient to capture thematic diversity across roles, organisations, and project types, and contributed to a grounded, empirically informed resilience model tailored to the New Zealand construction sector.

The interview guide focused on several thematic areas, including perceptions of organisational resilience, the role and utilisation of resources during crises, personal and organisational expressions of resourcefulness, and strategies used to adapt and recover from disruptions. Participants were

encouraged to reflect on real-world examples and critical incidents, thereby grounding the data in practical experiences rather than abstract theory.

7.3.3. Data Analysis

Interviews were tape-recorded with the participant's consent, wholly transcribed verbatim, and analysed thematically using Braun and Clarke (2019) six-phase approach. Coding was inducted through an inductive form whereby themes would emerge organically from the data without preconceived categories. Qualitative data throughout analysis was organised, coded, and retrieved using NVivo software.

The analytical process began with familiarisation, involving multiple readings of the transcripts for a profound comprehension of the material. Preliminary codes were generated to capture the significant features of the data regarding resilience, use of resources, and adaptive behaviours. These codes were subsequently synthesized into more encompassing themes indicating recurring patterns and conceptual connections.

Themes were reviewed and refined in relation to the entire dataset to ensure coherence and consistency. Each theme was clearly defined and named to reflect its analytical significance, culminating in a final synthesis that integrated the emergent findings with relevant literature and the study's conceptual framework.

7.3.4. Ethical Considerations

Ethical approval was obtained from Massey University prior to the commencement of the study. All participants were fully informed of the research objectives and procedures, and provided written consent to participate. Measures were taken to ensure anonymity and confidentiality, and participants were reminded of their right to withdraw from the study at any point without penalty.

7.3.5. Details of the participants

The responder's profile depicts 80% were male and 20% were female. The Table 6.1. outlines the profile of the 18 participants interviewed for this study, comprising 12 insolvency practitioners (IP1–IP12) and 6 construction practitioners (CP1–CP6). Each participant is identified by a unique code and their professional designation. The group of insolvency practitioners brings a broad range of experience, from 5 to 25 years, while the construction practitioners have experience ranging from 8 to 17 years. This diversity in roles and years of professional experience ensures a well-rounded perspective on crisis response and resource-related challenges within the construction industry, drawn from both financial recovery and operational viewpoints.

Table 7.1. Respondents profile for interview phase

Number	Code	Designation	Experience (Years)
1	IP1	Insolvency Practitioner	5
2	IP2	Insolvency Practitioner	10

3	IP3	Insolvency Practitioner	6
4	IP4	Insolvency Practitioner	5
5	IP5	Insolvency Practitioner	11
6	IP6	Insolvency Practitioner	13
7	IP7	Insolvency Practitioner	20
8	IP8	Insolvency Practitioner	9
9	IP9	Insolvency Practitioner	22
10	IP10	Insolvency Practitioner	25
11	IP11	Insolvency Practitioner	13
12	IP12	Insolvency Practitioner	6
13	CP1	Construction Practitioner	8
14	CP2	Construction Practitioner	8
15	CP3	Construction Practitioner	13
16	CP4	Construction Practitioner	10
17	CP5	Construction Practitioner	13
18	CP6	Construction Practitioner	17

7.4. Findings

7.4.1. The Resource–Resilience Gap

A shared observation was noted amongst all the interviewees that while access to resources such as financial capital, skilled labour, and physical infrastructure is undoubtedly important, it alone does not guarantee organisational resilience. All interviewees also separately noted cash flow and access to resources as being paramount, particularly in circumstances of short-term disruption such as the COVID-19 pandemic or financial crises. However, they always emphasised that these resources need to be mobilised and deployed in a proper way to have any effect. A number of participants provided specific instances where organisations with abundant resources still failed.

For instance, IP10 explained, "We had all the equipment, trained staff, and even access to finance. However, when the market shifted overnight, we were not in a position to respond on time as we lacked internal flexibility." This indicates how rigid structures and absence of definite internal coordination prevented even well-capitalised firms from being in a position to respond effectively. Similarly, CP6 opined, "Resource-rich firms confuse stability and readiness. They believe just because they have

capital, they're okay.". But when disaster strikes, it's the ones that can pivot quickly that remain. This was echoed by IP2, who explained that in the Christchurch rebuild, several well-positioned companies nevertheless collapsed—not through lack of work or resources, but through lack of strategic, timely decision-making. This statement was supported by IP1, IP7, and CP6, all of whom asserted that organisations typically have ample resources but still fail as a consequence of poor planning, late execution, or internal misalignment.

Additional examples supporting this disconnect include IP4 and IP8, which discussed about the organisations that invested heavily in advanced IT systems and project tools yet had gained no efficiency improvements because the systems were not focused on the realities of operations. CP2 talked about a construction firm with large physical assets and a full order book that was nevertheless on the brink of insolvency through lack of liquid capital and delayed invoicing practices. CP1 and CP4 also added that companies stuck too rigidly to standard project management conventions and did not pick up on early warning signs, such as subcontractor pressure or unbalanced cash-flow forecasts, until the damage had been done. These instances yield a stark and uniform lesson: that resources, while essential, are valuable only in tandem with the ability to mobilise them dynamically and with intelligence. The difference between companies that endure disruption and those that do not is found not in the magnitude of their resources, but in their organisational ability to make sense of unfolding events, to communicate with urgency, and to reorganise assets and strategy accordingly. This organisational capacity repeatedly described by participants in terms of agility, foresight, and integrated decision-making is what turns potential into actual resilience.

Ultimately, these findings demonstrate that resilience is less about what a firm owns and more about how flexibly it can deploy what it has. The gap between static possession and dynamic utilisation of resources is where many organisations falter. Interviewees implicitly pointed to this gap as one of organisational capability, not availability. These narratives lay the groundwork for exploring how and why resourcefulness, as a mediating capacity, might be key to understanding which firms withstand crises and which do not.

7.4.2. Resourcefulness as a Mediating Capability

The interviewees stated their understanding of resourcefulness as the creative and strategic redeployment of existing resources, which is the key capability that converts potential into resilience. This interpretation closely aligns with existing literature, reflecting a strong conceptual understanding of resourcefulness among the respondents.

Interviewee IP5 shared a case from the post-earthquake recovery in Christchurch, where several firms struggled despite having a steady pipeline of work. The issue, as they explained, was not a lack of resources but a lack of decisive action: "Everybody waited for someone else to go first and tried to shift responsibilities on one another." This hesitation underscored a critical insight that resilience is not merely about enduring disruption, but about acting decisively and with foresight. IP8 supported this sentiment, noting that the most resilient organisations were those willing to reassign roles, communicate

openly, and reconfigure internal systems, even amid deep uncertainty. Their resilience was rooted not in abundant resources, but in the resourcefulness to “do things differently,” abandoning default procedures when they no longer served.

Multiple participants (IP12, CP2, IP3) reinforced this distinction between possessing resources and deploying them effectively. As CP2 stated, “You need resources to get through the ups and downs, but resilience is how you use them, especially when things go wrong. That’s where the resourcefulness lies.” Similarly, IP3 added, “Resources can buy you time. But resilience is about how you act in that time and resourcefulness gives you that ability.”

This insight highlights that resources alone are not predictive of resilience. Instead, resourcefulness acts as a mediating capability, enabling organisations to convert assets such as financial, technological, or human into adaptive responses. IP5 summarised this well saying “We didn’t have much in reserve, but our team was quick to switch roles, rethink the project timeline, and negotiate supplier terms. That’s what kept us going, not the size of our budget.”

IP2 and CP5 further emphasised that resilience is less about the volume of resources and more about how they are mobilised intelligently under pressure. IP9 illustrated this through their use of off-site fabrication and team rotation to maintain morale and productivity, stating, “That adaptability made all the difference.”

Together, these insights clearly support the study’s central argument: resourcefulness is the critical bridge between having resources and being resilient. It mediates the relationship by shaping how assets are interpreted, repurposed, and applied in dynamic and often uncomfortable ways, making survival and adaptation possible in the face of disruption.

7.4.3. Enablers of Resourcefulness

Using NVivo, all interview transcripts were coded inductively. Initial nodes were created based on repeated phrases, experiences, and observed practices related to organisational response during crisis. As coding progressed, patterns emerged that clustered around operational behaviours, leadership practices, and resource use. From the initial 32 open codes, we observed that references frequently clustered under broader categories such as “internal coordination,” “decision-making under pressure,” “planning breakdowns,” and “cash constraints.” NVivo was instrumental in helping to visualise these categories and compare how they intersected across participants. Through axial coding and theme mapping, a higher-order theme resourcefulness emerged as a mediating capability. This theme encompassed how organisations creatively restructured operations, repurposed roles, and reallocated available assets in response to disruption. The codes were grouped into common categories leading to three enabling factors that are empirically grounded and offered practical insights for strengthening resilience in real-world contexts:

1. Leadership Foresight

Leadership consistently emerged as one of the most decisive factors in shaping how organisations mobilised their resources during disruption. IP11 explained, “You can have all the resources and all the work that you want. But if a crisis hits, you need a directive force to guide you.” This view was widely shared among participants who distinguished between organisations that merely possessed assets and those that could deploy them intelligently. CP4 described how leadership openness created space for innovation, stating “Our leadership wasn’t just cutting costs. They were involving everyone in decisions, asking what we could do differently. That openness bred trust and innovation.” This approach empowered teams to experiment, shift roles, and challenge norms.

Several participants highlighted that resilient leadership made a tangible difference. They firmly discussed the variation between organisation that survived and those that didn’t. IP9 highlighted that the leaders who acted early, kept people informed, and weren’t afraid to break the old ways, were the ones who could adjust swiftly. IP7 shared their experience by stating, “We didn’t wait for head office. Our manager made a call to reroute teams and renegotiate supply terms in the first 48 hours. This helped us to bring all the odds in our favour and kept the ball rolling.”

By contrast, poor leadership often led to panic-driven decisions. Participants IP4, IP10 and CP5 cited examples of senior management instituting mass layoffs or freezing procurement without considering operational interdependencies. As CP3 observed, “Some firms just froze. Their leaders didn’t trust people to handle decisions, so nothing moved for weeks.” In contrast, resilient organisations had leaders who created psychological safety, encouraged improvisation, and made room for collaborative problem-solving. IP11 noted, “Our leader didn’t have all the answers, but he made sure we kept talking. That made it easier to shift gears when we had to.”

These patterns suggest that leadership does not only direct resources rather it unlocks resourcefulness. By enabling flexibility, promoting transparency, and empowering action, effective leaders create the structural and cultural conditions through which resilience becomes operational. In this sense, leadership functions not just as a strategic driver but as a mediating capability, converting static assets into adaptive action.

2. Collaborative Culture and Role Flexibility

A culture of collaboration and internal role flexibility consistently emerged across interviews as a critical enabler of organisational resourcefulness. These qualities allowed teams to sustain operations during disruption by sharing responsibilities, adapting roles, and coordinating without reliance on rigid hierarchies. CP4 noted that in resilient organisation, “regional managers know the heartbeat of the business,” and operate within “a good collaboration access to the same common information in real time.” In contrast, organisations with isolated functions and low trust were described as brittle. For instance, CP1 shared that “Too many people guarded their patch. When crisis hit, no one moved unless they were told to.” This resulted in constant job insecurity, poor work outcome, impacting the performance of the organisations.

IP9 reflected on internal flexibility during COVID-19 transitions: “Some people had to do the job role of two, but they understood the business needed it.” The responder explained that organisations with a strong sense of team loyalty adapted more smoothly, even during restructures. It further added that “If you look after your team, they’ll look after you, it’s mutual”, emphasising on a positive cyclic relationship.

Several other participants supported this view. CP3 shared, “When one of our key suppliers shut down, the design team pitched in to help logistics rework the delivery schedule. That’s not in anyone’s job description but it saved the deadline.” In addition, IP1 observed that, “The firms that kept going weren’t the ones with the best systems, rather they were the ones where people moved around, filled gaps, and kept it together.” This theme of cross-role contribution emerged repeatedly as a marker of resilience.

In some cases, this adaptability extended beyond job functions to interpersonal support. IP12 explained, “We kept up a morning huddle, not just for updates but to ask, ‘who needs help today?’ That simple question changed everything.” Teams where such collaboration was normalised were more likely to redeploy labour and adjust timelines without conflict. Additional examples revealed how collaborative cultures enabled rapid reconfiguration of tasks. CP3 shared, “We had site leads helping write supplier contracts, and junior engineers assisting with inventory management. People just did what needed doing.” CP4 recalled, “We built a buddy system between departments. If someone was sick or stressed, someone from another team would jump in. It wasn’t perfect, but it kept things moving.”

These findings illustrate that resourcefulness is not confined to individual initiative or leadership decisions, but it is embedded in the collaborative routines and relational trust of the organisation. In such environments, people share tasks, cross functional lines, and adapt on behalf of the group, not just their role. This fluidity allows rapid reallocation of effort and resources, ensuring continuity even under constraint. In sum, collaborative culture and role flexibility transform the workforce into a dynamic problem-solving engine, making them core enablers of organisational resilience.

These examples illustrate that resourcefulness is not merely about systems or assets and it lives in the collective mindset of a team. When individuals feel psychologically safe and supported, they are more willing to adapt, take initiative, and shift roles without rigid boundaries. Collaborative cultures also make it easier to share information transparently, align on trade-offs, and collectively manage resource constraints. In this way, internal cohesion and cultural flexibility amplify the value of whatever resources are available, helping organisations convert disruption into adaptive response. In sum, collaborative culture and role flexibility are not soft traits but are structural enablers of resilience.

3. Information Sharing and Open Communication

One of the most widely emphasised enablers of resourcefulness across participant accounts was the presence of effective information sharing and a culture of open communication. Several interviewees particularly CP1, IP7 and IP9, highlighted that access to accurate, real-time data and transparent dialogue were not just helpful but fundamental to navigating disruption. IP7 remarked, “A resilient organisation doesn’t have silos; it has good oversight and open, accurate information that’s easily shared. We’ve seen organisations with all the right technology and people, but without proper

communication, it becomes meaningless.” CP1 similarly observed that despite operating on a lean budget, “weekly project meetings meant everyone knew the numbers and could suggest adjustments. It helped us identify problems early and plan for the future more efficiently.”

This sense of shared understanding and awareness was echoed by others. CP5 explained, “In the firms that struggled, no one knew where the pressure points were. Whereas in our case, we had a dashboard of pain points. That clarity saved us.” Another insolvency practitioner, IP9, added, “Resource failures weren’t always about a lack of money or people. Sometimes, people just didn’t know what was happening either because of lack of sufficient information or not having a structured system in place to approach.”

The interviews also witnessed participants consistently pointing to cases where, even with sufficient assets, like capital, staff, or digital tools, the organisations faltered simply because information wasn’t flowing, decisions were siloed, or frontline teams weren’t empowered to act on what they knew. In contrast, in organisations where communication was timely and inclusive, resourcefulness emerged through micro-adjustments, cross-functional collaboration, and strategic improvisation. IP6 noted, “We didn’t have the luxury to overplan. We had to decide in real-time. What made that possible was knowing who needed what, and when.” These actions repurposing roles, reallocating budgets on the fly, renegotiating contracts, or sequencing deliverables differently, were all made possible by a culture of transparency and trust.

Ultimately, these findings underscore a crucial insight: resources and resilience are inert without resourcefulness. Having tools, talent, or even formal resilience frameworks in place means little unless organisations can connect, communicate, and creatively mobilise what they have. Resourcefulness bridges the gap between potential capacity and actual adaptive performance. In this light, resilience is not merely a product of what organisations possess, but of how intelligently and inclusively they use it when it matters most.

4. Experience

Across interviews, professional experience consistently emerged as a foundational enabler of resourcefulness, shaping how individuals assess risk, anticipate disruption, and make adaptive decisions under pressure. Tim described experience as the basis for mental agility: “It’s the mental toughness and experience that you’ve got to analyse a problem and move forward.” He distinguished between those who hesitate and those who act, recalling how firms with seasoned managers responded faster during the Christchurch post-earthquake downturn, while others “waited for someone else to go first,” leading to preventable declines despite having available work.

CP1, reflecting on organisational failures during financial downturns, noted: “The organisation’s senior staffs always know that the crisis is coming, but they don’t take the steps necessary.” Her experience as a liquidator underscored that failure often results not from a lack of resources but from leaders’ inability to act early or recognise the signs of deterioration. CP6 shared a similar view: “People who’ve

seen it before are quicker to adapt. They're not paralysed, they've already got a fallback idea or contact ready." This aligns with the idea that pattern recognition and experiential memory accelerate decision-making, allowing experienced professionals to reconfigure teams, renegotiate contracts, or pause non-essential operations more effectively than less seasoned counterparts.

Interviewees also linked experience to strategic humility and emotional discipline. IP3 explained, "The more you've been through, the more you know not to panic. You don't chase every solution, you wait, assess, then act." In high-stakes situations, this grounded judgment buffered organisations from impulsive or misaligned responses. Reinforcing this, responder IP11 cited their veteran estimator as "the only one who caught that we were heading into a margin trap," enabling a timely repricing before a critical tender.

While discussing resilience, interviewees consistently emphasised that it is not about doing the same thing harder, but about recognising when the old plan no longer works and adapting quickly. This raised the question of whether experience is useful when facing entirely new situations. Respondents argued emphatically that it is. CP4 remarked that experience enhances flexibility, while CP3 added: "Experience tells you what won't work, so you don't waste time. You pivot sooner." IP3 supported this view, stating "You don't chase every solution, you wait, assess, then act." Thus, experience enables individuals to know when to abandon outdated methods, what not to repeat, and how to find more viable alternatives.

As IP2 stated "Experience gives you the ability to foresee problems ahead of someone that didn't have that experience." This foresight allows resourceful responses such as allocating extra time, shifting labour, or preparing contingencies, before a crisis hits. Another responder IP11 noted, "It gives you the ability to look at each job, see that something is not going to work, and work out how we're going to do that." These reflections show that experience enhances the capacity to rethink, re-plan, and redeploy assets creatively when standard approaches fail.

Taken together, these insights suggest that experience is not just a background trait, it is a cognitive asset that enables resourcefulness through confidence, judgement, and adaptive clarity. It improves an organisation's ability to anticipate disruption, recognise constraints early, and mobilise responses effectively. In volatile conditions, this capability often determines whether an organisation merely absorbs a shock or adapts and evolves through it.

5. Strategic decision making

Strategic decision-making was viewed as a key enabler of resourcefulness, particularly under high uncertainty. CP2 and CP5 respondents consistently emphasized that it was not hard-choice-avoiding organisations that were resilient but those in which leaders decided clearly, on-time with foresight. IP2 also addressed the difficulties in crises and suggested that organisations must halt, analyse, and deliberate options within a short time frame in order to convert accessible resources into adaptive tactics. In most cases, these options consist of reforming the projects, transfer of tasks or reducing expenses by cutting down personnel or services. While layoffs were widely acknowledged as the most

painful, especially during crisis, it was not equated with failure. Instead, they were viewed as legitimate measures when aligned with a survival strategy. As IP6 remarked, “It’s not about cutting people to survive this month, it’s about protecting the organisation for the next 18 months.”. In contrast, responder IP8 described that impulsive or unclear strategies can create deeper instability. Supporting this, CP3 shared, “Some firms started slashing budgets and teams immediately. A month later, they couldn’t meet deadlines and lost clients. That wasn’t resilience, it was panic.” Evidently, firms that demonstrated resourcefulness engaged in structured, scenario-based planning did maintain their survival along with smoother adaptation. IP9 observed, “Instead of cutting across the board, our leadership reviewed every project and spoke with staff and suppliers before making changes. It slowed us down initially, but it saved us in the long run.”

Strategic clarity also underpinned proportional and transparent planning. IP4 shared, “We didn’t make any decision without a worst-case and best-case scenario plan. It helped us stay calm, even when the numbers looked bad.” Such clarity reduced chaos and allowed more rational allocation of resources, people, cash, and contracts without triggering secondary disruptions. CP7 reflected on the relation between leadership and strategic clarity suggesting, “Leadership is not about holding the line at all costs. It’s knowing when and where to bend.” One liquidation expert reinforced this view: “They’re the ones who make the decisions and the organisation is only interested in how they manage. You have to do what you have to do to make a business survive.” In this view, decisive actions including whether choosing layoffs, refinancing, or asset restructuring, fosters the mechanism through which resourcefulness is activated.

Taken together, these insights reveal that strategic clarity is not about perfect foresight, it is about deliberate, informed action that enables resource mobilisation under stress. By resisting panic, engaging stakeholders, and planning for uncertainty, resilient organisations used strategic decision-making as a core enabler of resourcefulness.

6. Cash Flow

In the construction sector, participants consistently described cash flow as the “heartbeat” of organisational resourcefulness. It determines whether resources can be mobilised effectively when disruption strikes. While assets such as plant, skilled labour, and technical systems form the foundation of operational capacity, interviewees stressed that without sufficient liquidity, these resources remain static, underutilised, or even a burden during crises. IP10 recounted an instance in which a mid-tier contractor owned more than \$3 million worth of machinery yet could not deploy it for urgent post-storm repair works because delayed payments had left them unable to cover transport, fuel, and overtime costs. The responder further added that “The machines were ready, the people were ready, but the money to get it moving just wasn’t there.” IP9 noted that cash flow directly shapes the speed and quality of decision-making during volatile conditions. He explained that organisations with strong liquidity can quickly change suppliers, secure urgent materials, or bring in specialist labour when needed, whereas those with limited cash reserves face delays that often cause them to miss critical opportunities. He

went on to describe a firm that lost a major client because they could not finance a last-minute change in project delivery required by new safety regulations. CP4, drawing on insolvency casework, described how well-capitalised companies still collapsed because their cash cycle was too slow to absorb shocks. “One had cranes on every major project in the city, but a chain of late payments left them unable to pay subcontractors. Within weeks, the subs walked off the job, deadlines slipped, and the domino effect was unstoppable.” In his view, it is not asset ownership but the liquid ability to act on short notice that distinguishes resilient from fragile organisations. IP6 supported this by linking cash flow to strategic adaptability and cited cases where a lack of liquidity forced organisations to sell high-value equipment below market price, cut their most skilled workers, or abandon diversification projects mid-stream. It was further added that those moves solve the short-term cash squeeze, but they hollow out the company’s long-term resilience. This underscores that financial liquidity must be managed in a way that preserves core operational capabilities, ensuring that immediate crisis responses do not compromise the organisation’s ability to adapt, compete, and recover in the future.

Several participants (IP1, IP7, CP2 and CP5) also noted the cultural dimension of liquidity. Organisations with healthy cash reserves were described as more confident in pursuing high-value bids, securing materials ahead of market shortages, and retaining surplus staff through slow periods. All of these aspects helped in improving organisation’s capability and market position. In contrast, IP4 suggested that cash-poor organisations tend to retreat into defensive strategies, delay maintenance, cancel training, and avoid any step which could be financially risky. Reinforcing this, CP1 clearly stated that “Without cash, one cannot steer the ship, it’s just plugging leaks until it sinks.”

These insights mirror emerging views in resilience research (Lengnick-Hall et al., 2011; Barasa et al., 2018) that liquidity is not merely a financial statistic but a strategic capability. Cash flow acts as the operational bridge between “having resources” and “being resourceful”. Without it, even the most advanced equipment, skilled personnel, and technology remain dormant, unable to be activated at the speed and scale required in a crisis. In this way, cash flow is not simply a measure of operational health but it is the decisive factor that determines whether an organisation can adapt, recover, and evolve when faced with uncertainty.

7.5. Conclusion

The current study investigates the complex relationship between resource availability and organisational resilience in the construction sector, with particular emphasis on the role of resourcefulness as a mediating capability. Drawing on qualitative data from 18 interviews with construction professionals and insolvency practitioners, the study addressed two primary research questions.

For RQ1, the findings revealed that while resource availability, particularly financial capital, labour, and infrastructure, is widely regarded as essential for stability, it is insufficient on its own to guarantee resilience. Participants provided multiple examples of resource-rich organisations that failed to adapt effectively due to rigid decision-making structures, siloed communication, and poor strategic alignment.

Conversely, several cases demonstrated how resource-constrained firms were able to survive and even thrive through adaptive leadership, collaborative culture, and timely decision-making. These insights confirm that resilience is not a direct function of resource stockpiling, but rather of an organisation's ability to dynamically interpret, prioritise, and act under conditions of uncertainty.

Moreover, the results for RQ2 identified resourcefulness as the critical condition that determines whether resources translate into resilient outcomes. Resourcefulness was conceptualised as the capability to creatively redeploy existing assets such as human, financial, or technological, in response to disruption. It emerged through six enablers: leadership foresight, collaborative culture, information sharing and open communication, strategic decision-making, cash flow and experience-based judgement. These capabilities not only supported operational continuity but also enabled organisations to remain agile, improvise under pressure, and build collective confidence. In this light, resourcefulness acts as the bridge between resource possession and adaptive performance, reinforcing its theoretical and practical significance in resilience-building efforts.

While the research is rich with understanding the resource–resilience relationship, several limitations must be taken into account. First, the 18 participants' number, although consistent with qualitative research requirements, limit generalisability of results to other parts of the wider construction industry. Second, the research was conducted only on the basis of qualitative data collected through interviews, which, whilst rich in content, are subject to subjectivity and may not present complete organisational patterns or effects.

To avoid these weaknesses, further research should investigate a mixed-methods approach, using quantitative survey data, balance sheets, or resilience indicators to triangulate and enhance the generalisability of the findings. Longitudinal studies may also investigate how resourcefulness and resilience are built over time, especially between stages of project life cycles or periods of crisis. Cross-industry studies between sectors such as healthcare, logistics, or emergency management may also further define the findings and enhance its applicability.

The findings have direct implications for both industry practitioners and policy-makers. Developing resilience in construction organisations must involve not only the strengthening of the resource base, but also the evolution of organisational cultures, leadership styles, and decision-making systems which are supportive of resourcefulness. Investments in training, flexible team structures, and knowledge-sharing platforms can enhance adaptive capacity and mitigate over-reliance on static contingency plans. Ultimately, resilience should not be viewed as a product of resource abundance, but as the intelligent and inclusive activation of what is already available. By recasting resourcefulness as the central mediating capability in the resilience process, this study contributes to a more integrated and practice-oriented understanding of how construction organisations can navigate crises and, more importantly, emerge stronger from them.

CHAPTER EIGHT

DEVELOPMENT AND REFINEMENT OF IR AND OR MODEL

Abstract

The increasing frequency and complexity of disruptions in the construction industry, ranging from pandemics and economic shocks to workforce shortages, have underscored the need to better understand how resilience manifests across individuals and organisations. While existing research has tended to examine individual resilience (IR) and organisational resilience (OR) in isolation, limited attention has been paid to how these two levels interact and are influenced by their surrounding context. Therefore, the current study aims to develop and refine an integrated model that captures the dynamic interplay between IR and OR within the construction sector, with particular attention to the mediating role of contextual conditions and organisational resourcefulness. The research employs a two-stage qualitative approach, including an in-depth semi-structured interview with 18 construction professionals and insolvency practitioners in New Zealand, followed by a focus group discussion process comprising of 9 construction experts to test and enhance the model's practical relevance. The resulting framework offers both conceptual clarity and practitioner utility by presenting resilience as a context-sensitive, multi-level capability. It contributes to theory by bridging micro- and macro-level resilience literatures and offers actionable insights for construction organisations seeking to enhance adaptive capacity and long-term sustainability. However, the study's findings are bounded by certain methodological and contextual limitations. The sector-specific focus on New Zealand's construction industry and a relatively small, homogeneous sample may constrain the broader applicability of the model. Furthermore, the exclusive reliance on qualitative methods, while offering rich, context-driven insights, limits the ability to quantitatively assess the generalisability or frequency of observed resilience mechanisms. Despite these constraints, the study provides a theoretically informed and practitioner-validated framework that advances understanding of multi-level resilience. It lays the groundwork for future empirical testing and offers actionable insights for improving adaptive capacity within complex, disruption-prone organisational settings⁶.

⁶ This chapter is based on the following research draft:

Mitansha, Ying, F., & Rotimi, J.O. (2025). "Conceptual Refinement and Validation of the IR–OR Model."

8.1. Introduction

In the face of compounding disruptions, ranging from climate shocks to pandemics and economic uncertainty, resilience has become a defining imperative for organisations operating in high-risk sectors such as construction. While the concept of resilience has proliferated across various domains and sectors, it remains fragmented, inconsistently defined, and variably applied across different levels of analysis (Boin & Van Eeten, 2013; Ducheck, 2020). Notably, the relationship between Individual Resilience (IR) and Organisational Resilience (OR) has remained conceptually ambiguous and empirically underexplored, despite being critical to understanding how resilient behaviours at the micro level translate into adaptive capacity at the organisational scale (Britt et al., 2016; Williams et al., 2017).

Although IR is often framed as a psychological or behavioural trait, such as emotional regulation, adaptability, or coping (Hartmann et al., 2020; Kuntz et al., 2017) whereas OR is understood as a systemic capability grounded in leadership, governance, culture, and strategic agility (Lengnick-Hall et al., 2011; Burnard & Bhamra, 2011). Yet, empirical studies indicate that individual resilience, while important, does not guarantee organisational adaptability unless supported by enabling structures, cultural alignment, and coordinated mechanisms for learning and response (Bardoel et al., 2014; Liang & Cao, 2021; Mitansha et al., 2023). This disconnect raises a critical question that under what conditions does IR meaningfully contribute to OR, and when does it fail to scale or translate?

This question is especially urgent in the construction sector, a domain characterised by decentralised governance, temporary project teams, and highly fragmented workflows (Loosemore et al., 2012). Within such volatile and loosely coupled systems, resilience cannot be assumed to cascade from individuals to organisations without intentional alignment of vision, leadership, and capability mobilisation. Early empirical work suggests that factors such as leadership visibility, psychological safety, role clarity, and team learning may mediate the IR–OR link (van der Vegt et al., 2015; Lee et al., 2013), yet these insights remain under-theorised and rarely consolidated into practical frameworks for industry use. In addition, resourcefulness, the organisation's capacity to creatively reconfigure and mobilise existing assets in response to disruption (Lengnick-Hall & Beck, 2005) is regarded as a core dimension of resilience (Furniss et al., 2011; Furniss et al., 2014). It serves as a crucial mechanism by which IR may be amplified or negated within the organisational context. However, current resilience models rarely operationalise this dynamic capability or consider its role in shaping the translation of individual strengths into collective outcomes.

Given these gaps, this study aims to develop a comprehensive and context-sensitive model that integrates the dynamics between Individual Resilience (IR) and Organisational Resilience (OR) by aligning them with key mediating factors, the higher-order construct of resourcefulness, and the contextual conditions that shape their interaction. The proposed model offers a diagnostic framework that conceptualises resilience as a distributed, emergent capability. Moreover, it is activated, sustained, or inhibited based on the interplay of people, processes, and organisational settings.

While earlier research has explored the role of mediators such as leadership, empowerment, and learning orientation, and identified resourcefulness as a critical enabler for resilience mobilisation, the current study focusses on the contextual factors that further shape how IR–OR dynamics unfold within the New Zealand construction sector. It is crucial to understand the contextual factors as it may act as amplifiers or barriers in converting individual capacities into collective resilience outcomes. Without understanding these embedded conditions, any resilience model risks being decontextualised and analytically incomplete.

To strengthen the practical relevance and theoretical robustness of the model, this study also requires a feedback and refinement process. This step ensures that the model reflects both conceptual clarity and real-world utility, and provides space for practitioners to challenge, refine, or confirm the elements proposed.

Accordingly, this part of the study is guided by two key research questions:

1. What contextual factors influence the relationship between Individual and Organisational Resilience in the construction sector?
2. How can practitioner validation be used to refine and confirm a resilience model that integrates IR–OR dynamics, mediating conditions, resourcefulness, and context?

By addressing these questions, the study will culminate in a refined and validated resilience model that captures the complex, non-linear relationship between IR and OR within real construction environments. It will offer a practical tool for diagnosing and enhancing resilience in organisations by accounting for not only internal capacities and mediating mechanisms, but also the external and contextual realities that shape resilience outcomes. Ultimately, this model bridges theory and practice, enabling construction firms to better anticipate, adapt to, and recover from disruptions through an integrated, context-responsive resilience strategy.

8.2. Research Method

8.2.1. Research Design

Stage 1- This study adopts a qualitative, exploratory research design to investigate the nuanced relationship between resource availability and organisational resilience within the construction sector. Given the multifaceted and context-dependent nature of resilience, a grounded, inductive approach was employed. This methodology enables patterns, relationships, and themes to emerge organically from empirical data, without being constrained by pre-existing theoretical models. Such an approach is especially suited to capturing the lived experiences, situated knowledge, and adaptive practices of industry professionals, offering rich insight into how construction organisations respond, reorganise, and evolve when confronted with disruption. Thus, in-depth semi-structured interviews were conducted with 18 construction professionals from diverse roles and organisations across New Zealand. These interviews were systematically coded using NVivo software, facilitating thematic analysis and theory-building from the ground. Thematic coding surfaced four contextual conditions that significantly

influence this relationship, shedding light on how external environments, structural dynamics, and relational factors can either support or inhibit the resilience-building process. These contextual conditions and enabling mechanisms expand upon the mediating factors identified in prior research, offering a more refined understanding of how resilience is not solely a function of resource possession, but of how those resources are mobilised, coordinated, and reconfigured in response to change. Ultimately, the findings contribute to a deeper conceptual and practical understanding of resilience as a dynamic organisational capability shaped by both internal mechanisms and external contingencies.

Stage 2- The second stage of the research in this chapter consisted of a focus group discussion, undertaken to refine the preliminary conceptual framework derived from earlier stages of data collection and thematic analysis. According to Stewart and Shamdasani (2014), focus group discussions are particularly effective for enabling an in-depth exploration of complex topics, making them well-suited to the present study. This stage was considered essential to strengthen both the theoretical credibility and practical utility of the framework, particularly in the dynamic and high-risk context of the construction sector. The preliminary version of the resilience framework, developed through thematic analysis of two rounds of semi-structured interviews was presented during the session for refinement. The session aimed to assess the practical relevance, conceptual clarity, and contextual applicability of the model within the New Zealand construction industry.

The refinement process allowed participants to critically assess whether the framework accurately captured the interplay between individual resilience (IR) and organisational resilience (OR), and whether it reflected the practical realities faced by construction organisations during disruption. It also enabled the refinement of academic language to enhance clarity and accessibility for practitioners.

Feedback from the focus group resulted in several targeted adjustments to the model. These included refining terminology for greater conceptual precision, clarifying system flows and interdependencies through revised labelling, and improving the design of directional arrows to depict the dynamic, bidirectional relationships more clearly between components. Additional feedback also led to the reconfiguration of certain model elements such as staff positioning and the re-conceptualisation of contextual factors, enhancing both the communicability and analytical robustness of the framework. The incorporation of these revisions culminated in the development of the final model, presented in Figure 8.2, which bridges the gap between empirical insight and practical implementation in real-world construction environments.

8.2.2. Data Collection Method

Stage 1- In line with qualitative research standards that prioritise depth and contextual insight over statistical generalisation (Patton, 2002), this study used purposive sampling to recruit two key stakeholder groups: construction professionals, including project managers, site engineers, and operations directors; and insolvency practitioners with first-hand experience managing organisations under distress. A purposive sampling strategy was employed to ensure that participants possessed relevant experience in crisis response and organisational adaptation within the construction context. Each interview was conducted individually, either face-to-face or via video conferencing platforms, and

lasted between 45 to 60 minutes. The semi-structured interview format provided a balance between consistency and flexibility, allowing the researcher to guide conversations around key themes while remaining responsive to participant insights.

Given the niche focus of individual and organisational resilience in the construction sector, the sample size was limited due to numerous factors. Firstly, the sector is relatively small and interconnected in nature. Secondly, there is a limited pool of professionals with relevant seniority and expertise and lastly, the access to decision-makers in areas like HR, project delivery, and resilience planning was especially constrained. Therefore, data was gathered through 18 semi-structured interviews. The selected participants brought substantial domain knowledge and diverse project experience, qualifying them as information-rich cases capable of offering valuable insights. This sampling strategy aligns with established qualitative guidance. Guest et al. (2006) found that thematic saturation is typically reached within 12 interviews, while Mason (2010) reported 20 as a common sample size in interpretive studies. Vasileiou et al. (2018) further support the use of small, theoretically relevant samples in focused research contexts. Accordingly, this study's sample was sufficient to capture thematic diversity across roles, organisations, and project types, and contributed to a grounded, empirically informed resilience model tailored to the New Zealand construction sector.

The interview guide focused on several thematic areas, including perceptions of organisational resilience, the role and utilisation of resources during crises, personal and organisational expressions of resourcefulness, visualisation of individual and organisational resilience and strategies used to adapt and recover from disruptions. Participants were encouraged to reflect on real-world examples and critical incidents, thereby grounding the data in practical experiences rather than abstract theory.

Stage 2- Focus group discussions (FGDs) are a powerful technique in qualitative inquiry, particularly valued for their ability to elicit collective insights that surpass the limitations of individual interviews. Through guided group interaction, participants not only share their own views but also react to and build upon the input of others, leading to more nuanced and emergent understandings (Sagoe, 2012). This process often uncovers latent perspectives and contradictions that may otherwise go unnoticed in traditional research settings (Patton, 2002).

In this study, FGDs were selected as the culminating method for supporting the emerging IR–OR framework. Ensuring the effectiveness of the discussion required careful attention to group composition and size. As noted in prior literature, groups of 6 to 8 members strike a balance between diversity and manageability (Morgan, 2002; Ritchie et al., 2013), while larger groups can suppress participation and smaller ones may offer limited range of input (Creswell, 2014).

Hence, participants were carefully selected to ensure a high level of professional insight and alignment with the study's objectives. The selection criteria included holding senior-level positions in construction-related organisations, possessing extensive experience managing project disruptions, and having a deep understanding of organisational dynamics, resilience practices, and sector-specific challenges. Accessibility and availability were also considered, in line with logistical complexities often associated with organising expert panels (Breen, 2006).

Table 8.2 presents the background details of the focus group participants. Nine industry experts participated in the session, which lasted approximately four hours. Prior to the discussion, participants were provided with a project summary, meeting objectives, key discussion prompts, and a draft version of the proposed framework. The session began with a brief orientation, after which participants reflected on their experiences with organisational resilience during crises such as COVID-19, natural disasters, and economic disruptions. The group then collectively examined the model's structure and components, offering feedback on the clarity, accuracy, and relevance of each element.

Table 8.2. Respondents profile for Focus Group phase

Number	Expert	Designation	Experience (Years)
1	E1	National Head	33
2	E2	Principal Engineer	28
3	E3	Regional Head	19
4	E4	General Manager	22
5	E5	Team Leader	17
6	E6	Resilience and Social Impact Lead	21
7	E7	Global Resilience and Adaptation Lead	22
8	E8	Director	29
9	E9	Vice President	24

The focus group discussions were structured to elicit feedback on model terminology, structural logic, and application. Particular attention was paid to how components were labelled, the directional flow of relationships, and the interpretation of key constructs such as internal resources, contextual conditions, and resilience outcomes. Participants also debated the positioning of leadership, staff roles, and external pressures.

To enhance methodological validity and ensure reliable data interpretation, the session was audio-recorded and supported by detailed note-taking. The transcript was later used for analytical reflection (Johnson et al., 2011), enabling triangulation of insights and confirmation of interpretation accuracy. This process ensured that all valuable contributions were captured and informed the final model refinements.

8.2.3. Data Analysis

Stage 1- Interviews were tape-recorded with the participant's consent, wholly transcribed verbatim, and analysed thematically using Braun and Clarke (2019) six-phase approach. Coding was inducted through an inductive form whereby themes would emerge organically from the data without preconceived categories. Qualitative data throughout analysis was organised, coded, and retrieved using NVivo software.

The interview data were analysed thematically following Braun and Clarke's (2006) six-phase framework. NVivo 20 software was employed to manage coding, support constant comparison across transcripts, and ensure transparency in the development of themes. The analysis moved iteratively from initial open codes to broader categories and, finally, to higher-order themes that captured the enablers of resourcefulness and the contextual factors influencing the IR–OR relationship.

In the second category termed as “Contextual Factors”, which represented 4 themes, namely, financial stability, organisational reputation, reciprocity and give–take relationships, and resourcefulness that conditioned how the enablers functions in practice. A total of 14 codes were categorised under these 4 themes of contextual factors. For instance, employee commitment, mutual obligation was grouped under organisational name and reputation. Cost cutting and maintenance of salaries in tough times were considered as Money related aspect. This represented how money is crucial to continue the business and the survival of the individuals in tough times despite having all the capabilities and assets. In other words, while an organisation has a rich culture and demonstrates team cohesion, all this becomes insufficient to prevent burnout when the organisation is financially constrained. In the same way, leadership stability proved effective only in organisations where rigid hierarchies did not suppress their subordinate's innovation and creativity.

All the relevant codes and themes have been provided in Appendix-6.

8.3. Findings

8.3.1 Contextual Factors in Individual and Organisational Resilience relationship

In the wake of crises such as economic downturns, supply chain breakdowns, or environmental disruptions like Cyclone Gabrielle, individual resilience (IR) is often the first observable response. Construction professionals may demonstrate psychological strength, adaptive behaviours, or problem-solving initiative. However, these responses are frequently oriented toward personal survival rather than collective continuity. Individuals may look for alternative employment, mentally disengage from organisational goals, or adopt defensive behaviours to protect their own security. This is particularly evident when organisations fail to offer job stability, clear communication, or emotional support. In such conditions, expecting resilient individuals to carry the weight of organisational recovery is not only unrealistic but ethically problematic.

For example, a site engineer may be highly competent and adaptable, but if their pay is uncertain or if leadership fails to communicate recovery plans, their resilience is likely to be redirected toward securing new work or simply "getting through the day." Similarly, during the COVID-19 pandemic, many project managers recounted spending more time navigating their personal anxieties about layoffs or delayed pay than contributing to the company's adaptive strategy. These scenarios illustrate that individual resilience, while necessary, is not sufficient for organisational resilience.

What emerged clearly from the interviews is that specific contextual factors, when present can shift the entire dynamics. Under certain conditions, resilient individuals feel psychologically secure and operationally supported enough to channel their energy and adaptability toward organisational goals. These contextual factors serve as activators, transforming latent individual resilience into collective

organisational gain. They uncover an often-overlooked truth: that the IR–OR relationship is not automatic but conditioned. As one responder IP9 stated, “If the organisation looks after you when things go wrong, you want to make sure they come out the other end too.”

Thus, this study does not treat individual and organisational resilience as parallel systems, but rather proposes that their linkage depends on a set of enabling contextual factors. When these are present, IR becomes not just a personal trait but a strategic asset for organisational recovery. This finding led to the construction of a context-sensitive, empirically grounded model that captures the dynamic, bidirectional relationship between individual and organisational resilience, one that is not merely built on capability, but on conditions. The development of this model directly addresses the intent of RQ3.2, which sought to synthesise insights from across the previous chapters and translate them into a practical and actionable framework.

Based on the interviews, the contextual factors as observed are-

- Factor 1- Financial Stability (Money/Salary) During Low Market Opportunities

When the construction sector enters a downturn, whether triggered by a macroeconomic recession, disruptions in infrastructure funding, or an unexpected halt in project pipelines, the scarcity of alternative employment fundamentally alters the IR–OR dynamic. In such periods, employees’ individual resilience is tested, but the organisational choice to maintain job security through financial support becomes a decisive factor in aligning individual adaptive capacity with organisational continuity.

Participants consistently emphasised that financial stability during low market activity was “more than just financial management” and it is a deliberate, strategic lever of resilience. By securing employees’ livelihoods, organisations combat the challenge of financial survival, enabling them to redirect their resilience capabilities, ie., adaptability, and coping toward overcoming organisational challenges. This transforms the employee–employer relationship from a purely transactional exchange into a mutual survival pact, where both parties are invested in each other’s success.

Validating this, CP4 quoted “When the work pipeline’s light, people aren’t going to jump ship if they’re getting paid, they know it’s tough out there for everyone.” IP7 reinforced this fact, saying that “When the market’s tight, you can’t just switch jobs, it’s about survival, and if your employer keeps you paid, you want to see them pull through.” The responders IP8 and CP5 further revealed that salary continuity reduces the cognitive load associated with individual survival. In addition, when employees are not preoccupied with immediate financial insecurity, they can redirect their resilience behaviours, like problem-solving, adaptability, and emotional stability toward organisational needs. This shift enables them to engage in crucial roles, significant for the proper functioning of the organisation. For instance, recalling about one major setback, CP2 highlighted how the employees, temporarily took on multiple roles, when the organisation looked for job security. Furthermore, the employees also supported tendering and business development processes, contributed to process-improvement initiatives and participated in re-training or upskilling programs that expand organisational capability. Another example shared by responder IP4 highlighted how a mid-tier contractor navigated a six-month stall in active

projects. Instead of laying off staff, the firm redeployed project managers and site engineers into bid preparation teams, assigned them to update health and safety manuals, and organised internal workshops to cross-train in digital estimating tools. As a result, when market conditions improved, the company's tender win rate increased by 18%, accelerating recovery. This indicated that organisations need to be prepared with retaining its workforce. This might be a challenging but would be fruitful in long run. Emphasising this process, IP10 described that “Financial reserves helps in sustaining employee base, and it buys you time to regroup as a company.”

In conclusion, job security during market downturns extends far beyond the function of payroll continuity as it operates like a catalyst that converts individual resilience into organisational resilience. By safeguarding employees' income, organisations preserve not just the group of employees but also the knowledge capital, team cohesion, and adaptive potential embedded in their workforce. This assurance enables individuals to maintain psychological stability, avoid the distraction of personal survival struggles, and channel their energy into solving organisational problems. Importantly, this mechanism underscores that resilience is not a unidirectional flow from organisation to individual or vice versa, but an interdependent exchange. The organisation invests in the security of its people, and in return, individuals actively reinforce the organisation's survival and long-term competitiveness. This mutual reinforcement is particularly critical in project-based sectors like construction, where expertise, relationships, and role flexibility are difficult to replace once lost.

While sustaining salaries in a downturn may require difficult financial decisions, the evidence suggests that it is a high-yield strategic choice, that buys time, maintains operational capability, and positions the organisation to seize opportunities quickly when market conditions improve. In this way, financial stability becomes not merely a buffer against loss, but a platform for resilience-led growth.

- Factor 2- Name and Popularity of the organisation

Given the comparatively small size of the New Zealand construction sector, along with highly networked nature, and its foundation on long-term professional relationships, several respondents (IP2, IP7, CP4, CP5) emphasised the value of working for well-reputed firms. Within such a closely connected environment, it is widely recognised which companies consistently deliver quality, honour their commitments, treat employees fairly, and have demonstrated the capacity to survive past disruptions. This shared industry memory ensures that organisational reputation plays a decisive role in shaping both individual career choices and broader organisational resilience trajectories.

Participants noted that reputation can anchor resilient individuals within an organisation during uncertain times, even when short-term opportunities elsewhere may exist. IP9 captured this sentiment and stated that “People like to work for a name they can be proud of — it's not just about the brand on paper, it's the credibility it gives you in the industry.” Moreover, IP1 added that being a part of a well-regarded company helps in establishing an impression people that one has worked to a high competency and standard.

Reputation operates as a two-way signal in the IR–OR dynamic. From the individual's perspective, affiliation with a respected brand enhances their own professional credibility, increasing their employability and perceived competence within the sector. From the organisation's perspective, retaining skilled individuals who are loyal to its brand helps maintain delivery standards and safeguards the firm's ability to meet client and stakeholder expectations.

IP6 explained this loyalty dynamic: "When you're with a company that's known to get through hard times, you want to be part of that story, you don't want to be the one who jumped ship just before things turned around." Similarly, CP8 reflected that "A strong reputation isn't just external. Inside the company, it gives people confidence that management will steer us through. That keeps everyone pulling in the same direction."

This sense of reputational loyalty is not merely theoretical, but it manifests in real-world career decisions where individuals prioritise long-term professional credibility over short-term gains. For instance, IP5 discussed a situation when they turned down an offer from a small start-up to remain with a Tier 1 firm renowned for completing major infrastructure projects on time and within budget. The decision was not driven solely by financial stability, but on a vision that a brand that had weathered previous downturns would reinforce their professional standing and signal resilience to future employers and clients.

Another relevant advantage of being in a reputed organisation was discussed by responder CP5 which suggested that firms with rich legacy and high market value leads to consistent supply of projects, stakeholders support and staff trust. This reputational loyalty has mutually reinforcing effects on IR and OR. Resilient individuals, confident in their organisation's long-term viability, are more willing to contribute discretionary effort — taking on extra responsibilities, mentoring junior staff, or maintaining client relationships during lean times. These contributions directly bolster the organisation's adaptive capacity. In turn, the organisation's continued ability to deliver under pressure further strengthens its market reputation, which attracts and retains other high-calibre, resilient professionals.

In support, CP3 described this reciprocity as "The better our reputation, the easier it is to keep good people. And the more committed those people are, the stronger our reputation becomes. It feeds itself and is a cyclic process"

In essence, organisational reputation acts as both a retention tool and a motivational catalyst, ensuring that the resilience of individuals is not dispersed across the market but concentrated within the organisation. This concentration of resilient human capital enables coordinated responses to disruption, sustains service delivery, and reinforces the organisation's credibility, creating a resilience loop in which individual commitment and organisational standing continuously strengthen each other.

- Factor 3- Give and Take Situation/ Relationship

Participants strongly underscored the importance of breaking down organisational silos, noting that resilience cannot be developed in isolation but is cultivated through ongoing, reciprocal exchanges between individuals and the broader organisational system. They described this as a give-and-take

relationship, in which organisational support during periods of employee hardship is often repaid through heightened commitment and discretionary effort from staff when the organisation itself encounters disruption. This reciprocal process fosters a mutually reinforcing connection between individual resilience (IR) and organisational resilience (OR).

Participants shared several examples illustrating how acts of organisational support during challenging periods created a sense of obligation to reciprocate. CP4 suggested that when employees feel genuinely supported in times of personal or professional hardship, they develop a deeper commitment to the organisation's success, often going beyond their regular duties when the business is under strain. IP5 recalled, "When the company backed me through my health troubles, I knew I owed them more than just my day-to-day work. When things went bad for the business, I was ready to do whatever needed doing." Similarly, CP6 described a period when the firm maintained full pay for staff during a prolonged site shutdown caused by extreme weather events. This gesture meant that when the project resumed, "everyone worked overtime without any complaints," demonstrating how earlier organisational support translated into heightened collective effort. Similarly, IP10 discussed a phase during the Christchurch rebuild phase, where their mid-sized construction firm provided paid training opportunities to staff during a period of minimal on-site activity. When work resumed, those same employees were now equipped with updated project management and compliance skills, worked extended shifts and took on cross-functional roles to meet an accelerated delivery schedule. This not only salvaged project timelines but also strengthened the company's reputation for reliability under pressure. IP3 summarised this mutual dynamic as, "It's a two-way street. If they invest in you when times are tough, you're going to give back when the tables turn. That's how both sides stay resilient." CP9 further emphasised that such reciprocity builds long-term trust, which becomes a critical asset during major disruptions. Employees who have benefited from organisational loyalty are less likely to leave during crises, instead focusing their energy on problem-solving and recovery efforts. CP7 reinforced this point, noting, "When the company shows they've got your back in the tough times, you repay that. You put in extra hours, you suggest new ways to do things, you're invested in the recovery."

All these observations indicate the crucial role of the Give-and-Take Mechanism in IR–OR Linkage. Organisations provide financial security, flexibility, training, or emotional support during personal or professional crises to the employees. In return, employees offered loyalty, adaptability, problem-solving, and extra effort during organisational disruptions.

This highlights the context-dependent nature of the IR–OR relationship, in which strong, trust-based bonds between individuals and their organisation substantially enhance workforce retention during periods of uncertainty. Such connections foster a sense of belonging and shared purpose, encouraging resilient individuals to remain embedded within the organisational fabric rather than pursuing opportunities elsewhere. Their continued presence, coupled with their accumulated expertise and adaptive capabilities, becomes a critical resource. It directly strengthens the organisation's capacity to restructure operations, reposition strategically, and accelerate recovery when confronted with adverse market conditions.

By safeguarding employee loyalty and preserving psychological bandwidth through measures such as financial stability, or flexible working culture, organisations can harness individual resilience not as an isolated trait but as a deliberate driver of collective survival and long-term competitive advantage. This dynamic underscores that resilience extends beyond structural arrangements or resource availability, and it is inherently a relational process. Mutual investment where the organisation supports its people in challenging times and individuals respond with discretionary effort, creativity, and commitment forms a durable foundation for adaptation and sustained performance.

In this give-and-take exchange, crises become opportunities for alignment where individual resilience is actively channelled into organisational resilience, creating a reinforcing cycle in which both are strengthened through shared commitment, reciprocal trust, and mutual benefit. Such synergy ensures that resilience is not merely reactive but evolves into an enduring capability that benefits both the individual and the organisation over time.

- Factor 4- Resourcefulness

The participants consistently emphasised resourcefulness as a key contextual condition influencing the relationship between individual resilience (IR) and organisational resilience (OR). Rather than being considered as separate individual trait or internal organisational capability, resourcefulness was observed to be the connection which depends on various enabling factors as discussed in the previous subsection. Unlike static resources, which include both tangible and intangible assets such as finances, infrastructure, or skilled personnel, resourcefulness represents the capacity to dynamically mobilise, adapt, and apply these resources in response to rapidly changing or adverse circumstances. Its value lies not simply in what is available, but in how those resources are interpreted, accessed, and operationalised in real time. Resourcefulness, thus, acts as a critical mediating link, determining whether resource availability is effectively translated into resilient organisational outcomes. This becomes particularly significant in the construction sector, where frequent disruptions ranging from workforce shortages to material delays demand quick decision-making, prioritisation, and adaptability. In this study, resourcefulness is conceptualised as a contextual enabler, emerging from a combination of organisational culture, leadership engagement, and decentralised decision-making structures. It is, therefore, both shaped by the organisation's internal environment and central to its resilience-building process. Recognising resourcefulness in this light enables a deeper exploration of how IR and OR interact under stress, and reinforces the view of resilience as an emergent, systemic capability shaped through context-sensitive action.

8.3.2. Process Description of the Revised Conceptual Model

The modified integrated model responds to this challenge by synthesising the diverse, real-world insights gained from the interviews into a coherent, interactive framework. Rather than treating individual and organisational resilience as separate, static constructs, the model weaves together the critical components identified in the data such as contextual factors (financial stability, organisational reputation, reciprocity, and resourcefulness), organisational mechanisms (restructuring and adaptive processes), and enabling conditions (leadership clarity, collaborative culture, transparent information flow, and crisis-tested experience). These elements, each grounded in participants' lived experiences,

are positioned within the model to reflect the dynamic interplay through which individual adaptability and organisational capacity reinforce one another. In this way, by addressing RQ3.2, the revised integrated model (Fig. 8.1) offers a logically integrated representation of how resilience is co-produced across levels in the New Zealand construction sector, transforming fragmented responses into mutually reinforcing outcomes.

1. Trigger – Crisis / Unexpected Event

In this model, the Crisis/Unexpected Event serves as the critical starting point that activates the entire resilience mechanism. Whether it is a sudden disaster such as Cyclone Gabrielle, an earthquake, or a gradual but disruptive challenge like prolonged supply chain constraints or economic downturns, a crisis acts as the catalyst for organisational and individual adaptive responses.

In the New Zealand construction sector, crises typically generate immediate operational and strategic demands. For example, disrupted project timelines, budget overruns, material shortages, and workforce dislocation. These demands place pressure on both Organisational Resilience (OR) and Individual Resilience (IR) systems, creating a shared need for rapid adaptation.

The model positions crisis not merely as a trigger for reactive measures but as a stress test for the alignment between available resources and adaptive capacity. At this point, the organisation's ability to respond effectively depends on two intertwined factors:

Resource Availability – tangible and intangible assets such as funding, technology, skilled personnel, supply chain relationships, and institutional knowledge.

Resourcefulness – the capability to mobilise, reconfigure, and apply these resources creatively to meet evolving challenges.

Although crisis are adverse and unfavourable events, but it provides an opportunity for organisations to restructuring, including adjusting workflows, reallocating responsibilities, re-prioritising projects, and modifying strategies. This restructuring not only ensures the continuity of operations but also creates enabling conditions for individuals to adapt smoothly. By aligning operational changes with individual capabilities and resilience behaviours, the organisation can channel personal adaptability, problem-solving skills, and motivation into collective recovery and long-term competitiveness.

Crises act as the proving ground for resilience, exposing adaptive capacities in organisations and individuals that might otherwise remain untested and unseen. In essence, the crisis point in this model represents the moment when vulnerabilities and strengths are exposed simultaneously, and when the synergistic link between IR and OR is either activated or weakened, depending on the effectiveness of resource use and restructuring decisions.

2. Organisational Restructuring

Any major crisis, whether a sudden disaster like Cyclone Gabrielle, a pandemic-induced market shock, or a slow-onset disruption such as prolonged supply chain constraints, imposes conditions that demand deliberate and well-coordinated organisational restructuring. Remaining rigid in such contexts not only

constrains the organisation's adaptive capacity but can also undermine or neutralise the adaptive efforts of resilient individuals who may otherwise contribute effectively. Restructuring is, therefore, not merely an operational adjustment; it is a strategic, often time-sensitive reconfiguration aimed at restoring functionality, safeguarding critical operations, and positioning the organisation to capitalise on emerging opportunities in a transformed environment

In practice, restructuring may involve a spectrum of adjustments from micro-level process changes to enterprise-wide strategic realignments. This can include redesigning workflows, reallocating resources, redefining roles, and revising strategic priorities to align with the changed environment. For example, project timelines may be re-sequenced to account for material delays, cross-functional teams may be created to accelerate problem-solving across departments, or non-critical operations may be temporarily suspended to channel resources toward mission-critical activities. In the New Zealand construction sector, where project delivery often hinges on narrow contractual timeframes and fixed budgets, the ability to make such rapid, calculated shifts often determines whether an organisation maintains business continuity or faces costly project termination.

However, the capacity to restructure is contingent on two intertwined factors: resource availability and resourceful capability i.e., resourcefulness. External support such as cash reserves, diversified supply networks, pre-negotiated subcontractor arrangements, or government relief measures, provides the structural foundation for restructuring. Yet, possessing resources alone does not guarantee an effective transformation. Without the organisational capability to repurpose, integrate, and prioritise resources under shifting constraints, the effects of the assets on resilience remain limited. This is where resourcefulness emerges as a decisive enabler. A resourceful organisation does not simply own assets, but it actively revises their use by redeploying underutilised equipment for alternative functions, modifying decision-making hierarchies to empower faster decentralised responses at the point of disruption, or strategically altering project strategies to incorporate alternative suppliers, modified deliverables, or innovative construction methodologies

From the perspective of individual resilience (IR), restructuring plays an equally vital role. By proactively redefining roles, responsibilities, and collaborative structures, organisations create the operational "space" for individuals to leverage their adaptability, creativity, and problem-solving skills toward collective recovery. For instance, when a contractor redeploys site supervisors to lead procurement coordination during a supply shortage, it not only utilises their tacit organisational knowledge effectively but also strengthens their sense of agency, purpose, and contribution, reinforcing their psychological resilience and professional engagement. In the proposed IR–OR model, restructuring functions as a bridging process: it draws on organisational resources and the adaptive capacity of individuals, converting resource stockpiles into actionable recovery strategies. This dual mobilisation fosters resilience at both levels by enabling smoother adaptation, preserving critical functions, and sustaining stakeholder trust.

Ultimately, restructuring should not be perceived as an indicator of organisational fragility but as evidence of dynamic capability. Organisations that can reconfigure in response to disruption grounded

in both resourcefulness and sufficient resource availability are able to shift from passive recovery to active transformation, emerging not just restored but strengthened, more agile, and better prepared for future uncertainty.

3. Resources

Resources are observed as the core of the resilience-building process, acting as the initial foundation from which support both Individual Resilience (IR) and Organisational Resilience (OR). The findings from the interviews depicts that resilience outcomes at both individual and organisational resilience are being shaped by, and dependent upon several mediating factors, that strengthen their quality, accessibility, and strategic relevance. These mediating factors operate as critical resources within the resilience-building process and include:

- Leadership and governance which ensure that resources are not merely accumulated but are strategically prioritised, directing them toward resilience objectives and maintaining allocation integrity during crises.
- Team collaboration enables the pooling and cross-utilisation of human, technical, and knowledge-based assets, preventing resource silos and ensuring rapid deployment where they are most needed.
- A shared vision and goal align decision-making and action, reducing conflicts over priorities and ensuring resources are channelled into unified organisational strategies.
- Continuous learning ensures that resource deployment strategies evolve through lessons from past disruptions, improving readiness and adaptability over time.
- Empowerment and autonomy give individuals the authority to activate and allocate resources without centralised delays, which is critical during fast-moving disruptions.
- Technology management enhances the value of resources through digital tools, real-time data sharing, and remote coordination, allowing both individuals and the organisation to respond more efficiently to emerging challenges.

In this framework, resources are not inherently transformative, they must be activated through resourcefulness, the adaptive capability to reconfigure, repurpose, and integrate assets into practical resilience outcomes. When a crisis or unexpected event occurs, the ability to engage in organisational restructuring, adjusting workflows, reallocating assets, redefining roles depends on both the availability of resources and the organisation's capacity to use them effectively. This dual role of resources is central to the IR–OR relationship: they provide the structural and operational foundation for organisational adaptation while giving individuals the tools, stability, and enabling conditions to apply their adaptability, problem-solving skills, and initiative in service of collective recovery. For example, in the New Zealand construction sector, firms with strong financial reserves, skilled multidisciplinary teams, advanced project management systems, and established supplier networks have been able to rapidly adjust project schedules, adopt alternative materials, and redeploy staff during cyclone-related supply chain disruptions, that preserve delivery commitments, maintain client trust, and strengthen resilience at both the individual and organisational level.

4. Resourcefulness as the Central Mediator

In the proposed model, resourcefulness is conceptualised as the active ingredient that transforms static resource stocks into tangible resilience outcomes. While resources such as financial reserves, technical infrastructure, skilled personnel, and stakeholder networks form the foundation of adaptive capacity, it is how these resources are creatively mobilised, repurposed, and coordinated that determines whether they will actually contribute to survival and recovery. Without resourcefulness, even substantial resource endowments remain underutilised, misallocated, or locked within rigid operational routines, thereby failing to deliver the resilience benefits they are theoretically capable of providing.

Drawing from the interview findings, resourcefulness manifests through concrete, context-specific practices. Respondents described instances where Individuals were reassigned to handle critical situations. For example, project managers temporarily assisting procurement teams during global supply chain disruptions, ensuring that essential materials were sourced in time to prevent complete project standstills. Internal expertise was redeployed for high-stakes external tasks. For instance, senior engineers joining bid and tendering teams to strengthen technical submissions, thereby safeguarding the company's project pipeline during downturns. Moreover, equipment and facilities were repurposed such as using off-site fabrication facilities to mitigate the risk of weather-related site delays, or converting underused office space into temporary storage for urgently needed construction materials. Alternative delivery strategies were adopted including re-sequencing construction activities to maintain productivity while awaiting delayed components.

These examples underline that resourcefulness is inherently situational. It is not a fixed trait, but a dynamic capability that requires situational awareness, creative problem-solving, and willingness to depart from “business-as-usual” practices. Crucially, resourcefulness acts as the operational driver of organisational restructuring. In the absence of adaptability, organisations may remain trapped in outdated structures, unable to translate available resources into meaningful change. Resourcefulness overcomes this inertia by enabling:

- Rapid workflow redesign — reallocating tasks across teams to match shifting priorities and constraints.
- Strategic role flexibility — allowing employees to step outside their standard job descriptions to meet emerging needs.
- Asset repurposing — converting tools, spaces, or systems for alternative functions under new operating conditions.
- Network leverage — activating external partnerships, suppliers, or alliances to supplement internal capacity when needed.

For example, following severe weather events that halted site access for several weeks, one respondent described how their firm avoided layoffs by redeploying field supervisors into design review and cost-forecasting roles. This not only preserved employment but also accelerated back-office readiness for the eventual project restart. Such organisational restructuring was only possible because leaders and

staff were prepared to think flexibly, act outside conventional role boundaries, and seek novel uses for existing assets.

Therefore, resourcefulness bridges the gap between resource possession and resource impact. It ensures that during crises, resources are not simply a passive safety net, but an active toolkit for transformation. This makes it a core mechanism in the IR–OR relationship through which resilient individuals contribute adaptable thinking and skills, while the organisation provides the structural space and strategic direction for those contributions to reshape operations. Together, they enable restructuring that is smooth, targeted, and aligned with recovery goals, a process that turns disruption into an opportunity for organisational renewal.

Additionally, resourcefulness does not occur in isolation; it is activated and sustained by specific organisational conditions that convert available assets into targeted resilience outcomes. These enablers operate at the intersection of Individual Resilience (IR) and Organisational Resilience (OR), ensuring that adaptive behaviours at the individual level directly contribute to organisational recovery and transformation.

- Leadership foresight and strategic clarity – Leaders who not only anticipate potential threats but also communicate openly and engage staff in scenario-based planning provide both operational direction and psychological safety. This dual effect reduces uncertainty at the IR level, making individuals more willing and able to align their adaptive capacity with OR objectives. In crisis contexts, such leadership ensures that decision-making is neither reactive nor fragmented but coordinated toward collective survival and long-term competitiveness.
- Collaborative culture and role flexibility – Eliminating rigid role boundaries enables resilient individuals to deploy their adaptability in ways that meet evolving organisational priorities. By fostering cross-functional cooperation and encouraging staff to step beyond their formal job descriptions, organisations ensure that IR is channelled into coordinated, high-impact contributions rather than isolated or redundant efforts
- Transparent information sharing – Robust communication systems that provide real-time situational awareness across all levels of the organisation prevent misalignment, duplication, and decision bottlenecks. When individuals have timely access to relevant information, they can self-organise effectively, make informed decisions within their sphere of influence, and synchronise their actions with organisational strategies
- Experience as a cognitive asset – Professionals with prior exposure to crises or industry downturns can identify early warning signals, accelerate decision-making, and avoid repeating past errors. This accumulated experience allows them to recognise when existing plans are failing, pivot toward viable alternatives, and guide less experienced colleagues — thereby amplifying the organisation’s adaptive capacity.
- Financial stability and cash flow continuity – Maintaining salary continuity and job security during downturns preserves trust and commitment, ensuring resilient individuals remain embedded in the organisational fabric. This retention of skilled human capital means their

adaptability, creativity, and problem-solving remain accessible for OR recovery efforts, rather than being lost to external opportunities.

5. Organisational Resilience

The current study conceptualises organisational resilience as the capacity of an organisation to withstand, adapt to, and recover from disruptions by strategically mobilising and reconfiguring its available resources. This understanding draws on the work of Lengnick-Hall et al. (2011), who define organisational resilience as the ability of a firm to effectively absorb shocks, develop situation-specific responses, and ultimately engage in transformative activities that capitalise on disruptive surprises potentially threatening organisational survival. Within the proposed model, organisational resilience is framed not as a static or inherent trait, but as the outcome of a dynamic and iterative process that is activated in response to a crisis or unexpected event. Such disruptions act as catalysts for organisational restructuring, a deliberate reconfiguration of workflows, priorities, and roles aimed at addressing emergent challenges, optimising resource use, and ensuring continuity of critical operations.

Organisational resilience exhibits bi-directional relationship with individual resilience. Employees who see their organisation adapting effectively are more likely to engage constructively, apply their own adaptability, and contribute discretionary effort toward recovery. Conversely, individual resilience through skills, experience, and problem-solving capacity contribute to organisational resilience by making restructuring efforts more effective. The model also recognises contextual and conditional factors (such as the organisation's reputation, financial stability, and a give-and-take culture) that strengthen the IR–OR connection. These factors influence retention, commitment, and willingness to align individual adaptability with organisational goals during challenging times. Moreover, adopting from the modified integrated model in previous chapter, organisational resilience is connected to Projects, Staff, Stakeholders and Suppliers. This highlights that resilience is not solely an internal capability but also an outcome of dynamic, interdependent relationships. Staff act as the operational backbone of resilience by responding adaptively during disruptions and sustaining core functions. Their performance, however, is influenced by how well the organisation empowers them, provides clarity, and ensures psychological safety. Projects, as the primary vehicles for delivering organisational value, reflect the agility and responsiveness of a firm under pressure as delays or redirections in project execution often become real-time tests of resilience. Stakeholders, including clients, regulators, and the public, shape the external legitimacy and latitude that an organisation enjoys during disruptions. Their trust and flexibility can ease compliance burdens, unlock support, or enable temporary concessions. Finally, Suppliers ensure the continuity of resource flows, like materials, labour, or technology, making them crucial partners in maintaining stability and responsiveness. Together, these four entities form a system, where resilience is sustained through ongoing collaboration, mutual dependence, and information exchange across boundaries.

6. Individual resilience

In the proposed model, individual resilience is conceptualised as a dynamic, context-responsive capacity that enables construction professionals to maintain performance, adapt behaviours, and recover quickly in the face of disruption, while actively contributing to organisational recovery and

transformation. It goes beyond personal endurance or emotional strength, encompassing a suite of adaptive capabilities such as problem-solving under pressure, cognitive flexibility, emotional regulation, self-efficacy, and proactive coping.

Crucially, within the model, individual resilience is activated and shaped by the crisis context. When a disruptive event occurs, including sudden disaster like Cyclone Gabrielle or a slow-onset challenge such as market stagnation. Resilient individuals do not simply “cope” in isolation, instead, they reorient their skills, knowledge, and networks to address the emergent needs of the organisation. This may involve stepping outside traditional role boundaries, acquiring new competencies, or reprioritising tasks to address critical functions.

However, the model also recognises that the full potential of individual resilience is realised only when it is supported and channelled by organisational mechanisms. Enablers of resourcefulness such as transparent communication, strategic leadership, collaborative culture, and role flexibility act as bridges, ensuring that personal adaptability aligns with organisational restructuring efforts. For instance, when workflows and priorities are rapidly reconfigured during a crisis, resilient individuals can swiftly adapt their approach and integrate into the new operational reality, thereby minimising disruption to project delivery and sustaining stakeholder trust. Moreover, the relationship is reciprocal in nature. As individuals adapt and contribute effectively, their actions reinforce organisational stability and adaptability, which in turn fosters a supportive environment that strengthens individual resilience further. In essence, individual resilience within this model is not a static personal trait but an interactive, mobilisable capability. It gains strategic significance when synchronised with organisational resilience processes, turning individual adaptability into a driver of collective survival and competitive advantage.

7. Contextual Factors Shaping the IR–OR Link

In the proposed model, contextual factors act as the environmental and situational conditions that influence how effectively individual resilience (IR) translates into organisational resilience (OR). These factors are not merely background conditions but can either strengthen or weaken the translation of individual adaptability into organisational recovery and growth. Based on the findings, four primary contextual factors were identified: financial stability, organisational reputation, resourcefulness, and the give–take relationship.

- Financial Stability (Money/Salary Continuity)

Financial stability during times of market downturn or sector-wide slowdown is a critical lever in retaining resilient individuals. In periods when alternative employment opportunities are scarce, maintaining salaries and job security allows employees to redirect their adaptive behaviours from personal survival toward organisational goals. This stabilises the workforce, preserves institutional knowledge, and ensures that skilled individuals remain available to contribute to restructuring, innovation, and recovery strategies. Without this retention effect, individual resilience risks being lost to attrition before it can benefit OR.

- Organisational Reputation

In the tightly networked New Zealand construction sector, reputation functions as a form of strategic currency. Well-regarded firms known for quality delivery, ethical treatment of staff, and survival through past crises, naturally attract and retain resilient individuals. Employees are more inclined to commit discretionary effort to organisations whose brand they believe has the capability to endure disruption. This mutual reinforcement means resilient individuals boost organisational performance, which in turn strengthens reputation, creating a positive feedback loop in the IR–OR dynamic.

- Resourcefulness

Resourcefulness is the active capability that transforms static resources into functional resilience outcomes. It involves reassigning roles, repurposing assets, finding workarounds, and using knowledge in innovative ways to address disruptions. Without organisational resourcefulness, even abundant resources remain underutilised. Resourcefulness not only sustains OR directly but also creates the operational flexibility needed for individuals to express their adaptability effectively. In this way, it becomes both a contextual factor and a critical mechanism linking IR to OR.

- Give–Take Relationship (Reciprocity)

Trust-based reciprocity between employees and organisations significantly amplifies the IR–OR link. The responders indicated that when organisations support individuals during personal or professional hardship, whether through financial assistance, flexible working arrangements, or retaining staff during downturns, individuals often respond with heightened commitment, discretionary effort, and creative problem-solving when the organisation itself faces disruption. This reciprocal exchange ensures that IR is not exercised in isolation but is channelled toward collective survival and competitive advantage, directly reinforcing OR.

In summary, these contextual factors operate as amplifiers within the model, strengthening the conversion of individual resilience into organisational resilience. They provide the stability, motivation, operational flexibility, and mutual trust necessary for IR to be mobilised in ways that deliver measurable OR outcomes. Without them, the IR–OR connection risks being weak, fragmented, or short-lived, regardless of the inherent resilience of individuals or the resource base of the organisation.

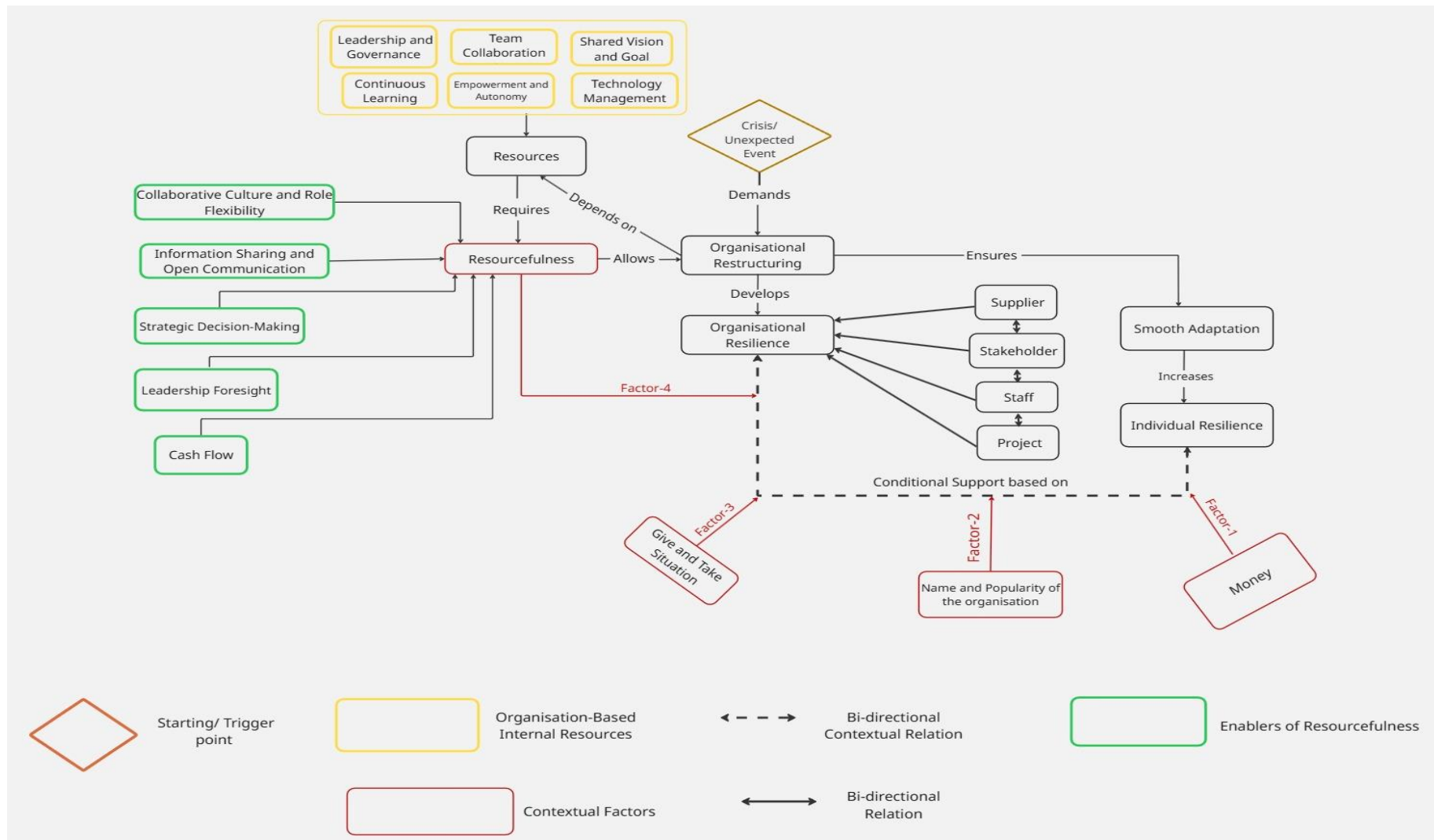


Figure 8.1- Revised Integrated Model

8. Significance and Robustness of the Model

The proposed model (Fig. 8.1) makes an original contribution to resilience research by directly addressing a critical conceptual and empirical gap. It specifically focusses on the absence of a coherent framework that explains the bidirectional and conditional nature of the relationship between individual resilience (IR) and organisational resilience (OR) in the New Zealand construction sector. While established frameworks (e.g., Lengnick-Hall et al., 2011; McManus, 2008; Lee et al., 2013) have tended to emphasise either individual or organisational capabilities in isolation, they often overlook how these two domains interact in real-world conditions. The present model advances the discourse by reframing resilience not as a unidirectional transfer of capacity, nor as two parallel processes, but as an interactive, context-sensitive system. Thus, the proposed model has linked both, IR and OR through mediating factors, enabling mechanisms, and organisational processes that adapt to specific environmental and operational conditions.

Furthermore, the model challenges the traditional assumption of the Resource-Based View by emphasising the limited role that resource possession alone plays in achieving resilience, and instead introduces the concept of resourcefulness to address the shortcomings of resources in dynamic, high-uncertainty crisis contexts (Teece et al., 1997; Pettus, 2001). While RBV focuses on the strategic value of possessing valuable, rare, inimitable, and non-substitutable resources (Barney, 1991; Wernerfelt, 1984), empirical studies (Bradley et al., 2011; Essuman et al., 2022) reveal that an abundance of resources does not necessarily translate into resilient outcomes. In many cases, resource-rich organisations falter during crises due to entrenched routines, siloed operations, and an absence of mechanisms for adaptively reconfiguring assets in response to disruption.

By incorporating the principle of resourcefulness, the proposed model moves beyond the limitations of possession-based theories. It also embeds contextual contingency at its core, recognising that the IR–OR link strengthens or weakens depending on conditions such as financial stability, organisational reputation, reciprocal support, and the quality of internal and external resource networks. This positions the model as both a theoretical refinement and a practical tool for aligning individual adaptability and organisational continuity in a sector characterised by frequent and varied disruptions. From possession to activation, the model recognises that resilience arises from the resourceful conversion of static assets into adaptive responses, not merely from holding resources. This static to contextual linkage framing of the IR–OR relationship displays the dynamic, reciprocal, and conditional nature, rather than commonly assumed universal or linear transfer of resilience.

Theoretically, the proposed model advances the resilience discourse in several critical ways by addressing longstanding conceptual gaps and synthesising fragmented streams of research in the organisational and individual resilience domains.

- **Bridging the Micro–Macro Gap:** Traditional resilience models often treat individual and organisational resilience as distinct or loosely connected phenomena. This model challenges that separation by explicitly positioning Individual Resilience (IR) not as a peripheral asset but as an integral input into Organisational Resilience (OR). It emphasises that the adaptive

behaviours, emotional regulation, and task agility exhibited by individuals under pressure can meaningfully shape organisational outcomes but only when enabled through conducive relational, cultural, and processual conditions. This positioning moves beyond the simplification of "resilient people make resilient organisations," by critically unpacking how, when, and under what circumstances such alignment occurs.

- **Integrating Conditional and Contextual Dimensions:** The model departs from linear and universalist views of resilience by embedding contextual sensitivity and conditional reciprocity into the IR–OR relationship. It demonstrates that the transfer of resilience from individuals to the organisation is not automatic or guaranteed. Instead, it is contingent upon variables such as market volatility, financial stability, organisational reputation, and the existence of reciprocal support mechanisms (e.g., "give-and-take" exchanges between employees and leadership). This represents a significant shift from deterministic models toward a contingency-based framework that better reflects real-world organisational behaviour in high-risk, resource-constrained settings like construction.
- **Embedding Resourcefulness as a Central Construct:** While many resilience models continue to equate preparedness with resource possession, this model foregrounds resourcefulness—the ability to dynamically redeploy, reconfigure, and repurpose available assets in response to disruption. In this framing, resilience is no longer viewed as a latent attribute held in reserve, but as an active capability, continually co-created through human agency, structural flexibility, and strategic improvisation. By placing resourcefulness at the centre, the model also provides a stronger bridge between theoretical frameworks (e.g., dynamic capabilities) and practical crisis management in volatile project-based environments.

Practically, the model offers a diagnostic and strategic tool with wide applicability across multiple stakeholder groups involved in New Zealand's construction sector and broader resilience planning ecosystems:

- **For Construction Organisations:** The model functions as a decision-making tool to help align workforce management strategies with broader organisational adaptation goals. Rather than treating resilience as an abstract cultural value, firms can use the model to identify where and how individual strengths (e.g., multitasking, morale, technical skill) can be channelled during crises, preventing valuable adaptive energy from being dissipated or misdirected.
- **For Industry Bodies (e.g., BRANZ, Construction Sector Accord):** The model provides an evidence-based platform for designing targeted interventions. It can inform the development of sector capability programs, including training modules that build resourcefulness, foster adaptive leadership, or promote collaborative role flexibility—all of which are empirically grounded in the findings.
- **For Government Agencies (e.g., MBIE, Civil Defence):** The model provides a robust framework for identifying support mechanisms that are most effective in preserving workforce functionality during disruptions (e.g., retaining skilled staff during downturns through subsidies or public

works investments). It also supports policy design by highlighting how individual and organisational needs intertwine during crisis recovery.

- For HR Professionals, Project Managers, and Senior Leaders: The model offers a practical lens to pre-emptively diagnose vulnerabilities in the IR–OR interface. For instance, HR leaders can assess whether financial retention policies are in place, or whether role flexibility is built into the employment structure. Project managers can use the model to understand how best to deploy individual resilience (e.g., redirecting resilient staff into cross-functional crisis roles) and measure the effectiveness of team-level adaptability.

Therefore, by embedding mutual reinforcement and resourceful activation into the IR–OR dynamic, the model offers a theoretically robust and empirically validated pathway for resilience. It is both context-specific to New Zealand construction and transferable to other high-volatility, project-based sectors. It shifts the resilience conversation from a focus on “what is possessed” to “how it is mobilised, under what conditions, and toward whose benefit”, a reframing that is essential for both scholarly advancement and industry transformation.

8.3.3. Qualitative feedback and refinement

8.3.3.1. *Significance of qualitative feedback and refinement*

In qualitative research, particularly in exploratory studies aiming to construct or refine theoretical frameworks, a focus group discussion serves as a critical final step to ensure the rigour, relevance, and credibility of the findings. Following two rounds of semi-structured interviews that informed the development of a preliminary conceptual model, a structured focus group session was conducted to subject the model to expert scrutiny. This step was not merely confirmatory, but evaluative and iterative in nature, allowing participants comprising experienced professionals from the construction sector—to assess the conceptual alignment, practical applicability, and interpretive accuracy of the proposed framework. The rationale for including a focus group at this stage lies in its ability to facilitate collective reflection and analytical dialogue among participants, encouraging them to validate, challenge, or refine key assumptions and relational pathways identified during earlier phases of the research. It also enables deeper interrogation of the model’s terminology, structure, and logical flow, ensuring that abstract theoretical constructs are communicated in language and categories meaningful to both academic and practitioner audiences. Most importantly, this refinement process advances the trustworthiness of the study by incorporating stakeholder perspectives into the final synthesis, thereby bridging the gap between empirical insights and contextually grounded, action-oriented recommendations.

The focus group discussion addressed the accurate identification of responsible stakeholders, along with considerations for introducing additional elements or eliminating components deemed less relevant. The session was audio-recorded to ensure that all valuable insights and recommendations from participants were captured in full. This recording acted as a dependable reference for the subsequent stage. By transcribing the conversation and cross-checking it against the notes taken during the session, it was possible to conduct a comprehensive review of the feedback, ensuring that every suggestion was systematically evaluated and incorporated into the refinement of the model.

During the interaction, participants reached a clear consensus on the overall logic and structure of the proposed IR–OR relationship model, reflecting a shared understanding of how its components and linkages operated in practice. The review process systematically examined each part of the model, from the initial “Crisis/Unexpected Event” trigger through to “Smooth Adaptation” and the strengthening of “Individual Resilience.” This step-by-step evaluation aimed to identify any gaps or misalignments between the conceptual flow and real-world operational realities. The experts strongly endorsed the model’s clarity and systematic flow, particularly noting the value of the directional arrows and feedback loops in visually representing the bidirectional influence between IR and OR and the context-dependent activation of mediating and enabling factors. This was seen as an advancement over linear, one-way models in the literature, aligning well with the lived realities of construction organisations where individual and organisational adaptability continually shape one another during crisis recovery. The explicit inclusion of contextual factors (Financial Stability, Organisational Reputation, Resourcefulness, Give-and-Take) and enablers (Leadership Foresight, Collaborative Culture, Transparent Information Sharing, Experience, and Cash Flow Continuity) was viewed as particularly relevant to the New Zealand context, given the sector’s high exposure to both market-driven and disaster-related disruptions. Once all adjustments were made, the updated model was shared with the experts for final confirmation.

8.3.3.2 Results and Discussion

During the interviews, participants reached a consensus on the overall logic and visual structure of the proposed conceptual framework, acknowledging the use of a hierarchical flow from left to right and top to bottom. This design was appreciated for its consistency and clarity, allowing stakeholders to intuitively follow the progression of processes. There was also shared recognition of the effective use of feedback loops, which highlight the cyclical and evolving nature of organisational learning and adaptation. It emphasised that resilience is not a one-time outcome, but a capability refined through repeated disruption and response cycles.

However, several areas were identified for refinement to improve the clarity and operational readiness of the model.

1. The most prominent suggestion was to revise the terminology used in several components to reflect their practical meaning and strategic relevance more accurately. These changes were motivated by the recognition that imprecise or overly colloquial terms can obscure the strategic significance of key model components, reduce interpretability among professional users, and limit the model’s applicability in both academic and operational contexts.

- From “Money” to “Financial Stability and Workforce Retention Capacity”

The term “Money”, while intuitively understandable, was considered too vague and reductive. Experts noted that financial capacity in the context of resilience is not merely about having monetary reserves, but about the organisation’s ability to strategically maintain salary continuity, manage operational costs, and retain skilled personnel during downturns. The revised label “Financial Stability and Workforce Retention Capacity” reflects:

- The dual function of financial resources in ensuring both liquidity and staff loyalty.
- Its role as a contextual enabler of individual resilience, by reducing employee anxiety and creating psychological safety during crisis.
- A more measurable and actionable formulation that better aligns with organisational strategy and human resource practices.

This renaming helps position financial inputs not just as passive buffers, but as active levers for embedding resilience within workforce behaviour and continuity planning.

➤ From “Give-and-Take Situation” to “Reciprocal Support and Commitment”

The term “Give-and-Take Situation” was seen as too casual and imprecise to reflect the depth of reciprocal organisational dynamics described in the findings. Experts suggested a more formal and strategic phrasing “Reciprocal Support and Commitment” which captures the bidirectional loyalty and obligation between individuals and the organisation. This revised term:

- Reinforces that employee commitment is shaped by perceived organisational support, especially during hardship.
- Captures the psychological contract that underpins resilience exchange (e.g., if the organisation supports employees during crisis, employees often go “above and beyond” to help the organisation recover).
- Emphasises long-term mutual investment rather than a transactional or situational exchange.

By using terminology grounded in behavioural organisational theory, the model now better communicates how trust and mutual responsibility form a foundation for converting individual resilience into organisational outcomes.

➤ From “Name and Popularity of the Organisation” to “Reputation of the Organisation”

The phrase “Name and Popularity of the Organisation” was considered ambiguous and lacking conceptual weight. Experts pointed out that in professional and academic discourse, “Reputation” is the more accurate term to reflect the perceived reliability, credibility, and track record of an organisation. This term encompasses:

- How the organisation is viewed within the industry, which influences employee decisions to stay during uncertainty.
- Its impact on external stakeholder trust, which directly affects project continuity and market resilience.
- Its role in attracting and retaining resilient professionals who prefer association with high-trust, legacy brands.

Renaming this component to “Reputation of the Organisation” ensures that the model speaks to both internal motivational mechanisms and external credibility factors, essential for resilience in the construction sector.

2. In addition, the term “contextual factor” was re coined as “contextual condition” based on experts’ recommendation. Experts noted that the term “factor” tends to convey a passive or static influence, which may be perceived as isolated variables. In contrast, the word “condition” denotes a broader, more dynamic context, indicating a set of circumstances or systemic realities that actively shape, constrain, or enable decision-making, resource mobilisation, and behavioural responses within an organisation. This change brings greater conceptual clarity, especially in the context of resilience theory, where adaptive responses are often situationally dependent and embedded within fluctuating environments. The revised terminology also aligns better with systems thinking and complex adaptive systems frameworks, which emphasise interdependencies, contextual triggers, and feedback mechanisms rather than static causal inputs. By framing them as “conditions,” the model would acknowledge that:

- These are not simply background variables, but situational enablers or barriers that organisations must navigate in real time, particularly under disruption.
- Furthermore, the use of “contextual conditions” strengthens the explanatory logic of the model by making it clearer that these elements do not operate in isolation but are embedded in organisational processes. For example, elements like Financial Stability and Workforce Retention Capacity, Reciprocal Support Mechanisms, and Organisational Reputation are now recognised as conditions that influence how resilience emerges and sustains, rather than discrete, measurable factors.
- This reframing improves interpretability for both academic and practitioner audiences and ensures alignment with the language used in contemporary resilience literature.

Thus, the adoption of the term “contextual condition” reflects an effort to more accurately represent the active and systemic nature of these elements within the model. It also supports a clearer and more robust depiction of how individual and organisational resilience interact under varying environmental and operational scenarios.

3. Another significant revision to the model focused on refining the representation of the organisational and external stakeholders involved in resilience-building processes. Firstly, the ‘Staff’ component was repositioned and redefined as a contextual carrier, a critical internal conduit through which resilience-enabling conditions (such as leadership, communication, and resource accessibility) are enacted. Rather than treating staff merely as a passive resource, this re-conceptualisation recognises their active role in translating organisational intent into adaptive behaviour, thereby directly linking individual resilience (IR) with organisational resilience (OR). The revised placement and function of staff underscore their embedded position within the system, reflecting their ability to facilitate resilience in response to context-specific challenges.

In contrast, three other components, namely, suppliers, stakeholders, and project were recommended to be reclassified as external resources. This distinction was based on their operational relationship with the organisation: while they significantly influence resilience outcomes, they operate beyond the organisation’s internal boundaries and are engaged primarily through relational or contractual mechanisms. This reclassification offers a more accurate reflection of how external stakeholders

contribute to, but are not inherently embedded within, organisational structures. Their inputs, such as timely material delivery, subcontractor collaboration, or stakeholder flexibility are often critical during disruptions, but they require strategic management rather than internal mobilisation.

Furthermore, feedback highlighted the ambiguity and redundancy related to the term “project” and “supplier”. The term “project” was deemed too vague to convey a distinct function, and hence, it was suggested to make it “project pipeline”. This change would specifically denote that availability of work, leading to for the “suppliers” were noted to be a subset of the broader stakeholder group, making their separate representation redundant. As a result, it was recommended to revise these labels to more precise terms. The final version of the model consolidated and clarified these roles, introducing “Client and Investors,” “External Collaborators,” and “Supplier” as differentiated but interlinked external entities. This not only enhanced terminological clarity but also aligned the language of the model with practical organisational structures in the New Zealand construction context.

To reinforce the mutual interdependence among these external stakeholder, bi-directional cross-arrows were added to the revised model. These arrows signify the non-linear, feedback-rich interactions between clients, collaborators, and stakeholders. These aspects were underrepresented in earlier versions. This visual improvement ensures that the model more accurately captures the dynamic and networked nature of resilience-building, where decisions and actions by one external party can significantly shape the effectiveness of others.

4. Components previously labelled as “Mediating Factors” were revised and reclassified as “Organisation-Based Internal Resources”, following expert feedback. This refinement was proposed to enhance both the conceptual clarity and practical relevance of the model. Experts observed that the term “mediating factor” was too abstract and lacked intuitive meaning, particularly in high-risk, applied sectors like construction. Such sectors require actionable language and clear role definitions for better response and functioning. By reframing these components as internal resources,

- The model better communicates their function as enablers that reside within the organisation and can be mobilised to strengthen resilience.
- This terminological shift also aligns the model more closely with established theoretical frameworks, particularly the Resource-Based View (RBV), which emphasises internal capabilities as critical drivers of competitive advantage and resilience.
- Referring the mediating factors as “Organisation-Based Internal Resources” makes it clear that these are not external inputs, but latent organisational capacities—such as knowledge systems, leadership structures, or learning processes that can be activated, coordinated, and tailored to context. This explicitly connects them to the “resourcefulness” mechanism, reinforcing the idea that possessing resources is not sufficient; and how they are strategically utilised under pressure is vital.
- From a communication standpoint, the revised terminology also improves the model’s readability and coherence for both academic and practitioner audiences. It avoids conceptual

redundancy by replacing vague or overlapping terms like “mediators,” “enablers,” or “factors” with a unified and precise label.

Thus, the renaming of Mediating Factors to Organisation-Based Internal Resources reflects a deliberate effort to enhance theoretical accuracy, practical applicability, and conceptual alignment. It underscores that resilience does not emerge solely from external support or individual effort, but from an organisation’s capacity to strategically harness its own internal strengths in response to disruption.

5. Another crucial enhancement involved clarifying the flow of influence and the interrelationships between components in the model. During the expert discussions, it was suggested that the directional arrows be reformatted to visually differentiate between the main process and supporting connections. Specifically, the idea emerged to modify the thickness to reflect the hierarchy and nature of relationships. It would help in distinguishing core logical progressions from contributory or contextual linkages. Consequently, thicker arrows were adopted to indicate primary processes and direct causal flows, while thinner or lighter arrows were used to represent supporting mechanisms, enablers, or feedback loops. This refinement not only enhanced the model’s visual clarity, but also helped reinforce the model’s theoretical structure by making it easier for readers to interpret which elements drive the resilience process most directly and which factors act in moderating or facilitating roles.

In addition to visual and structural revisions, the experts recommended the inclusion of a supportive explanatory notes that would indicate the model’s practical applicability and readiness for real-world use. The reviewers further added that providing real-world application examples or use cases, would illustrate how the model might be applied in crisis scenarios such as a pandemic-related labour shortage or post-disaster infrastructure recovery to support resilience planning and decision-making.

Through this process, the framework was refined to enhance its conceptual integrity, practical relevance, and clarity for both academic and professional audiences. Detailed adjustments are reflected in the final version of the model (Fig. 8.2), along with the discussion on application of the model to ensure that the framework offers actionable and context-responsive guidance for navigating resilience challenges in complex organisational settings.

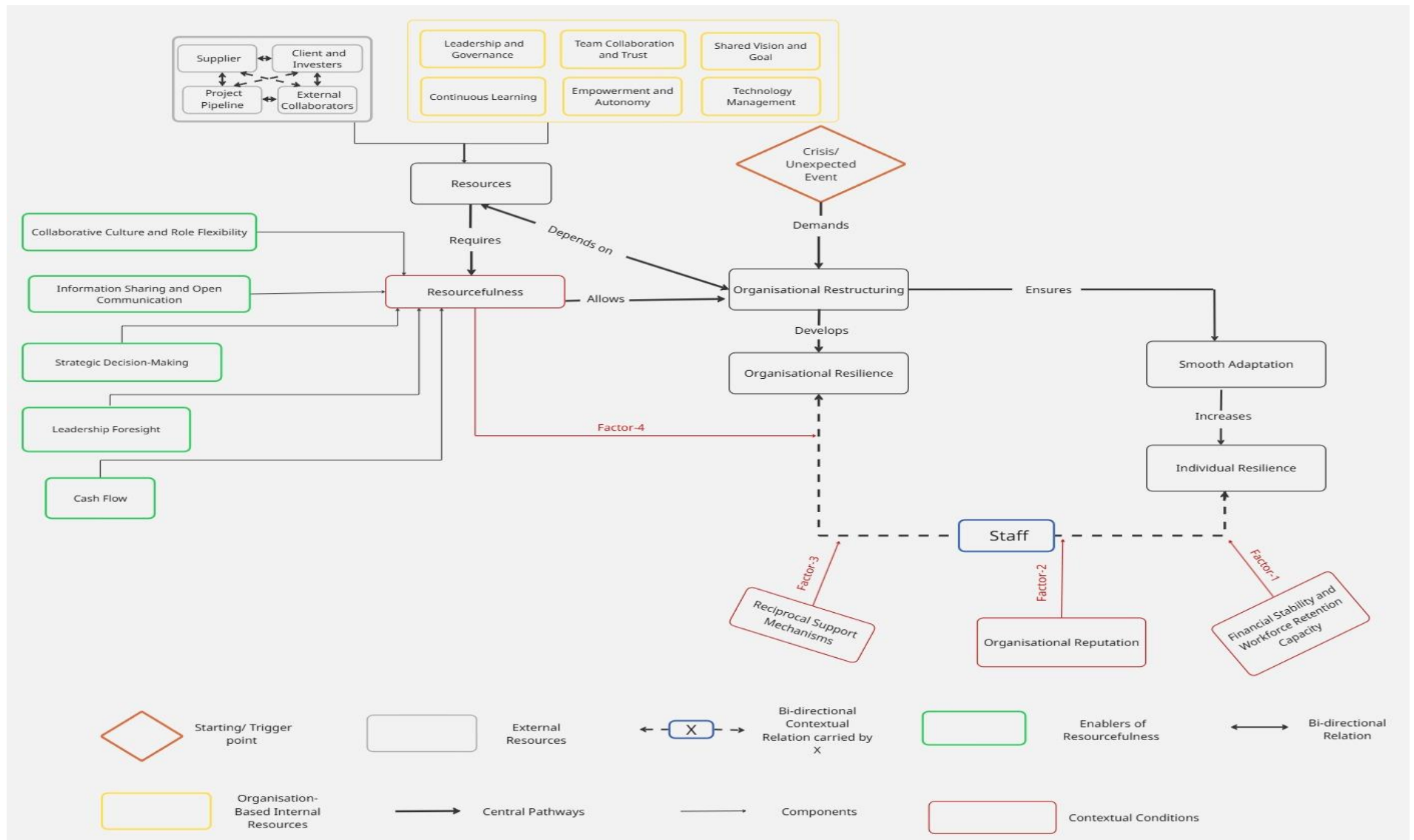


Figure 8.2- Refined version of the Modified Integrated Model based on expert's recommendations

Application of Model in Practice- The utility of the proposed model lies in its dual relevance. i.e., as a conceptual framework for understanding resilience and as a practical tool to support decision-making and strategy development in volatile environments. It is specifically tailored for the construction sector and addresses real-world challenges by equipping organisations to align individual and organisational resilience in context-sensitive ways.

Whether facing sudden shocks such as a cyclone or earthquake, enduring stressors like labour shortages and supply chain delays, or broader economic uncertainty, the model enables construction organisations to strategically activate key levers, including financial, structural, behavioural, and cultural mechanisms to sustain adaptive capacity and accelerate recovery.

There could be various scenario-based instances where this model could be helpful. For instance,

- Natural Disaster like Post-Cyclone Gabrielle Recovery

After a weather-induced disruption such as Cyclone Gabrielle, the model supports senior leadership in quickly assessing which contextual levers are intact (e.g., financial stability, stakeholder trust) and which require reinforcement. HR teams can deploy staff retention strategies by ensuring short-term income security and mental health support. Simultaneously, project managers may reallocate personnel into emergency coordination or community response teams, embodying the resourcefulness mechanism embedded in the model. Such coordinated effort ensures that individual resilience (e.g., adaptability, problem-solving) feeds into broader organisational restructuring and credibility restoration.

- Pandemic-Related Labour Disruption (e.g. COVID-19)

During a pandemic, the Give-and-Take Reciprocity feature of the model becomes crucial. Organisations that retained employees during lockdowns (even at reduced capacity) witnessed increased commitment once operations resumed. Leadership foresight (an enabler) could pre-emptively pivot resources toward digital project management, while staff contribute by cross-skilling or assisting with re-bidding. The model offers a roadmap for both anticipating secondary shocks and maintaining internal cohesion.

- Market Recession or Project Pipeline Uncertainty

In periods of economic slowdown where project opportunities dry up, the model directs attention to Financial Stability and Workforce Retention Capacity as a contextual driver. Organisations can refer to the model to assess whether their current financial policies promote embeddedness of resilient individuals or trigger attrition. Through strategic foresight, organisations may retain critical teams and redirect them toward business development, client retention, or process innovation reinforcing organisational adaptability without operational burnout.

Beyond crisis response, the model can be integrated into Business continuity planning, Resilience audits and diagnostics, Workforce strategy reviews, Organisational change initiatives etc. For example, an organisation can use the model to map out existing internal resources, assess the level of role flexibility,

cross-training, or situational communication pathways, and determine if these align with their expected resilience outcomes. It acts as a dashboard for tracking resilience preparedness over time.

8.4. Conclusion

The current study aims to develop a comprehensive and context-sensitive model that integrates the dynamics between Individual Resilience (IR) and Organisational Resilience (OR). Drawing on qualitative data from 18 interviews with construction professionals and insolvency practitioners, the study addressed two primary research questions, related to contextual factors and refinement of the proposed model.

In relation to RQ1, the study identified four key contextual factors, Financial Stability, Name and Popularity of the organisation, Give and Take relationship and Resourcefulness, that significantly influence how IR and OR interact within construction organisations. These conditions emerged not only as external environments but as embedded organisational characteristics that either support or constrain the translation of individual resilience into organisational outcomes. For example, the organisations which are empathetic and provide necessary support to their employees, are more likely get the same response when the organisation is going through a setback. This could occur in the form of less working hours, reduced wages, undertaking of multiple responsibilities etc. The findings highlighted that contextual factors are not passive backdrops but active enablers or inhibitors in the resilience process. Thus, IR–OR dynamics can be considered as relational and context-bound, rather than linear or universal.

To explore RQ2, the focus group discussion provided critical insights that helped refine and confirm the proposed resilience model. The process not only reaffirmed the model's core components, IR, OR, mediating resourcefulness, and contextual conditions but also clarified their interdependencies. The experts suggested with repositioning certain elements (e.g., reframing “contextual factors” as “contextual conditions”) and highlighted the importance of mutual reinforcement between individual adaptability and organisational systems. Moreover, the participants’ feedbacks also reinforced the idea that resilience is not an abstract capacity but a distributed capability, shaped by the interaction of agency, structure, and enabling context.

The study achieved the overall aim of the study by synthesising the empirical insights on individual resilience (IR), organisational resilience (OR), and their contextual enablers into a Revised Integrated Model. The model was further improvised through the focus group discussion and led to the development of the refined version of the modified integrated model. The proposed model is the product of a multi-phase qualitative inquiry and reflects a structured yet dynamic representation of how IR and OR co-evolve in response to disruptions, particularly in the New Zealand construction sector. The model's strength lies in its ability to demonstrate that resilience is not merely a possession-based attribute, but an emergent property enabled by cross-level processes and interactions. It also offers a conceptual advancement by embedding resourcefulness as the active ingredient that translates dormant assets (human, financial, structural) into adaptive behaviours and organisational continuity. From a practical standpoint, the model serves as a diagnostic and decision-making tool and allows

organisations, industry bodies, and government agencies to identify levers that activate or suppress resilience. By outlining key enablers (e.g., leadership foresight, cash flow etc), contextual factors (e.g., financial stability, organisational reputation), and mediating resources (e.g., collaborative culture), the model facilitates targeted resilience planning, rather than one-size-fits-all solutions. Its flexibility enables it to be applied to various real-world stressors, including market recessions, labour shortages, weather-related disruptions, and post-disaster recovery. For example, organisations can use the model to evaluate whether their internal structure supports the redeployment of skills during downturns, or whether leadership communication is sufficient to maintain staff morale during crises.

While the study presents a conceptually rich and empirically grounded model of the interplay between individual and organisational resilience, certain limitations must be acknowledged that affect its scope and generalisability. Firstly, the model was developed specifically within the operational context of the New Zealand construction sector. While this context provides high relevance due to the industry's exposure to diverse and frequent disruptions (e.g., natural disasters, labour shortages, regulatory volatility), the structural, cultural, and institutional features of the construction sector in New Zealand may differ significantly from those in other sectors such as healthcare, manufacturing, or IT. As a result, the generalisability of the model remains constrained to the New Zealand construction ecosystem unless further testing is conducted in other environments. Secondly, although the study engaged with highly experienced professionals and applied a focus group method for refinement, ensuring credibility and depth of insights, the overall sample size was relatively modest. While the number of participants meets the accepted thresholds recommended for qualitative saturation in similar research (Guest et al., 2006), it nonetheless limits the breadth of representation. Perspectives from underrepresented groups such as subcontractors, frontline junior employees, and practitioners from indigenous communities, including Māori-owned or led construction firms were not comprehensively captured. This absence may have narrowed the diversity of insights into how resilience manifests across different strata of the industry. Thirdly, the study relied exclusively on qualitative methods, primarily in-depth interviews and focus group discussions. Although these methods are well-suited for exploratory research and yielded contextually rich, experience-based data, they inherently carry the risk of interpretive subjectivity. Respondent bias, retrospective rationalisation, or social desirability may have influenced how participants narrated their experiences of crisis and adaptation. Moreover, without complementary quantitative validation such as surveys or organisational performance metrics, it is difficult to empirically verify the frequency, magnitude, or systemic nature of the observed resilience mechanisms across the wider sector.

Consequently, future studies could explore the applicability and adaptability of the refined IR–OR model across other sectors such as healthcare, manufacturing, or information technology with a broader sample size to effectively capture the on-ground dynamics. Moreover, it could adopt mixed-methods approaches to strengthen the empirical robustness of the model. Quantitative surveys across a broader industry sample could test the prevalence, strength, and interaction effects of the identified resilience mechanisms and contextual conditions. In addition, longitudinal studies can help in tracking how IR and OR evolve over time, particularly before, during, and after disruptions as it could offer dynamic insights into resilience trajectories.

Ultimately, the revised conceptual model serves not only as a theoretical contribution but also as a practical tool for guiding construction organisations toward more responsive and sustainable resilience strategies. By grounding resilience in lived experience and operational realities, the study offers actionable insights that can inform leadership development, capability building, and policy formulation. Eventually, it bridges the gap between theory and practice, and offers a foundation for future research to further test, expand, and contextualise the findings across diverse organisational and geographical settings.

D.2. EPILOGUE TO PART D

Part D addresses Research Question 3.1 and 3.2, which investigates the role of resourcefulness in influencing the relationship between individual and organisational resilience. Building on the empirical base of Part C, this chapter examines how resources can be effectively utilised in the individual-organisational relationship.

The study employed semi-structured interviews with 18 construction professionals and insolvency practitioners. Similar to the previous chapter, construction professionals were also selected because they had practical experience of working within organisations during periods of crisis, disruption, or disaster. Their involvement provided first-hand insights into how organisations respond to adverse conditions, how decisions are made under pressure, how resources are mobilised, and how individual and organisational resilience interact in real project and organisational settings. Together, these participant groups enabled the study to capture both external expert perspectives on organisational collapse and internal practitioner perspectives on resilience during challenging circumstances. Furthermore, Insolvency practitioners were included as participants because of their direct professional exposure to organisations experiencing severe distress, including firms that had collapsed or were at risk of collapse. Their experience placed them in a strong position to provide informed insights into the factors that contributed to organisational failure, as well as the actions, decisions, or conditions that may have supported recovery, continuity, or resilience. Their perspectives were therefore valuable for understanding what weakened organisational resilience and what practices could potentially strengthen it.

The interview data were analysed using the six-phase thematic analysis approach proposed by Braun and Clarke (2006). NVivo 20 software was utilised to facilitate the coding process, enable systematic comparison across interview transcripts, and maintain transparency throughout theme development. The first stage of the analysis involved repeated readings of the transcripts to familiarise with the narratives of construction professionals. Open codes were then inductively assigned to segments of text that reflected concrete actions, behaviours, or conditions related to resilience. For instance, phrases such as “we had weekly project meetings so everyone knew the numbers and could suggest adjustments” (IP1) and “there was no silo thinking; accurate information was shared instantly” (IP7) were coded as transparent information sharing. At this stage, 37 initial codes were generated, including proactive planning, cash flow management, role substitution, and confidence in leadership.

During the next stage, these codes were re-considered and clustered into two categories through axial coding, which sought to identify relationships between conceptually similar codes. The first category was “Enablers of Resourcefulness”, which comprised of 6 themes- Leadership Foresight, Collaborative Culture & Role Flexibility, Information Sharing & Open Communication, Strategic Decision-Making, Cash-Flow and Experience-based Judgement. These themes encompassed 25 codes. For example, codes such as peer reliance, mutual adjustment, and team spirit were grouped under the category team cohesion and collaborative culture. Codes including transparent communication, real-time information

sharing, and weekly meeting were clustered into the category information and knowledge flow. Moreover, proactive planning, and confidence in leadership action were merged into the category leadership foresight and decisiveness.

The findings of chapter 7 answered RQ3.1 by clarifying that the mere presence of resources is insufficient, and they must be reinforced by resourcefulness for dynamic mobilisation, and alignment across individual and organisational levels for resilience to function effectively. These enablers demonstrate how resourcefulness bridges the gap between available resources and the attainment of individual–organisational resilience, transforming static assets into adaptive capacity. This critical step resolves the conceptual ambiguity identified in earlier parts of the thesis and provides the missing link necessary for the development of a fully integrated IR–OR model.

In addition, the analysis of the interviews also identified a set of contextual factors that consistently shaped resilience responses, as discussed in chapter 8. It included factors like Give and Take situation, Name and Popularity of the organisation, Money, and Resourcefulness.

The relevant interview questions for the second stage of the interview and coding framework related to resourcefulness enablers and contextual factors are mentioned in Appendix-5 and Appendix-6 respectively.

To strengthen theoretical and practical clarity, the chapter 8 undertook a Focus Group Discussion. A total of 9 participants were purposively selected to ensure that the data reflected strong professional insight and remained closely aligned with the objectives of the study. Selection was based on participants holding senior or relevant decision-making roles within construction-related organisations, having substantial experience in managing project disruptions or organisational challenges, and demonstrating a sound understanding of organisational processes, resilience practices, and construction-sector-specific issues. The expert panel included 4 of the participants from the previous rounds of interview.

The expert advice led to the revisions in five overarching themes:

- Terminology Refinement: Existing terms for contextual elements were critically reassessed and made more precise.
- Reframing of “Contextual Factors” as “Contextual Conditions”: This better captured the enabling or constraining role of these elements.
- Clarifying Stakeholder Representation: Internal versus external stakeholders were clearly delineated.
- Reclassification and Renaming of Components: Several resilience components were re-labelled for accuracy and ease of understanding.
- Clarification of Flow and Inter-Relationships: Direction of Arrows, thickness, and Arrow style to demarcate the different connection between the elements of the model.

Through these modifications, the Modified Integrated Resilience Model was refined and finalised as shown in Fig. 8.2. By answering the RQ3.2, this model presents a multi-layered view of resilience-building, where contextual conditions, resourcefulness enablers, organisational components, and

individual capabilities all interact through mediating structures like leadership, team culture etc. This part, therefore, functioned as the final step where empirical findings, theoretical framing and practitioners' suggestions were brought together to produce a model that is not only academically grounded but also applicable and actionable within industry settings.

The next part of the thesis will present the conclusion and recommendations, drawing together the core contributions of the entire study, identifying theoretical and practical implications, and proposing directions for future research and sector-specific application.

Part E: Conclusion and Recommendation

E.1. PROLOGUE TO PART E

This final part brings together the key insights and contributions of the research, synthesising the conceptual, empirical, and theoretical developments made across the study. The thesis is based on a multi-stage research design, initiating with an extensive literature review, followed by semi-structured interviews and a focus group discussion to critically examine the complex relationship between Individual Resilience (IR) and Organisational Resilience (OR) within the disruption-prone context of the New Zealand construction sector.

This part begins by summarising how each research objective and question was addressed, followed by a discussion of the core theoretical contributions. It also outlines the practical implications of the findings, particularly for leadership development, organisational policy, and resilience planning in project-based environments. Additionally, the limitation of the study is critically acknowledged to provide a balanced interpretation of the research scope and its boundaries. The part E also proposes a series of future research directions that build upon the findings and observed limitations, offering pathways for advancing knowledge in both academic and applied settings. Together, these elements position the study as a grounded and timely contribution to resilience study and practice.

CHAPTER NINE

CONCLUSION AND RECOMMENDATION

9.1. Research Overview

The aim of the current study is to investigate the relationship between IR and OR. The research is based on a long-standing gap in both academic and applied understanding of how IR and OR interact in dynamic, high-risk sectors such as construction. Both concepts have received extensive attention independently, IR in psychology and human development, and OR in strategic management and systems theory. However, their interconnectedness remains conceptually fragmented and empirically underexplored. Current literature often treats the two levels of resilience as separate silos, overlooking the systemic, interactive processes through which individual adaptive behaviours contribute to, or are constrained by, organisational structures and contexts. This separation creates significant limitations not only in theory-building but also in the practical formulation of resilience strategies that are both people-centred and systems-specific. Therefore, establishing a clear understanding of the connection between organisational resilience and the resilience of its most essential component i.e., individuals, is vital to ensure the sector's ability to function effectively and recover efficiently during and after periods of disruption.

In line with this, New Zealand construction sector, with its recurrent exposure to natural disasters (such as earthquakes and floods), pandemics, economic shocks, and regulatory pressures, added a strong context to investigate how resilience is activated, experienced, and scaled across organisational levels. The sector's project-based nature, decentralised structures, and high workforce turnover make it especially susceptible to disruption. Consequently, it allows a suitable ground for observing resilience as an emergent, context-sensitive phenomenon. By situating the research within this sector, the study moves beyond theoretical explanation of the resilience and contributes nuanced insights grounded in industry-specific realities. The approach followed in the research not only captures what resilience is, but how it works, how it is enacted, shaped, and sustained under pressure.

This chapter presents and organises the key findings of the study. It begins by evaluating the extent to which the stated research objectives were achieved, following the logical structure established throughout the thesis. To achieve the aim of the research, the study:

- Explores how individual and organisational resilience are conceptually similar or distinct in current literature.
- Investigates the nature and extent of the relationship between IR and OR during disruption.
- Aims to develop potential conceptual models that reflect the dynamics of the IR–OR relationship.
- Examines how construction professionals perceive and interpret the relationship between individual and organisational resilience.
- Identifies the key mediating factors influencing this relationship and explores how they can be integrated to refine an appropriate conceptual model.

- Investigates how resourcefulness shapes or influences the relationship between individual and organisational resilience.
- Focuses on synthesising insights from IR–OR dynamics, mediating factors, and resourcefulness into a practical resilience model tailored to the construction sector.

The chapter begins by mapping the interrelationships among the findings and demonstrating how they align with and fulfil the research objectives (Section 8.2). It then proceeds with two focused sections that explore the study's contributions in theoretical domain (Section 8.3) and industry practice (Section 8.4), respectively, highlighting key insights and implications. These sections underscore the study's role in extending theoretical knowledge while offering actionable guidance for practitioners. The chapter concludes with a discussion of the study's limitations and future research opportunities (Section 8.5), offering a critical reflection on its scope and identifying directions for future research.

9.2. Achievement of Research Objective

The primary focus of this study is to develop a strategic framework that explains and enhances the relationship between individual resilience (IR) and organisational resilience (OR) within the New Zealand construction sector. To achieve this aim, the study was guided by three research objectives with seven research questions, each addressing a specific aspect of the IR–OR relationship. The explanation of how these objectives were addressed and accomplished is outlined in the following subsection.

9.2.1. Objective 1: To assess the current literature on the relationship between individual and organisational resilience.

The objective 1 was achieved by investigating three main RQs.

- *Research Question 1.1 – What makes individual resilience (IR) and organisational resilience (OR) similar and distinct, and what is the basis behind their similarity and distinction?*

This particular RQ was designed to critically examine the foundational concepts that underpin the overarching research aim. In the existing body of resilience literature, organisational resilience has received predominant scholarly attention, particularly within the fields of strategic management, risk mitigation, and systems theory. However, organisations are made up of individuals, and the resilience of these individuals, their ability to withstand, adapt, and recover from disruption, is increasingly recognised as an essential determinant of the broader resilience of the organisation.

Despite this recognition, the nature of the connection between individual and organisational resilience remains insufficiently understood. While some scholars suggest a direct, mutually reinforcing relationship between the two, others argue that the relationship is non-linear, conditional, or even contradictory. For example, resilient individuals may still operate in structurally fragile organisations, or resilient organisations may mask underlying burnout or resource depletion at the individual level. This ambiguity creates both a conceptual and a practical gap in the understanding of the relationship.

RQ1.1 has been explored through an extensive literature review, aiming to examine how IR and OR are defined, how they function, and where their conceptual boundaries lie. The findings from this review reveal the presence of five key overlapping dimensions: work environment and organisational culture, leadership practices, social support and communication, adaptability and change readiness, and

recognition of control boundaries, which serve as the foundational basis for the similarities between IR and OR. As discussed in chapter 3, these dimensions illustrate how certain enablers, such as leadership style or organisational climate, influence both an individual's capacity to cope and an organisation's ability to adapt. However, the study also carefully delineates the distinctions between the two constructs, emphasising that while both levels share conceptual indicators, their operational scale, behavioural expressions, and mechanisms of impact differ. For example, adaptability in IR refers to personal cognitive flexibility and emotional regulation, whereas in OR it refers to strategic transformation and collective process change. Similarly, control at the individual level may relate to autonomy or personal agency, while at the organisational level it involves structural governance and decision-making authority. These findings provide a nuanced foundation to argue that IR and OR are not hierarchically nested but interdependently aligned, with overlapping yet context-specific components.

The study, thus, directly addresses the research question by uncovering why and how the constructs are partially aligned but inherently distinct. It provides a clear conceptual map of the similarities and distinctions between IR and OR. More importantly, it highlights that the relationship between them is neither static nor universally positive, but highly dependent on context, interaction, and interpretation. This nuanced understanding sets the groundwork for the subsequent RQs.

- *Research Question 1.2 – What is the nature and extent of the relationship between IR and OR as represented in resilience research?*

While RQ1.1 primarily seeks to distinguish IR and OR as two distinct but partially overlapping constructs, RQ1.2 moves the discussion forward by interrogating the extent of this relationship. This shift in focus is critical, as it allows the study to capture what IR and OR are, and to what degree they are inter-related.

The literature analysis in chapter 4 reveals that while IR is an essential component within the organisational system, it alone is insufficient to guarantee OR. The findings further reinforce that the relationship between IR and OR is not linear or additive. Resilient individuals may contribute positively, but organisational resilience is shaped through a complex interplay of structures, culture, leadership, and systems. Resilience is distributed across individual, group, and organisational levels, and the way these interact is what determines overall OR (Lengnick-Hall et al., 2011; Cunha et al., 2013). The study also observes the existence of organisational-level enablers that act as a bridge between IR and OR. For instance:

- Leadership culture: Resilient individuals cannot thrive or contribute to OR without supportive, inclusive, and empowering leadership. Leadership failures can suppress the positive impacts of IR.
- Organisational learning and unlearning: The organisation must embrace dynamic learning environments. Resilient individuals alone cannot drive adaptation unless organisational processes support innovation and feedback.
- Information management: The ability of an organisation to respond to crises depends on timely, transparent, and structured information flow. Without it, even resilient employees may act in isolated, counterproductive ways.

- Collaborative culture and teamwork: IR can be undermined by poor collaboration or siloed operations. Cross-functional teamwork and shared goals are essential.
- Organisational culture and climate: A creative, failure-tolerant culture that supports experimentation is crucial to convert individual strengths into organisational gains.
- Planning and resource redundancy: Even the most capable individuals require resources to perform. Without adequate organisational preparedness (financial, technical, material), IR is constrained.

The study emphasises that the burden of resilience cannot be shifted solely to individuals. Organisations must create structures that translate individual capabilities into systemic outcomes. Moreover, resilience must be cultivated as a system property, not as an individual obligation.

While RQ1.1 clarifies that IR and OR are not equivalent and that their relationship is context-dependent, RQ1.2 investigates the relationship in more details. By identifying the enablers, RQ1.2 lays the theoretical groundwork for future empirical work, including the qualitative interviews and focus group studies that follow in later stages of the research. These later stages aim to test and refine the findings in real-world settings, adding further nuance to the IR–OR interplay.

- *Research Question 1.3: What key research gaps remain in the literature on the IR–OR relationship, and how can these inform the development of potential conceptual models to explain this relationship?*

While RQ1.1 and RQ1.2 establish the conceptual distinctions and interdependencies of the IR–OR relationship, RQ1.3 takes this further by addressing structural ambiguity through model development (as discussed in chapter 5). Specifically, this question aims to consolidate fragmented theoretical understanding into visual, interpretable, and practically relevant conceptual models. Three distinct but interrelated conceptual models have been developed to represent different dimensions of the IR–OR relationship:

- The Stacked Resilience Model (Fig. 5.3) conceptualises resilience as a multi-tiered system encompassing national, community, organisational, and individual levels. The model underscores that while IR is often discussed as foundational, it is in fact the most vulnerable level in this stack. IR depends heavily on upstream support from organisations, communities, and national systems. Hence, IR is not simply a building block of OR but a dynamic and reactive component that can both influence and be constrained by system-wide forces.
- The Integrated Resilience Model (Fig. 5.4) focuses on how different internal (staff, projects) and external (suppliers, stakeholders) domains contribute to OR. Crucially, IR is shown to be a central enabler of these domains. However, its impact is contingent upon the broader organisational context including leadership, support systems, and the alignment of knowledge flows. This model identifies feedback loops between IR and OR, suggesting a mutually dependent system effecting the IR-OR relationship.
- The Nested Resilience Model (Fig. 5.5) places IR and OR as partially overlapping entities nested within broader community and national systems. The model offers a conceptual illustration of resilience as a multi-level, non-linear system comprising individuals, organisations, and broader

societal structures. It reflects a networked approach where governance, access to technology, financial resilience, social cohesion, and international collaboration interact to influence both resilient and non-resilient individuals and institutions. Ultimately, the model does not follow a strictly linear or cyclic structure. Rather, it represents a general system of interconnected influences across different scales.

RQ1.1 suggests that individual and organisational resilience share certain overlapping attributes but remain conceptually distinct in terms of their underlying drivers and functions. RQ1.2 advances this understanding by showing that IR does not inherently lead to OR, as the connection between them is impacted by several supporting factors. To address this complexity, RQ1.3 provides a foundation for subsequent empirical work by making the relationship between IR and OR more measurable and scenario-sensitive. Thus, RQ1.3 not only synthesises the findings of earlier RQs but also sets the stage for methodical refinement through primary data in later stages of the thesis.

9.2.2. Objective 2: To explore how construction professionals perceive the relationship between individual and organisational resilience, and to identify the organisational factors that influence their interaction.

Objective 2 has been achieved by investigating two main RQs.

- *Research Question 2.1: How do construction professionals understand the relationship between individual and organisational resilience?*

RQ 2.1 marks a critical transition in the study by grounding the previous conceptual insights of RQ1 (which focuses on literature-based models) into empirical fieldwork through qualitative interviews with 20 construction professionals across New Zealand. This RQ builds directly on the ambiguity highlighted in RQ1.1 and RQ1.2 that, while IR and OR share overlapping domains, their interdependence is complex and dynamic. However, these insights have been derived predominantly from theoretical models and fragmented disciplinary perspectives. RQ2.1, therefore, extends the inquiry by asking how these relationships are actually perceived, enacted, and operationalised by professionals in real construction environments, particularly in disruption-prone scenarios.

As discussed in chapter 6, the findings of RQ2.1 reveal that while professionals commonly recognise a strong correlation between IR and OR, they also highlight that resilience at both levels originates from different sources and serve different purposes. OR is perceived to emerge from structured systems, leadership, market adaptability, and stakeholder coordination rooted in formalised frameworks. In contrast, IR is seen as emerging from life experiences, mental well-being, and personal coping strategies. This distinctiveness in origin and intention explains why the relationship between the two cannot be assumed to be automatic or linear.

Another important insight that emerged from the research is the existence of a mutual impact dynamic. Resilient organisations can foster individual resilience by creating psychologically safe work environments, providing training, encouraging knowledge sharing, and enabling autonomy. This bidirectional relationship reinforces the notion that the IR–OR link is not a one-way causal chain but a co-evolving and context-sensitive interplay. RQ2.1 significantly deepens the understanding of how the IR–OR relationship functions in practice and introduces the idea of mediating factors, including shared

vision, leadership, empowerment, learning culture, and team trust, which serve as bridges between the two. These factors are not explicitly explored in Objective-1 but form the empirical backbone for RQ2.2, which aims to develop a visual, integrated model representing the dynamic interaction between IR and OR in real-world construction settings. Thus, RQ2.1 translates the theoretical distinctions and interdependencies into lived professional experience, validating some of the claims made in earlier literature while also revealing additional layers of complexity that only emerge through on-ground insights.

- *Research Question 2.2: What are the mediating factors between individual resilience and organisational resilience and how can these be incorporated to refine the most relevant conceptual model derived from the literature?*

This research question is explored through an empirical study grounded in semi-structured interviews with 20 senior construction professionals across New Zealand. Building upon the earlier research questions (RQ1.1, RQ1.2, RQ1.3 and RQ2.1) which clarified the conceptual disconnect between IR and OR and tested integrated frameworks, this research question aims to address how these two constructs are operationally linked. It represents a critical transition from conceptual mapping (what IR and OR are, and how they are related) to identifying why their relationship functions differently across contexts and what conditions influence this dynamic.

The findings show that the relationship between IR and OR is not automatic or linear. Rather, it is significantly shaped by several mediating factors, such as internal conditions and processes within organisations that either enable or obstruct the transmission of resilience from the individual to the system-level. Fifteen such factors have been identified through inductive NVivo-based thematic coding. Among them, six core mediators have been highlighted due to their recurring presence across participant narratives: Leadership and Governance, Continuous Learning, Team Collaboration and Trust, Shared Vision and Goal, Empowerment and Autonomy, and Resource and Technology Management (Fig. 6.1). These mediators are both operational bridges and moderating influences, affecting whether, and how, IR becomes a meaningful contributor to OR.

For instance:

- Leadership Governance is highlighted as the most dominant mediator. It determines whether employees' resilient behaviours are encouraged, shaped, or even stifled. The findings show that leaders influence organisational resilience not just through decision-making, but through modelling behaviour, enabling training, and building psychological safety. Collectively, it serves as a catalyst for both IR and OR.
- Continuous Learning emerged as a feedback loop between levels. If organisations capture and institutionalise individual learning, they become better at responding systemically to crises. Inversely, when learning remains siloed, both individual motivation and organisational adaptability are weakened.
- Empowerment and Autonomy allows individuals to take initiative during disruption without waiting for instructions. When backed by a trust-based culture, this directly accelerates recovery and adaptation efforts.

- Shared Vision and Goal gives meaning to individual actions. A clear organisational purpose enables individuals to align their efforts, even in the absence of detailed direction, which strengthens cohesion.
- Team Collaboration and Trust can be seen as a protective layer. Individuals embedded in trusting, communicative teams are better supported and more effective during crises, enhancing an organisation's responsiveness.
- Resource and Technology Management acts as an operational bridge and provides the structural and systemic conditions under which IR can translate into OR. Conversely, gaps in resource availability or outdated technological infrastructure can negate even strong IR, creating bottlenecks that prevent adaptive behaviours from influencing organisational performance.

These findings have been visually synthesised into the Modified Integrated Resilience Model (Fig. 6.2), which introduces a bidirectional, context-dependent link between IR and OR, moderated by the identified factors. Importantly, this model challenges earlier assumptions in literature that simply having resilient people or supportive systems automatically translates into OR. Instead, this study shows that it is the presence of mediating factors that are instrumental in determining whether resilience is transferred, amplified, or restricted between IR and OR. This critical insight includes the idea that organisational resilience is not simply about having resilient people, but about strategically channelling their capacities through well-developed internal mechanisms.

This insight provides a launching point for the next research objective. Specifically, it prompts a deeper inquiry into how these mediating factors act as internal resources, and how their effectiveness in facilitating resilience may depend on a higher-order organisational capability, i.e., resourcefulness. Thus, while RQ2.2 provides a clear, conceptual and operational bridge between IR and OR, it also raises an important secondary question that how these mediating factors acting as internal resources enhance both the resilience?

This emergent observation, shaped by the formulation of Objective 3 and its associated research questions (RQ3.1 and RQ3.2), aims to explore resourcefulness not only as a dynamic mediator but also as a critical contextual condition influencing IR–OR interactions. In doing so, the research moves beyond static models towards a more integrated, systems-oriented understanding of how resilience is co-produced within organisations operating under stress.

8.2.3. Objective 3: To develop an integrated framework that captures the interaction between individual and organisational resilience and informs resilience-building interventions in the construction industry. Objective 3 has been achieved by investigating two main RQs.

- *Research Question 3.1: What is the role of resourcefulness in influencing the relationship between individual resilience (IR) and organisational resilience (OR)?*

The investigation of RQ3.1 builds directly on the preceding research objectives. Specifically, Objective 1 examines the conceptual relationship between IR and OR, and Objective 2 discusses the mediating enablers that connect them in practice based on the lived experiences of construction professionals. While earlier findings highlight the overlapping yet distinct nature of IR and OR, and identify key mediating elements such as leadership, shared vision, team collaboration, and organisational culture,

chapter 7 discussed RQ3.1 which shifts the focus towards examining how these mediators' function in practice. It emphasises resourcefulness as the central mechanism through which these enabling factors are mobilised and translated into resilient outcomes. This question moves beyond identifying what the mediators are, and instead explores how organisations activate them. For example, how resilient leadership provides guidance and fosters creativity, or how team trust facilitates adaptive responses. This reveals that resourcefulness acts as the strategic and dynamic capability that connects individual strengths with organisational recovery and adaptability.

Unlike resources which are tangible (e.g., funding, personnel, infrastructure), resourcefulness refers to the creative mobilisation, repurposing, and coordination of these assets in response to disruption. The interviews reflect that during crises, such as weather-related project delays or supply chain breakdowns, organisations that successfully activated resourcefulness (e.g., by reassigning site supervisors to procurement, or converting underutilised space for material storage) were able to maintain business continuity and protect staff morale. This underlines that resourcefulness is not merely a trait, but a context-responsive capability enabled by organisational conditions such as leadership foresight, role flexibility, information transparency, and prior crisis experience. The interviewees also highlighted the presence of five enablers of resourcefulness: Leadership Foresight, Cash Flow, Strategic Decision-Making, Information Sharing and Open Communication, and Collaborative Culture and Role Flexibility. These enablers are active facilitators that help convert individual resilience into strategic organisational responses. For example, a resilient site engineer may have ideas or workarounds during a labour shortage, but only an empowered and communicative culture will allow those actions to reach through into the project team or firm-wide operations. The findings, thus, conclude that resourcefulness activated through its enablers plays a mediating role in the IR–OR relationship. It determines whether resilient behaviours are channelled, supported, and scaled into organisational outcomes, or whether they remain isolated at the individual level. This insight has been foundational in developing the proposed resilience model which positions resourcefulness not as a background condition, but as a central mechanism of resilience-building in construction organisations.

Consequently, RQ3.1 clarifies an unresolved tension observed in RQ2.2 that, although the presence of resources and enabling factors are found to be essential, these alone do not guarantee resilient outcomes. During the data analysis, it became clear that many of the mediators identified in RQ2.2 can be considered as resource channels that provide support to the IR–OR relationship. However, their impact is determined by how effectively they are activated and aligned with evolving demands, a process that requires resourcefulness. These insights directly contribute to the emerging model by showing that resilient individuals cannot meaningfully contribute to OR unless there is an enabling structure that channels their adaptive behaviours into organisational outcomes. For instance, a resilient staff member who is innovative and willing to help may still be ineffective unless leadership allows for role fluidity, shares real-time information, or gives the individual autonomy to act. Thus, resourcefulness operationalises the IR–OR relationship by ensuring that individual adaptability and discretionary effort translate into collective gains. Ultimately, this research question sets the stage for the next set of research objectives which investigate how this resourcefulness-enabling structure can be formalised into a strategic model and tested across multiple organisational settings in the New Zealand construction

sector. RQ3.1, thus, marks the transition from identifying resilience dynamics to understanding the activation mechanisms that convert IR into the adaptive capacity of a system.

- *Research Question 3.2: How can the insights from IR–OR dynamics, resourcefulness and mediating factors be synthesised into a practical model for resilience in the construction sector?*

The investigation of RQ3.2 in chapter 8 presents the integrative culmination of the entire study. Building on the layered understandings developed through previous research questions, RQ3.2 seeks to consolidate these findings into a coherent and operational framework. The earlier inquiries explore the conceptual ambiguity between IR and OR, reveal their overlapping yet distinct features (RQ1.1), assess the nature and contextual variability of their relationship (RQ1.2), and identify key mediating factors such as leadership, shared vision, trust, and psychological safety, that condition this relationship (RQ2.2). Additionally, the role of resourcefulness as the pivotal operational mechanism connecting resources to resilience is critically examined (RQ3.1).

These findings show that while IR and OR are interdependent, the effectiveness of their interaction is highly contingent on how internal resources are perceived, coordinated, and activated in real-world contexts. Importantly, it became evident that resilience is not a fixed trait or static organisational attribute, but an emergent property shaped by systemic conditions, dynamic relationships, and responsive leadership.

Building on the prior research questions, RQ3.2 integrates the conceptual distinctions (RQ1), mediating factors (RQ2), and the operational role of resourcefulness (RQ3.1) into a comprehensive and applied framework. While previous questions highlight the individual and organisational aspects of resilience and the enabling bridges between them, this RQ specifically translates those findings into a context-sensitive, empirically grounded model. One of the key contributions of RQ3.2 is the identification of four contextual factors that shape the translation of IR into OR. These include, Financial Stability, Organisational Reputation, Resourcefulness, and the Give-and-Take Relationship (Reciprocity).

These contextual conditions clarify that resilience is not solely a function of capability or policy, but of the environment in which people operate. The presence of these factors activates the mechanisms identified in RQ3.1 (resourcefulness, leadership, and collaboration), and ensure that resilient individuals contribute to the collective recovery of an organisation.

Ultimately, the model in Fig. 8.1, which was subsequently refined based on experts' feedback in Fig 8.2, answers RQ3.2 by demonstrating how IR and OR are dynamically linked. It offers a structured tool that practitioners and organisations can apply to enhance resilience in the New Zealand construction sector and beyond. The model has been further refined and strengthened through a focus group discussion (FGD). Drawing on the insights of experts from the construction sector, the session validates the model's core logic while offering targeted suggestions for improvement. Specifically, participants recommended rewording several components to ensure clearer operational meaning. For instance, reframing vague labels like 'Money' into more strategic terms such as 'Financial Stability & Workforce Retention Capacity'. They also emphasised the need for greater visual clarity which led to the use of coloured boxes to differentiate between processes and mechanisms, and the inclusion of bold versus light arrows to distinguish between the core model flow and supporting components. Furthermore, experts

highlighted the importance of external contextual elements (e.g., suppliers, stakeholders, and project pipeline), prompting the model's layout to reflect their mutual interdependence with staff and internal systems. As a result, the final model (Fig. 8.2) became more actionable, theoretically robust, and visually interpretable, bridging academic rigour with practitioner relevance.

9.3. Theoretical Contribution of the Study

This research offers significant theoretical contributions to the study of resilience, particularly by situating it within the underexplored context of the New Zealand construction sector. The construction industry is characterised by temporary project structures, fluctuating workforce dynamics, complex subcontracting arrangements, and frequent exposure to uncertainty and disruption. These characteristics challenge traditional organisational models and demand a more nuanced understanding of how resilience is cultivated, enacted, and sustained. By examining the interaction between individual and organisational resilience in this context, the study addresses critical gaps in existing literature, particularly the lack of clarity regarding how resilience transfers across the two entities and under what conditions such transfer is enabled or constrained. Therefore, the following subsections outline the study's key theoretical contributions, including framing of resilience in the construction sector, reconceptualising the IR–OR relationship, highlighting the role of mediating organisational conditions, and introducing the source–purpose framework.

➤ Theoretical Framing of Resilience within the Construction Sector

One of the primary theoretical contributions of this study lies in its sector-specific framing of resilience, within the context of the New Zealand construction industry. The concept of resilience has been extensively explored in disciplines such as healthcare, emergency management, and organisational psychology. However, there is a notable gap in its application to the construction sector, despite its well-documented exposure to volatility, uncertainty, and high operational risk. This thesis responds to that gap by theorising resilience as it is situated within the structural, cultural, and procedural realities of construction organisations.

The construction industry is distinctively shaped by project-based work, temporary and dynamic teams, layered subcontracting, and high-stakes time and cost pressures. These characteristics differentiate it from more stable, hierarchical organisations, where resilience may be fostered through long-term continuity, centralised control, and established routines. In contrast, construction environments often require real-time adaptability, on-site decision-making, and collective responsiveness under resource and time constraints. By embedding the study of resilience within this unique organisational terrain, the research challenges traditional assumptions of resilience being developed through standardised protocols or centralised interventions.

The study challenges the often-assumed linear transmission of resilience from individuals to an organisation or vice versa. Instead, the study reveals that resilience is co-constructed and emerges through everyday social and operational interactions between workers, supervisors, subcontractors, and leadership teams. These interactions are not uniform or predictable, but rather deeply influenced by contextual realities unique to construction. For example, fragmented communication across project sites, teams, and organisational layers often leads to gaps in information flow, creating resilience “weak

spots” even within otherwise high-performing organisations. Similarly, as discussed in chapter 2, leadership presence and availability are often valued as signs of support. However, there is a fine balance between supportive leadership and micro-management. A leader who is accessible, approachable, and responsive can foster confidence and psychological safety. In contrast, if that presence becomes intrusive or overly controlling, it shifts into micro-management, which undermines autonomy, erodes trust, and constrains individual initiative. In other words, leadership availability is not inherently positive; its effect depends on how the leader engages with employees.

In such a fragmented and decentralised environment, a traditional top-down or systems-driven resilience model fails to capture how resilience actually operates. What is needed is a framework that recognises resilience as relational, fluid, and embedded in situational practice, a view supported by complexity and practice-based theories. Resilience is not considered to be possessed by any one level or actor. Rather, it is generated in the interstices between individuals, teams, and organisational structures, and is shaped by trust, shared goals, psychological safety, and informal support mechanisms.

This insight is particularly valuable for theoretical refinement as it extends resilience studies beyond static or structural views, exploring how dynamic, socially constructed, and emergent resilience processes function in real organisational ecologies, especially those that are project-based, mobile, and fragmented, like construction.

➤ Reconceptualising the IR–OR Relationship as Contextually Mediated

A significant theoretical contribution of this study lies in the re-conceptualisation of the relationship between individual resilience (IR) and organisational resilience (OR), not as a direct, causal linkage, but as a contextually mediated, dynamic, and bidirectional process. These findings challenge the dominant assumptions in much of the resilience literature that either implicitly assume alignment between IR and OR. It finds that the relationship is not direct or causal, but is a contextually mediated, dynamic, and bidirectional process. These findings challenge the dominant assumptions found in parallel.

Traditional models often suggest that resilient individuals form the backbone of resilient organisations, that is, resilience at the organisational level is assumed to be the sum of individual-level capacities such as optimism, adaptability, and emotional regulation. However, this view fails to account for the organisational context that shapes whether and how individual resilience can actually be activated, sustained, or scaled. It also risks overlooking how organisational structures, cultures, and systems can either amplify or suppress the potential of individual actors during times of disruption.

Findings from this study demonstrate that IR does not automatically translate into OR, nor does the existence of formal OR strategies guarantee the psychological safety or adaptability of individuals on the ground. Rather, chapter 5 highlights that the relationship between IR and OR is revealed to be moderated by a series of internal organisational conditions such as the quality of leadership, team culture, clarity of shared goals, autonomy, and opportunities for learning.

This insight advances the existing theory by positioning the IR–OR connection not as a linear pipeline, but as a relational system shaped by mediating variables. For example, interview participants described scenarios in which their individual resilience was high and driven by internal motivation or past crisis

experience but the organisation's rigid hierarchy, blame culture, or poor communication systems undermined their ability to act effectively during disruption. Conversely, participants also noted that supportive leadership and a learning-oriented environment enabled less experienced individuals to take adaptive, resilient actions that contributed to positive organisational response.

Theoretically, this suggests that the conversion of IR into OR is contingent, not guaranteed. It depends on the organisational 'infrastructure' for resilience, a term that encompasses both tangible systems (decision-making processes, communication protocols) and intangible features (culture, trust, shared purpose). In doing so, the study contributes to a growing but still nascent body of work that understands resilience as a relational phenomenon produced in the interactions between people and systems, rather than residing wholly within either.

This re-conceptualisation also suggests that resilience cannot be fully understood by analysing individuals or organisations in isolation. Instead, emphasis must be laid on the mechanisms and conditions that govern how resilience emerges, is sustained, or breaks down. This opens avenues for future theory development that incorporates mediated pathways, boundary conditions, and cross-level feedback loops into resilience frameworks. This is particularly relevant in fragmented or project-based sectors like construction, where alignment between personal agency and organisational adaptability is often tenuous.

Ultimately, this study adds conceptual depth to resilience theory by showing that the IR–OR relationship is not inherent, stable, or guaranteed. It is a context-sensitive, socially constructed interaction, conditioned by organisational enablers that either facilitate or constrain resilience flows across levels. The Modified Integrated Resilience Model developed in this thesis explicitly embeds this insight, providing a visual and conceptual tool for capturing the mediated and dynamic nature of the relationship.

➤ Significance of Mediating Factors

Another core theoretical contribution of this study is the identification and elevation of organisational mediators as essential conditions that shape the link between individual and organisational resilience. While prior research has discussed enablers or resilience-enhancing factors, they have often been treated as independent variables that influence resilience in general, rather than as critical bridges that facilitate the translation of resilience across levels.

The study's findings reveal that certain factors, namely Leadership and Governance, Team Collaboration and Trust, Shared Vision and Goals, Empowerment and Autonomy, and Continuous Learning, act as mediators between IR and OR. These mediators are not passive backdrops, instead they are active mechanisms through which IR becomes operationalised at the organisational level. In the absence of these conditions, even highly resilient individuals may struggle to contribute meaningfully to collective organisational recovery, continuity, or adaptation, and vice versa.

For instance, chapter 4 and 6 indicated that when leadership behaviours and team cultures support psychological safety, then individuals feel safe to speak up, take initiative, and acknowledge uncertainty during disruption. Without such enabling conditions, individual resilience capacities remain latent or suppressed, unable to make visible, organisation-wide impacts.

This expands current resilience theory by showing that resilience is not merely a function of capacity, but of conditions for conversion. It highlights the in-between space where alignment (or misalignment) occurs, emphasising that organisational resilience is not the sum of individual parts, but a collectively cultivated state conditioned by internal systems, relationships, and purpose.

Moreover, this aligns resilience theory with broader organisational learning, systems thinking, and psychological safety literature, yet with a specific focus on resilience transmission and reinforcement mechanisms.

➤ Integration of Purpose and Source Dimensions of Resilience

In addition to uncovering key mediators, through chapter 6, this study contributes a conceptual deepening of resilience theory by integrating the often-overlooked dimensions of source and purpose into the IR–OR framework. While existing definitions of resilience commonly focus on what it is (e.g., the ability to bounce back, adapt, or transform), few critically interrogate where resilience originates from (the source), or what it is intended to achieve (the purpose).

The analysis reveals that individual resilience tends to stem from internal sources such as personal experiences, emotional regulation, mindset, and prior exposure to disruption. In contrast, organisational resilience is predominantly sourced from external structures such as governance systems, communication flows, policies, access to resources, and team configurations. This differentiation between internal versus external sources is critical because it shows that both forms of resilience have different dependencies, developmental trajectories, and vulnerabilities. Therefore, it is theoretically insufficient to either conflate IR and OR or to treat them as structurally identical constructs.

The findings also highlight that resilience must be understood in terms of its purpose. The study argues that resilience is not inherently positive or static but is always driven by a goal. The interviews make it clear that the end goal or objective of resilience shapes how individuals or organisations respond to disruption. For instance, some interviewees perceived resilience as “anticipating, thriving and coming back to a normal state” which reflects a performance-oriented mindset focused on maintaining operational continuity. Some responders described resilience more in terms of survival, risk avoidance, or preserving stakeholder trust. These diverging purposes shaped the strategies adopted, ranging from proactive restructuring and innovation to conservative cost-cutting or reputation management. Hence, the perceived purpose of resilience significantly influences not only what actions are taken, but also how resilience is experienced, communicated, and measured within the organisational setting.

By integrating purpose into the resilience framework, this thesis moves beyond simplistic definitions and contributes to a source–purpose governed framework, offering an analytical lens through which the IR–OR relationship can be more meaningfully understood. It enables researchers and practitioners to ask not just whether resilience exists, but how it emerges, who activates it, and what outcomes it is intended to produce, thereby, introducing a more intentional, reflexive, and system-aware foundation to resilience theory.

9.4. Practical Contribution of the Study

➤ Diagnostic Framework for Assessing Resilience Alignment

The development of a Modified Integrated Resilience Model provides practitioners with a diagnostic tool. The model makes explicit the conditional and mediated relationship between IR and OR, two concepts often viewed in isolation or simplistically equated. By highlighting the role of internal-external resources, and enabling contextual conditions, the model provides organisations with a flexible lens to examine where, how, and why gaps exist in the translation of IR into organisational outcomes, and vice versa.

By using this diagnostic model, construction firms can map their internal resilience landscape, identifying strengths and vulnerabilities across the IR–OR spectrum. Moreover, they can examine how specific factors (e.g., leadership style, clarity of shared goals, psychological safety, team trust) either facilitate or block resilience flow between individuals and the broader system. The model can also be useful in pinpointing misalignments, for example, when individual initiative is present but not institutionally supported, or when organisational strategies exist on paper but lack workforce engagement.

The value of this model lies in its diagnostic sensitivity as it does not assume resilience is present or absent in absolute terms but allows organisations to probe the conditions under which resilience is activated, sustained, or diminished. This is particularly valuable in the New Zealand construction sector, where teams are often dynamic, distributed across project sites, and operate under significant time and resource constraints. Moreover, because the model is grounded in empirical data from real construction professionals, it reflects the lived complexity of industry practice, rather than just abstract theoretical assumptions. This ensures that its application in the field is both realistic and actionable, enabling managers, site leaders, and human resource (HR) teams to design targeted interventions based on a clear understanding of the organisational conditions that enable resilience to function effectively.

Although this study is grounded in the context of the New Zealand construction sector, the proposed IR–OR framework demonstrates considerable potential for transferability to other national and industrial contexts characterised by uncertainty, project-based work, and high exposure to disruption. The mediating mechanisms identified in this research, such as leadership, communication, organisational culture, empowerment, learning orientation, and resourcefulness, are not unique to Aotearoa New Zealand but are broadly recognised as central enablers of resilience across organisational systems globally. Sectors such as mining, healthcare, logistics, energy, emergency management, and infrastructure delivery in countries vulnerable to economic volatility, climate-related disasters, labour shortages, or geopolitical instability may benefit from applying the framework as a diagnostic and strategic tool. Furthermore, the model's emphasis on the dynamic and bidirectional interaction between individual resilience (IR) and organisational resilience (OR) aligns with the increasing international shift towards human-centred and adaptive resilience approaches. While certain contextual dimensions, such as New Zealand's regulatory environment, workforce structure, and disaster history, may influence the specific manifestation of resilience practices, the conceptual logic of the framework remains adaptable across cultures and organisational settings. Therefore, the study provides a foundational platform for comparative international research and future cross-sectoral validation, enabling scholars and practitioners to refine and contextualise the model in ways that address the unique resilience demands of different regions and industries.

➤ Informing Leadership Development and Human Resource Practices

A key practical contribution of this study is its potential to reshape how leadership and HR practices are conceptualised and implemented in construction organisations particularly in regard to the cultivation and operationalisation of resilience. The findings clearly demonstrate that resilience is not solely a product of individual traits or high-level organisational systems, rather it is heavily influenced by the combined result of various individual and organisational aspects.

The interviews underscored leadership as a critical factor influencing the relationship between individual and organisational resilience, with most participants emphasising its importance. Therefore, the insights of the study can help in formulating actionable guidance, specifically for leadership development programmes. Traditional construction leadership training tends to emphasise project delivery, technical coordination, and performance metrics. While these are certainly important, the findings suggest a need to expand leadership competencies to include adaptive leadership under uncertainty, emotional intelligence and interpersonal empathy, psychological safety cultivation, conflict resolution in high-stress contexts, and encouragement of initiative-taking without fear of blame. By integrating these resilience-focused competencies, construction firms can equip leaders with the tools to not only manage teams but to actively shape resilient organisational cultures in which individuals feel supported to act decisively in order to facilitate quick recovery during disruption.

Furthermore, the thesis offers significant implications for HR and people management practices. The traditional HR emphasis on productivity, compliance, and role-based performance metrics must now be supplemented by resilience-oriented workforce strategies. For example, onboarding and training programmes can introduce resilience awareness, enabling new employees to understand the behavioural expectations and support structures available during times of disruption. Additionally, performance-based appraisal systems can incorporate resilience indicators, such as the ability to maintain composure during stress, support team functioning, or learn from setbacks. The model also emphasises the need to include, employee wellbeing initiatives such as peer-support networks, mental health resources, and regular emotional check-ins. Subsequently, such leadership and HR practices can become the institutional architecture through which resilience is enabled and sustained. Rather than relying solely on individual responses to stress or disruption, construction organisations can cultivate systematic, embedded mechanisms that can activate resilience before a crisis.

9.5. Research Limitation and Future Research Opportunities

While this study provides meaningful contributions to the theoretical and empirical understanding of IR and OR, particularly within the New Zealand construction sector, it is important to critically reflect on the limitations that may influence the interpretation, generalisability, and scope of the findings. These limitations do not undermine the value of the research but rather highlight its boundaries and provide a foundation for future investigation.

1. Sectoral and Geographic Specificity

The study has been conducted exclusively within the context of the New Zealand construction industry, which is characterised by high levels of disruption, decentralised project structures, short-term contracts, and hierarchical management. While this setting was purposefully selected due to its vulnerability to crises and its need for adaptive capacity, it also limits the transferability of findings. The organisational

culture, regulatory frameworks, and leadership practices prevalent in the New Zealand context may differ significantly from those in other sectors or countries.

Moreover, New Zealand's construction industry is relatively small and tightly networked, which may influence the nature of interpersonal trust, communication, and resilience practices. As such, the results may not be readily generalisable to larger, more rigid institutional settings, or to contexts with different socio-political and economic drivers. Future studies could examine how resilience dynamics manifest in sectors such as healthcare, manufacturing, or emergency management, and across diverse geographic and cultural environments.

2. Sample Representation and Positional Bias

The study included 20 semi-structured interviews and a focus group which engaged a range of professionals including team leaders, project managers, and senior organisational figures. While this purposive sampling captured strategic and reflective insights from those in leadership and coordination roles, it also introduced a degree of positional bias. Participant role and seniority may have influenced how resilience was understood and described in this study. Senior participants were more likely to discuss resilience from a strategic and organisational perspective, as their roles often involved decision-making, planning, resource allocation, crisis management, and setting future priorities. Their decisions can directly shape how an organisation prepares for, responds to, and recovers from disruption, and therefore have a strong influence on organisational resilience.

However, the views of junior or lower-level employees are also important and should not be overlooked. Although they may have less formal decision-making authority, they are often directly affected by senior-level decisions. Changes in workload, communication, organisational culture, job security, financial stability, and future organisational direction can influence their individual resilience. These employees are also the people who implement decisions in practice and experience the day-to-day consequences of organisational strategies. Therefore, while senior participants may focus more on broader organisational goals and strategic responses, junior participants provide insight into how those decisions are experienced, interpreted, and enacted at the operational level.

There is also a possibility of hindsight bias, particularly because participants were reflecting on past disruptions or organisational crises after the outcomes were already known. This may have influenced how they interpreted events, decisions, and behaviours. For example, participants may have presented certain actions as more predictable, logical, or successful than they appeared at the time, or they may have judged previous decisions more critically based on later outcomes. To reduce this limitation, responses were interpreted with caution, and perspectives from participants across different levels of seniority were considered to capture both strategic and operational understandings of resilience.

During the different phases of data collection, minority views were also observed and carefully noted down. Deliberate discussion was made on the points to check its generalizability, especially during the focus group discussion. This allowed the researchers to test if the views reflected an isolated perspective, a context-specific nuance, or a broader issue that needed to be incorporated into the model. Based on this, the suggestions retained if the ideas were relevant, rigorous, and sufficiently detailed to support critical appraisal, offered a plausible and evidence-informed explanation of how IR-OR interact.

Whereas the suggestions rejected when the ideas were considered insufficient if they relied on weak evidence, lacked a clear cross-level mechanism, or were too linear or hierarchical to account for the complexity emerging from the literature.

3. Reliance on Qualitative Self-Reported Data

The primary data collection methods, namely, semi-structured interviews and focus group discussions—rely on self-reporting, which is inherently subjective and vulnerable to several biases. Participants may have offered retrospective rationalisations, suppressed negative experiences, or overemphasised positive outcomes due to social desirability or professional pride. For instance, discussions around leadership effectiveness, team collaboration, or personal adaptability may reflect idealised narratives rather than consistent organisational norms.

Additionally, the qualitative nature of the study means that findings are interpretive rather than predictive. While thematic saturation was achieved and patterns were consistently observed across participants, the absence of quantitative validation means that the strength or prevalence of certain themes (e.g., the weight of psychological safety versus shared vision) cannot be empirically measured. Integrating mixed method approaches in future studies could help triangulate these findings and offer greater generalisability.

4. Cross-Sectional Research Design

The research was conducted at a single point in time, capturing a cross-sectional snapshot of resilience perceptions and practices within participating organisations. However, resilience, particularly OR, is inherently dynamic, evolving in response to repeated disruptions, learning cycles, and organisational restructuring. The study does not account for temporal changes, such as how resilience might strengthen, diminish, or transform over time, or how past crises have a cumulative effect on current practices.

As a result, the findings may overrepresent either a post-crisis reflection or a recovery-phase optimism. They do not capture resilience-building as an ongoing developmental process. A longitudinal study, tracking the same organisations or individuals across multiple projects or disruption events, would offer a more accurate view of how resilience is sustained, adapted, or challenged over time.

5. Conceptual Model Development and Refinement Limitations

The Modified Integrated Resilience Model, developed through thematic synthesis and refined via focus group discussion, presents a structured conceptualisation of the IR–OR relationship. However, the model remains illustrative rather than empirically tested. It visualises relationships based on patterns observed in qualitative data but does not establish causal or statistical validation of its components or connections.

Additionally, the model was supported through a single focus group session involving participants from similar industry backgrounds. While valuable practitioner insights were incorporated, broader and more diverse stakeholder engagement, such as from other sectors or frontline staff, could further strengthen the robustness and transferability of the model. Future research could employ quantitative model testing, such as Structural Equation Modelling (SEM), or cross-sectoral validation to test its predictive utility.

6. Thematic Analysis Subjectivity and Interpretive Bias

Existing literature and empirical data have been analysed using reflexive thematic analysis (Braun & Clarke, 2019) supported by NVivo software. While this method allows flexibility and depth in identifying themes, it is also subject to the interpretive lens of the researcher. Decisions regarding code grouping, theme formation, and quote selection were informed by both the literature and the researcher's positionality, which may have influenced the salience of particular constructs (e.g., prioritising leadership over structural factors).

Although peer-debriefing was used to strengthen reflexivity and rigour, it is still possible that thematic distortion or overemphasis has occurred. This could have been dealt with by employing collaborative coding, cross-checking with external reviewers, or respondent validation to enhance analytical objectivity.

The limitations of this study can be further overcome in future research by adopting a mixed-methods approach that combines the depth of qualitative inquiry with the generalisability of quantitative methods. This would allow for the development and empirical testing of resilience models across various sectors and organisational structures. Inclusion of comparative case studies across different industries, such as healthcare, infrastructure, IT, and manufacturing, could also yield valuable insights into sector-specific drivers of resilience.

Future research could also explore the longitudinal dynamics of resilience, tracking how it is built, diminishes, and reconfigured over time in response to chronic stressors (e.g., staff burnout, resource scarcity) and acute shocks (e.g., natural disasters, pandemics). Such research could offer a more processual understanding of resilience that goes beyond static assessments.

Exploration of moderating and mediating variables, including leadership styles, workplace culture, and team collaboration, would provide greater clarity on the intricate relationship between individual and organisational resilience. Additionally, studies should consider industry-specific and cultural differences for more applicable insights. As digital transformation continues, research should also investigate the effects of technology, artificial intelligence, and remote work on resilience. A comprehensive, multi-level approach examining resilience at individual, team, organisational, and community levels would provide a more complete picture. Lastly, practical interventions, such as leadership training and policy recommendations, should be developed to turn resilience theory into actionable strategies that help organisations thrive.

E.2. EPILOGUE TO PART E

Part E has been fruitful in highlighting how insights from IR–OR dynamics, resourcefulness, and mediating factors is synthesised into a practical resilience model for the construction sector. By combining the conceptual distinctions, empirical evidence, and practitioner validation, the study has demonstrated that resilience is not a static trait but an emergent and conditional property shaped by systemic conditions, leadership practices, and dynamic resourcefulness. The resulting refined version of the Integrated Resilience Model provides a structured and operational framework that shows how individual capacities, when adequately supported by organisational enablers, can be mobilised into collective adaptive strength.

Consequently, the study has also realised its overarching aim which is to investigate the relationship between individual and organisational resilience in the New Zealand construction sector and to develop an integrated framework that bridges the conceptual and practical gap between them. The model not only explains how resilience operates across levels, but also offers practical diagnostic value, enabling construction organisations to assess alignment, identify resilience bottlenecks, and design interventions that foster both individual well-being and systemic adaptability.

Thus, this part has consolidated the research journey by moving beyond conceptual fragmentation toward a coherent and actionable framework. It positions the thesis to contribute meaningfully to both theory and practice, while also laying the groundwork for future empirical testing, refinement, and cross-sector application.

REFERENCE

- A. Papadopoulos, G., Zamer, N., P. Gayialis, S., & P. Tatsiopoulou, I. (2016). Supply Chain Improvement in Construction Industry. *Universal Journal of Management*, 4(10), 528-534. <https://doi.org/10.13189/ujm.2016.041002>
- Achour, N., & Price, A. D. (2010). Resilience strategies of healthcare facilities: present and future. *International Journal of Disaster Resilience in the Built Environment*, 1(3), 264-276.
- Adeleke, A., Bahaudin, A. Y., & Kamaruddeen, A. M. (2018). Organizational internal factors and construction risk management among Nigerian construction companies. *Global Business Review*, 19(4), 921-938.
- Agusti, M., Galan, J. L., & Acedo, F. J. (2022). Saving for the bad times: slack resources during an economic downturn. *Journal of Business Strategy*, 43(1), 56-64.
- Agyekum, K., Kukah, A. S., & Amudjie, J. (2021). The impact of COVID-19 on the construction industry in Ghana: the case of some selected firms. *Journal of Engineering, Design and Technology*, 20(1), 222-244.
- Akgün, A. E., & Keskin, H. (2014). Organisational resilience capacity and firm product innovativeness and performance. *International Journal of Production Research*, 52(23), 6918-6937.
- Al Harthi, A., Soliman, M., & Palla, A. (2026). Unravelling the Opportunities and Challenges of Destination Branding in the Digital Era. *Maximizing Destination Marketing Strategies in the Digital Era*, 1-28.
- Alahmad, Y. Y. (2016). Understanding the relationship between transformational leadership styles: idealized influence, intellectual stimulation, inspirational motivation, individualized consideration and product innovation among manufacturing and services firms, the role of open system.
- Alaloul, W. S., Musarat, M. A., Rabbani, M. B. A., Iqbal, Q., Maqsoom, A., & Farooq, W. (2021). Construction sector contribution to economic stability: Malaysian GDP distribution. *Sustainability*, 13(9), 5012.
- Aldunce, P., Beilin, R., Handmer, J., & Howden, M. (2021). Stakeholder participation in building resilience to disasters in a changing climate. In *Environmental hazards and resilience* (pp. 164-179). Routledge.
- Alliger, G. M., Cerasoli, C. P., Tannenbaum, S. I., & Vessey, W. B. (2015). Team resilience. *Organizational Dynamics*, 44(3), 176-184. <https://doi.org/10.1016/j.orgdyn.2015.05.003>
- Amabile, T. M. (1983). The social psychology of creativity: a componential conceptualization. *Journal of personality and social psychology*, 45(2), 357.
- Amabile, T. M. (1997). Motivating creativity in organizations: On doing what you love and loving what you do. *California management review*, 40(1), 39-58.
- Amaratunga, D., Haigh, R., Malalgoda, C., & Keraminiyage, K. (2016). Knowledge gaps in the construction industry to increase societal resilience to disasters. In. Massey University/The University of Auckland.
- Andersson, T., Cäker, M., Tengblad, S., & Wickelgren, M. (2019). Building traits for organizational resilience through balancing organizational structures. *Scandinavian Journal of Management*, 35(1), 36-45.
- Andrew, S., Arlikatti, S., Siebeneck, L., Pongponrat, K., & Jaikampan, K. (2016). Sources of organisational resiliency during the Thailand floods of 2011: a test of the bonding and bridging hypotheses. *Disasters*, 40(1), 65-84.
- Annarelli, A., & Nonino, F. (2016). Strategic and operational management of organizational resilience: Current state of research and future directions. *Omega*, 62, 1-18.
- APA. (2020). *Resilience*. <https://dictionary.apa.org/resilience>
- Argote, L., & Miron-Spektor, E. (2011). Organizational learning: From experience to knowledge. *Organization science*, 22(5), 1123-1137.

- Ashford, S. J. (1988). Individual strategies for coping with stress during organizational transitions. *The Journal of Applied Behavioral Science*, 24(1), 19-36.
- Ashmos, D. P., & Huber, G. P. (1987). The systems paradigm in organization theory: Correcting the record and suggesting the future. *Academy of Management Review*, 12(4), 607-621.
- Averill, J. R. (1973). Personal control over aversive stimuli and its relationship to stress. *Psychological bulletin*, 80(4), 286.
- Avolio, B. J., & Gardner, W. L. (2005). Authentic leadership development: Getting to the root of positive forms of leadership. *The leadership quarterly*, 16(3), 315-338.
- Baard, S. K., Rench, T. A., & Kozlowski, S. W. (2014). Performance adaptation: A theoretical integration and review. *Journal of management*, 40(1), 48-99.
- Bakker, A. B., & Demerouti, E. (2007). The job demands-resources model: State of the art. *Journal of managerial psychology*, 22(3), 309-328.
- Barasa, E., Mbau, R., & Gilson, L. (2018). What Is Resilience and How Can It Be Nurtured? A Systematic Review of Empirical Literature on Organizational Resilience. *Int J Health Policy Manag*, 7(6), 491-503. <https://doi.org/10.15171/ijhpm.2018.06>
- Bardoel, E. A., Pettit, T. M., De Cieri, H., & McMillan, L. (2014). Employee resilience: An emerging challenge for HRM. *Asia Pacific Journal of Human Resources*, 52(3), 279-297.
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of management*, 17(1), 99-120.
- Beck, T. E., & Plowman, D. A. (2014). Temporary, emergent interorganizational collaboration in unexpected circumstances: A study of the Columbia space shuttle response effort. *Organization science*, 25(4), 1234-1252.
- Bergström, J., Dahlström, N., Dekker, S., & Petersen, K. (2017). Training organisational resilience in escalating situations. In *Resilience engineering in practice* (pp. 45-57). CRC Press.
- Berkes, F., Colding, J., & Folke, C. (2008). *Navigating social-ecological systems: building resilience for complexity and change*. Cambridge university press.
- Bhamra, R., Dani, S., & Burnard, K. (2011). Resilience: the concept, a literature review and future directions. *International Journal of Production Research*, 49(18), 5375-5393.
- Bogetoft, P., & Kerstens, P. J. (2024). Distinguishing useful and wasteful slack. *Operations Research*, 72(4), 1556-1573.
- Boh, W., Constantinides, P., Padmanabhan, B., & Viswanathan, S. (2023). Building digital resilience against major shocks. *MIS Quarterly*, 47(1), 343-360.
- Boin, A., & Van Eeten, M. J. (2013). The resilient organization. *Public Management Review*, 15(3), 429-445.
- Bolger, N., & Amarel, D. (2007). Effects of social support visibility on adjustment to stress: experimental evidence. *Journal of personality and social psychology*, 92(3), 458.
- Bonanno, G. A., Galea, S., Bucciarelli, A., & Vlahov, D. (2006). Psychological resilience after disaster: New York City in the aftermath of the September 11th terrorist attack. *Psychological science*, 17(3), 181-186.
- Booher, D. E., & Innes, J. E. (2010). Governance for resilience: CALFED as a complex adaptive network for resource management. *Ecology and society*, 15(3).
- Bosher, L., Dainty, A., Carrillo, P., Glass And, J., & Price, A. (2007). Integrating disaster risk management into construction: a UK perspective. *Building research and information*, 35(2), 163-177.
- Boyatzis, R., & McKee, A. (2005). *Resonant leadership: Renewing yourself and connecting with others through mindfulness, hope and compassion*. Harvard Business Press.
- Boyatzis, R. E., Goleman, D., & Rhee, K. (2000). Clustering competence in emotional intelligence: Insights from the Emotional Competence Inventory (ECI). *Handbook of emotional intelligence*, 99(6), 343-362.
- [Record #562 is using a reference type undefined in this output style.]
- Bradley, S. W., Wiklund, J., & Shepherd, D. A. (2011). Swinging a double-edged sword: The effect of slack on entrepreneurial management and growth. *Journal of business venturing*, 26(5), 537-554.

- Branicki, L., Steyer, V., & Sullivan-Taylor, B. (2016). Why resilience managers aren't resilient, and what human resource management can do about it. *The International Journal of Human Resource Management*, 30(8), 1261-1286. <https://doi.org/10.1080/09585192.2016.1244104>
- BRANZ. (2024a). *Improving residential construction firm resilience*. BRANZ Research Report ER88. <https://www.branz.co.nz/pubs/research-reports/er88/>
- branz.co.nz
- BRANZ. (2024b). *Workplace psychosocial stressors in the construction industry: Perspectives of construction industry stakeholders*. <https://mates.net.nz/wp-content/uploads/2024/09/MATES-x-BRANZ-Report-Exec-Summary-August-2024-EMBARGOED.pdf#:~:text=fostering%20a%20supportive%20work%20environment,apprentices%20%80%99%20concerns%20included%20setting%20clear>
- Braun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. *Qualitative research in sport, exercise and health*, 11(4), 589-597.
- Breen, R. L. (2006). A practical guide to focus-group research. *Journal of geography in higher education*, 30(3), 463-475.
- Britt, T. W., Shen, W., Sinclair, R. R., Grossman, M. R., & Klieger, D. M. (2016). How much do we really know about employee resilience? *Industrial and Organizational Psychology*, 9(2), 378-404.
- Brown, C., Hatton, T., & Ball, R. (2020). *Building resilience in 2020*. BRANZ. <https://www.buildmagazine.org.nz/articles/show/building-resilience-in-2020#:~:text=The%20construction%20sector%20is%20a,disruptions%20and%20impacts%20business%20performance>
- Bruneau, M., Chang, S. E., Eguchi, R. T., Lee, G. C., O'Rourke, T. D., Reinhorn, A. M., Shinozuka, M., Tierney, K., Wallace, W. A., & Von Winterfeldt, D. (2003). A framework to quantitatively assess and enhance the seismic resilience of communities. *Earthquake spectra*, 19(4), 733-752.
- Burnard, K., & Bhamra, R. (2011). Organisational resilience: development of a conceptual framework for organisational responses. *International Journal of Production Research*, 49(18), 5581-5599.
- Burnard, K. J. (2013). *Establishing the resilient response of organisations to disruptions: an exploration of organisational resilience* [Loughborough University].
- Burton, L. E., Qeadan, F., & Burge, M. R. (2019). Efficacy of equine-assisted psychotherapy in veterans with posttraumatic stress disorder. *Journal of integrative medicine*, 17(1), 14-19.
- Caniëls, M. C., & Baaten, S. M. (2019). How a learning-oriented organizational climate is linked to different proactive behaviors: The role of employee resilience. *Social Indicators Research*, 143(2), 561-577.
- Carmeli, A., & Russo, M. (2016). The power of micro-moves in cultivating mindful relationships: Implications for work-home enrichment and thriving. *Human Resource Management Review*, 26(2), 112-124.
- Carmeli, A., & Schaubroeck, J. (2008). Organisational crisis-preparedness: The importance of learning from failures. *Long range planning*, 41(2), 177-196.
- Carpenter, S. R., Brock, W. A., Folke, C., Van Nes, E. H., & Scheffer, M. (2015). Allowing variance may enlarge the safe operating space for exploited ecosystems. *Proceedings of the national Academy of Sciences*, 112(46), 14384-14389.
- Cash, D. W., Adger, W. N., Berkes, F., Garden, P., Lebel, L., Olsson, P., Pritchard, L., & Young, O. (2006). Scale and cross-scale dynamics: governance and information in a multilevel world. *Ecology and society*, 11(2).
- Cassidy, S. (2015). Resilience building in students: The role of academic self-efficacy. *Frontiers in psychology*, 6, 1781.
- Chen, D. J., & Lim, V. K. (2012). Strength in adversity: The influence of psychological capital on job search. *Journal of Organizational Behavior*, 33(6), 811-839.
- Chen, R., Xie, Y., & Liu, Y. (2021). Defining, Conceptualizing, and Measuring Organizational Resilience: A Multiple Case Study. *Sustainability*, 13(5), 2517. <https://www.mdpi.com/2071-1050/13/5/2517>

- Chih, Y.-Y., Hsiao, C. Y.-L., Zolghadr, A., & Naderpajouh, N. (2022). Resilience of organizations in the construction industry in the face of COVID-19 disturbances: Dynamic capabilities perspective. *Journal of management in engineering*, 38(2), 04022002.
- Choi, J. (2018). *Dynamic strain capacity analysis and planning for critical infrastructure to improve community resilience to disasters* [Purdue University].
- Clarkson, M., Heads, G., Hodgson, D., & Probst, H. (2019). Does the intervention of mindfulness reduce levels of burnout and compassion fatigue and increase resilience in pre-registration students? A pilot study. *Radiography*, 25(1), 4-9.
- Clements, A. J., & Kinman, G. (2023). INDIVIDUAL, TEAM, AND ORGANIZATIONAL RESILIENCE1. *Resilience in Modern Day Organizations*.
- Clough, P., Strycharczyk, D., & Perry, J. (2021). *Developing mental toughness: Strategies to improve performance, resilience and wellbeing in individuals and organizations*. Kogan Page Publishers.
- Coenen, M., Stamm, T. A., Stucki, G., & Cieza, A. (2012). Individual interviews and focus groups in patients with rheumatoid arthritis: A comparison of two qualitative methods. *Quality of life research*, 21(2), 359-370.
- Coetsee, L. D. (2001). *Peak performance and productivity: a practical guide for the creation of a motivating climate*. LD Coetsee.
- Cohen, L., Ferguson, C., Harms, C., Pooley, J. A., & Tomlinson, S. (2011). Family systems and mental health issues: A resilience approach. *Journal of Social Work Practice*, 25(1), 109-125.
- Comfort, L. K. (2007). Crisis management in hindsight: Cognition, communication, coordination, and control. *Public administration review*, 67, 189-197.
- Cooper, C., Flint-Taylor, J., & Pearn, M. (2013). *Building resilience for success: A resource for managers and organizations*. Springer.
- Coutu, D. L. (2002). How resilience works. *Harvard business review*, 80(5), 46-56.
- Crane, M. F., & Searle, B. J. (2016). Building resilience through exposure to stressors: The effects of challenges versus hindrances. *Journal of occupational health psychology*, 21(4), 468.
- Crespo, J. D. O., Domínguez, J. M. F., & Guzmán, D. M. C. (2025). Systematic Literature Review on Organizational and Financial Resilience. *IEEE Access*.
- Creswell, J. W. (2014). *A concise introduction to mixed methods research*. SAGE publications.
- Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.
- Cucoş, S., & Ţurcan, R. (2025). The role of the construction industry in economic growth and sustainable development. *Journal of Social Sciences*(1), 25-38.
- Cumming, G. S., Olsson, P., Chapin III, F., & Holling, C. (2013). Resilience, experimentation, and scale mismatches in social-ecological landscapes. *Landscape ecology*, 28(6), 1139-1150.
- Cunha, E., Castanheira, F., Neves, P., Story, J., Rego, A., & Clegg, S. (2013). Resilience in organizations. *File resilience in organizations, outlet, HRMR*.
- Danes, S. M., Lee, J., Amarapurkar, S., Stafford, K., Haynes, G., & Brewton, K. E. (2009). Determinants of family business resilience after a natural disaster by gender of business owner. *Journal of Developmental Entrepreneurship*, 14(04), 333-354.
- Day, L. (2020). Multimillion-dollar losses to construction and manufacturing from lockdown. *Star News*.
- De Koning, F. (2016). *Financial resilience*
- de Oliveira Teixeira, E., & Werther Jr, W. B. (2013). Resilience: Continuous renewal of competitive advantages. *Business Horizons*, 56(3), 333-342.
- De Vries, H. P., & Hamilton, R. T. (2021). Smaller businesses and the Christchurch earthquakes: a longitudinal study of individual and organizational resilience. *International Journal of Disaster Risk Reduction*, 56, 102125.
- Denkova, E., Zanesco, A. P., Rogers, S. L., & Jha, A. P. (2020). Is resilience trainable? An initial study comparing mindfulness and relaxation training in firefighters. *Psychiatry Research*, 285, 112794.

- Denny-Smith, G., Sunindijo, R. Y., Loosemore, M., Williams, M., & Piggott, L. (2021). How construction employment can create social value and assist recovery from COVID-19. *Sustainability*, 13(2), 988.
- Denzin, N. K., & Lincoln, Y. S. (2011). *The Sage handbook of qualitative research*. sage.
- Deutsch, E., Fairbanks, T., & Patterson, M. (2018). Simulation as a tool to study systems and enhance resilience. In *Delivering resilient health care* (pp. 56-65). Routledge.
- DiLiello, T. C., & Houghton, J. D. (2006). Maximizing organizational leadership capacity for the future: Toward a model of self-leadership, innovation and creativity. *Journal of managerial psychology*, 21(4), 319-337.
- Do, H., Budhwar, P., Shipton, H., Nguyen, H.-D., & Nguyen, B. (2022). Building organizational resilience, innovation through resource-based management initiatives, organizational learning and environmental dynamism. *Journal of Business Research*, 141, 808-821.
- Dobrucali, E., Sadikoglu, E., Demirkesen, S., Zhang, C., & Tezel, A. (2022). Exploring the impact of COVID-19 on the United States construction industry: challenges and opportunities. *IEEE Transactions on Engineering Management*.
- Doe, P. J. (1994). Creating a resilient organization. *Canadian Business Review*, 21, 22-22.
- Dolmans, S. A., van Burg, E., Reymen, I. M., & Romme, A. G. L. (2014). Dynamics of resource slack and constraints: Resource positions in action. *Organization Studies*, 35(4), 511-549.
- Douglas, S., & Haley, G. (2024). Connecting organizational learning strategies to organizational resilience. *Development and Learning in Organizations: An International Journal*, 38(1), 12-15.
- Drucker, P. (2012). *Post-capitalist society*. Routledge.
- Duarte Alonso, A., & Bressan, A. (2015). Resilience in the context of Italian micro and small wineries: an empirical study. *International Journal of Wine Business Research*, 27(1), 40-60.
- Dubois, C.-A., Bentein, K., Ben Mansour, J., Gilbert, F., & Bédard, J.-L. (2014). Why some employees adopt or resist reorganization of work practices in health care: associations between perceived loss of resources, burnout, and attitudes to change. *International journal of environmental research and public health*, 11(1), 187-201.
- Duchek, S. (2020). Organizational resilience: a capability-based conceptualization. *Business research*, 13(1), 215-246.
- Elkjaer, B., & Simpson, B. (2011). Pragmatism: A lived and living philosophy. What can it offer to contemporary organization theory? In *Philosophy and organization theory* (pp. 55-84). Emerald Group Publishing Limited.
- Endsley, M. R., Bolté, B., & Jones, D. G. (2003). *Designing for situation awareness: An approach to user-centered design*. CRC press.
- Erol, O., Mansouri, M., & Sauser, B. (2009). A framework for enterprise resilience using service oriented architecture approach. 2009 3rd Annual IEEE systems conference,
- Eshel, Y., & Kimhi, S. (2016). Community resilience of civilians at war: A new perspective. *Community mental health journal*, 52(1), 109-117.
- Essuman, D., Bruce, P. A., Ataburo, H., Asiedu-Appiah, F., & Boso, N. (2022). Linking resource slack to operational resilience: Integration of resource-based and attention-based perspectives. *International Journal of Production Economics*, 254, 108652.
- Everly, G. S., Smith, K. J., & Lobo, R. (2013). Resilient leadership and the organizational culture of resilience: construct validation. *International Journal of Emergency Mental Health and Human Resilience*, 15(2), 123-128.
- Ewart, C. K., Jorgensen, R. S., Suchday, S., Chen, E., & Matthews, K. A. (2002). Measuring stress resilience and coping in vulnerable youth: the Social Competence Interview. *Psychological assessment*, 14(3), 339.
- Field, L. (1997). Impediments to empowerment and learning within organizations. *The Learning Organization*, 4(4), 149-158.
- Fisher, J. D., Nadler, A., & Whitcher-Alagna, S. (1982). Recipient reactions to aid. *Psychological bulletin*, 91(1), 27.
- Fletcher, D., & Sarkar, M. (2013). Psychological resilience. *European psychologist*.

- Folke, C. (2006). Resilience: The emergence of a perspective for social–ecological systems analyses. *Global environmental change*, 16(3), 253-267.
- Francis, J. J., Johnston, M., Robertson, C., Glidewell, L., Entwistle, V., Eccles, M. P., & Grimshaw, J. M. (2010). What is an adequate sample size? Operationalising data saturation for theory-based interview studies. *Psychology and health*, 25(10), 1229-1245.
- Frieling, M., Peach, E. K., & Cording, J. (2018). The Measurement of social connectedness and its relationship to wellbeing. *Ministry of Social Development New Zealand*.
- Furniss, D., Back, J., Blandford, A., Hildebrandt, M., & Broberg, H. (2011). A resilience markers framework for small teams. *Reliability Engineering & System Safety*, 96(1), 2-10.
- Furniss, D., Barber, N., Lyons, I., Eliasson, L., & Blandford, A. (2014). Unintentional non-adherence: can a spoon full of resilience help the medicine go down? *BMJ quality & safety*, 23(2), 95-98.
- Galbraith, J. R. (1977). Organization design. *Reading, Mass*, 243-380.
- Gibbs, G. R. (2017). Using software in qualitative data analysis. *Research methods and methodologies in education*, 243-251.
- Giovannetti, A. M., Quintas, R., Tramacere, I., Giordano, A., Confalonieri, P., Messmer Uccelli, M., Solari, A., & Pakenham, K. I. (2020). A resilience group training program for people with multiple sclerosis: Results of a pilot single-blind randomized controlled trial and nested qualitative study. *PloS one*, 15(4), e0231380.
- Gittell, J. H., Cameron, K., Lim, S., & Rivas, V. (2006). Relationships, layoffs, and organizational resilience: Airline industry responses to September 11. *The Journal of Applied Behavioral Science*, 42(3), 300-329.
- Gladstein, D. L., & Reilly, N. P. (1985). Group decision making under threat: The tycoon game. *Academy of Management Journal*, 28(3), 613-627.
- Gleason, M. E., Iida, M., Bolger, N., & Shrout, P. E. (2003). Daily supportive equity in close relationships. *Personality and Social Psychology Bulletin*, 29(8), 1036-1045.
- Glover, J. (2012). Rural resilience through continued learning and innovation. *Local Economy*, 27(4), 355-372.
- Golverdi, M. (2018). national resilience: Literature Review. *Strategic Studies of public policy*, 7(25), 293-310.
- Griffin, B., & Hesketh, B. (2004). Why openness to experience is not a good predictor of job performance. *International Journal of selection and assessment*, 12(3), 243-251.
- Groschke, D., Hofmann, E., Muller, N. D., & Wolf, J. (2022). Individual and organizational resilience- Insights from healthcare providers in Germany during the COVID-19 pandemic. *Front Psychol*, 13, 965380. <https://doi.org/10.3389/fpsyg.2022.965380>
- Guest, G., Bunce, A., & Johnson, L. (2006). How many interviews are enough? An experiment with data saturation and variability. *Field methods*, 18(1), 59-82.
- Gunasekaran, A., Rai, B. K., & Griffin, M. (2011). Resilience and competitiveness of small and medium size enterprises: an empirical research. *International Journal of Production Research*, 49(18), 5489-5509.
- Gunderson, L. H. (2000). Ecological resilience—in theory and application. *Annual review of ecology and systematics*, 31(1), 425-439.
- Gunderson, L. H., & Holling, C. S. (2002). *Panarchy: understanding transformations in human and natural systems*. Island press.
- Hackman, J. R., & Oldham, G. R. (1976). Motivation through the design of work: Test of a theory. *Organizational behavior and human performance*, 16(2), 250-279.
- Hardy, C., Phillips, N., & Lawrence, T. B. (2003). Resources, knowledge and influence: The organizational effects of interorganizational collaboration. *Journal of management studies*, 40(2), 321-347.
- Harrington, L. J., Dean, S. M., Awatere, S., Rosier, S., Queen, L., Gibson, P. B., Barnes, C., Zachariah, M., Philip, S., & Kew, S. (2023). The role of climate change in extreme rainfall associated with Cyclone Gabrielle over Aotearoa New Zealand's East Coast.
- Hartmann, S., Weiss, M., Newman, A., & Hoegl, M. (2020). Resilience in the workplace: A multilevel review and synthesis. *Applied Psychology*, 69(3), 913-959.

- Hassall, M. E., Sanderson, P. M., & Cameron, I. T. (2014). Industry perspectives on organisational resilience. *Proceedings of RISK*.
- He, Z., Wang, G., Chen, H., Zou, Z., Yan, H., & Liu, L. (2022). Measuring the construction project resilience from the perspective of employee behaviors. *Buildings*, 12(1), 56.
- Hennink, M., & Kaiser, B. N. (2022). Sample sizes for saturation in qualitative research: A systematic review of empirical tests. *Social science & medicine*, 292, 114523.
- Hillmann, J., & Guenther, E. (2021). Organizational resilience: a valuable construct for management research? *International Journal of Management Reviews*, 23(1), 7-44.
- Hind, P., Frost, M., & Rowley, S. (1996). The resilience audit and the psychological contract. *Journal of managerial psychology*, 11(7), 18-29.
- Hirsch, P. M., & Levin, D. Z. (1999). Umbrella advocates versus validity police: A life-cycle model. *Organization science*, 10(2), 199-212.
- Hobfoll, S. E., Halbesleben, J., Neveu, J.-P., & Westman, M. (2018). Conservation of resources in the organizational context: The reality of resources and their consequences. *Annual review of organizational psychology and organizational behavior*, 5(1), 103-128.
- Hodges, H. F., Keeley, A. C., & Grier, E. C. (2005). Professional resilience, practice longevity, and Parse's theory for baccalaureate education. *Journal of Nursing Education*, 44(12), 548-554.
- Holling, C. S. (1973). Resilience and stability of ecological systems. *Annual review of ecology and systematics*, 4(1), 1-23.
- Holling, C. S. (1996). Engineering resilience versus ecological resilience. *Engineering within ecological constraints*, 31(1996), 32.
- Hollnagel, E., Woods, D. D., & Leveson, N. (2006). *Resilience engineering: Concepts and precepts*. Ashgate Publishing, Ltd.
- Home III, J. F., & Orr, J. E. (1997). Assessing behaviors that create resilient organizations. *Employment relations today*, 24(4), 29-39.
- Hosseini, S., Barker, K., & Ramirez-Marquez, J. E. (2016). A review of definitions and measures of system resilience. *Reliability Engineering & System Safety*, 145, 47-61.
- Houston, J. B., First, J., Spialek, M. L., Sorenson, M. E., Mills-Sandoval, T., Lockett, M., First, N. L., Nitiéma, P., Allen, S. F., & Pfefferbaum, B. (2017). Randomized controlled trial of the Resilience and Coping Intervention (RCI) with undergraduate university students. *Journal of American College Health*, 65(1), 1-9.
- Hwang, W. J., Lee, T. Y., Lim, K.-O., Bae, D., Kwak, S., Park, H.-Y., & Kwon, J. S. (2018). The effects of four days of intensive mindfulness meditation training (Templestay program) on resilience to stress: a randomized controlled trial. *Psychology, health & medicine*, 23(5), 497-504.
- Hyland, T., & Matley, H. (1997). 'Small Business. *Training Needs and VET Provision*.
- Ikehara, H. T. (1999). Implications of gestalt theory and practice for the learning organisation. *The Learning Organization*, 6(2), 63-69.
- Jaaron, A. A., & Backhouse, C. J. (2014). Service organisations resilience through the application of the vanguard method of systems thinking: A case study approach. *International Journal of Production Research*, 52(7), 2026-2041.
- Jansen, J. J., Vera, D., & Crossan, M. (2009). Strategic leadership for exploration and exploitation: The moderating role of environmental dynamism. *The leadership quarterly*, 20(1), 5-18.
- Jiang, Y., Ritchie, B. W., & Verreynne, M.-L. (2023). Building dynamic capabilities in tourism organisations for disaster management: Enablers and barriers. *Journal of Sustainable Tourism*, 31(4), 971-996.
- Johansen, C., Horney, J., & Tien, I. (2017). Metrics for evaluating and improving community resilience. *Journal of Infrastructure Systems*, 23(2), 04016032.
- Johnson, D. C., Polusny, M. A., Erbes, C. R., King, D., King, L., Litz, B. T., Schnurr, P. P., Friedman, M., Pietrzak, R. H., & Southwick, S. M. (2011). Development and initial validation of the Response to Stressful Experiences Scale. *Military medicine*, 176(2), 161-169.
- Jones, L., Ludi, E., & Levine, S. (2010). Towards a characterisation of adaptive capacity: a framework for analysing adaptive capacity at the local level. *Overseas Development Institute, December*.

- Kantur, D., & Say, A. I. (2015). Measuring organizational resilience: A scale development. *Journal of Business Economics and Finance*, 4(3).
- Kaplan, S., LaPort, K., & Waller, M. J. (2013). The role of positive affectivity in team effectiveness during crises. *Journal of Organizational Behavior*, 34(4), 473-491.
- Kim, D. H. (2009). The link between individual and organizational learning. In *The strategic management of intellectual capital* (pp. 41-62). Routledge.
- Kim, J. I., Yun, J.-Y., Park, H., Park, S.-Y., Ahn, Y., Lee, H., Kim, T.-K., Yoon, S., Lee, Y.-J., & Oh, S. (2018). A mobile videoconference-based intervention on stress reduction and resilience enhancement in employees: randomized controlled trial. *Journal of medical Internet research*, 20(10), e10760.
- Kimhi, S. (2016). Levels of resilience: Associations among individual, community, and national resilience. *Journal of health psychology*, 21(2), 164-170.
- Kimhi, S., & Eshel, Y. (2009). Individual and public resilience and coping with long-term outcomes of war 1. *Journal of Applied Biobehavioral Research*, 14(2), 70-89.
- Kimhi, S., Marciano, H., Eshel, Y., & Adini, B. (2020). Community and national resilience and their predictors in face of terror. *International Journal of Disaster Risk Reduction*, 50, 101746.
- King, D., & McSpedon, M. (2022). What Leaders Get Wrong About Resilience.
- Kirkpatrick, S. A., & Locke, E. A. (1991). Do traits matter. *Academy of Management Executive*, 5(2), 48-60.
- Kobasa, S. C., Maddi, S. R., & Zola, M. A. (1983). Type A and hardiness. *Journal of behavioral medicine*, 6, 41-51.
- Kuhn, T. S. (1997). *The structure of scientific revolutions* (Vol. 962). University of Chicago press Chicago.
- Kuijter, L., Nicenboim, I., & Giaccardi, E. (2017). Conceptualising resourcefulness as a dispersed practice. Proceedings of the 2017 Conference on Designing Interactive Systems,
- Kuntz, J. R., Malinen, S., & Näswall, K. (2017). Employee resilience: Directions for resilience development. *Consulting Psychology Journal: Practice and Research*, 69(3), 223.
- Kuntz, J. R., Näswall, K., & Malinen, S. (2016). Resilient employees in resilient organizations: Flourishing beyond adversity. *Industrial and Organizational Psychology*, 9(2), 456-462.
- Larsson, J., Eriksson, P. E., Olofsson, T., & Simonsson, P. (2015). Leadership in civil engineering: Effects of project managers' leadership styles on project performance. *Journal of management in engineering*, 31(6), 04015011.
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer publishing company.
- Lee, A. V., Vargo, J., & Seville, E. (2013). Developing a tool to measure and compare organizations' resilience. *Natural hazards review*, 14(1), 29-41.
- Lembani, M., Mohammed, A., & Abdulwahab, A. (2014). A Case Study of Technical Assistance to HIV Services in Cote d'Ivoire in the Context of Civil Unrest Following the Disputed Presidential Election of 2010. *Cape Town*.
- Lengnick-Hall, C. A., & Beck, T. E. (2005). Adaptive fit versus robust transformation: How organizations respond to environmental change. *Journal of management*, 31(5), 738-757.
- Lengnick-Hall, C. A., Beck, T. E., & Lengnick-Hall, M. L. (2011). Developing a capacity for organizational resilience through strategic human resource management. *Human Resource Management Review*, 21(3), 243-255. <https://doi.org/10.1016/j.hrmr.2010.07.001>
- Lengnick-Hall, M. L., Lengnick-Hall, C. A., Andrade, L. S., & Drake, B. (2009). Strategic human resource management: The evolution of the field. *Human Resource Management Review*, 19(2), 64-85.
- Liang, F., & Cao, L. (2021). Linking Employee Resilience with Organizational Resilience: The Roles of Coping Mechanism and Managerial Resilience. *Psychol Res Behav Manag*, 14, 1063-1075. <https://doi.org/10.2147/PRBM.S318632>
- Limnios, E. A. M., Mazzarol, T., Ghadouani, A., & Schilizzi, S. G. (2014). The resilience architecture framework: Four organizational archetypes. *European Management Journal*, 32(1), 104-116.

- Lin, L., He, G., Yan, J., Gu, C., & Xie, J. (2019). The effects of a modified mindfulness-based stress reduction program for nurses: a randomized controlled trial. *Workplace health & safety*, 67(3), 111-122.
- Linden, W., & Vodermaier, A. (2012). Mismatch of desired versus perceived social support and associated levels of anxiety and depression in newly diagnosed cancer patients. *Supportive Care in Cancer*, 20, 1449-1456.
- Linnenluecke, M. K. (2017). Resilience in business and management research: A review of influential publications and a research agenda. *International Journal of Management Reviews*, 19(1), 4-30.
- Linnenluecke, M. K., Griffiths, A., & Winn, M. (2012). Extreme weather events and the critical importance of anticipatory adaptation and organizational resilience in responding to impacts. *Business strategy and the Environment*, 21(1), 17-32.
- Liu, Y., & Yin, J. (2020). Stakeholder relationships and organizational resilience. *Management and Organization Review*, 16(5), 986-990.
- Livermore, A. (2024). *How quickly can we learn and share to recover faster?* BECA. <https://www.beca.com/ignite-your-thinking/ignite-your-thinking/february-2024/cyclone-gabrielle>
- Loprinzi, C. E., Prasad, K., Schroeder, D. R., & Sood, A. (2011). Stress Management and Resilience Training (SMART) program to decrease stress and enhance resilience among breast cancer survivors: a pilot randomized clinical trial. *Clinical breast cancer*, 11(6), 364-368.
- Lubchenco, J. (1998). Entering the century of the environment: a new social contract for science. *Science*, 279(5350), 491-497.
- Luthans, F., Vogelgesang, G. R., & Lester, P. B. (2006). Developing the psychological capital of resiliency. *Human resource development review*, 5(1), 25-44.
- Luthans, F., Youssef, C. M., & Avolio, B. J. (2007). Psychological capital: Investing and developing positive organizational behavior. *Positive organizational behavior*, 1(2), 9-24.
- Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical evaluation and guidelines for future work. *Child development*, 71(3), 543-562.
- Lyons, J. A. (1991). Strategies for assessing the potential for positive adjustment following trauma. *Journal of Traumatic Stress*, 4(1), 93-111.
- Ma, B., & Zhang, J. (2022). Tie strength, organizational resilience and enterprise crisis management: An empirical study in pandemic time. *International Journal of Disaster Risk Reduction*, 81, 103240.
- Ma, Z., Xiao, L., & Yin, J. (2018). Toward a dynamic model of organizational resilience. *Nankai Business Review International*, 9(3), 246-263.
- Mache, S., Vitzthum, K., Klapp, B. F., & Groneberg, D. A. (2015). Evaluation of a multicomponent psychosocial skill training program for junior physicians in their first year at work. *Family medicine*, 47(9), 693-698.
- Mafabi, S., Munene, J. C., & Ahiauzu, A. (2013). Organisational resilience: Testing the interaction effect of knowledge management and creative climate. *Journal of Organizational Psychology*, 13(1/2), 70-82.
- Malalgoda, C., Keraminiyage, K., Amaratunga, D., Haigh, R., Perera, S., & Adeniyi, O. (2015). Professional doctorates: applicability to the construction industry in increasing societal resilience to disasters. In. NCP.
- Malik, P., & Garg, P. (2020). Learning organization and work engagement: The mediating role of employee resilience. *The International Journal of Human Resource Management*, 31(8), 1071-1094.
- Mallak, L. (1998). Putting organizational resilience to work. *INDUSTRIAL MANAGEMENT-CHICAGO THEN ATLANTA*-, 8-13.
- Markman, G. M., & Venzin, M. (2014). Resilience: Lessons from banks that have braved the economic crisis—And from those that have not. *International business review*, 23(6), 1096-1107.

- Martín-Martín, A., Thelwall, M., Orduna-Malea, E., & Delgado López-Cózar, E. (2021). Google Scholar, Microsoft Academic, Scopus, Dimensions, Web of Science, and OpenCitations' COCI: a multidisciplinary comparison of coverage via citations. *Scientometrics*, 126(1), 871-906.
- Mason, M. (2010). Sample size and saturation in PhD studies using qualitative interviews. *Forum qualitative Sozialforschung/Forum: qualitative social research*.
- Masten, A. S. (2001). Ordinary magic: Resilience processes in development. *American psychologist*, 56(3), 227.
- Matheson, C., Robertson, H. D., Elliott, A. M., Iversen, L., & Murchie, P. (2016). Resilience of primary healthcare professionals working in challenging environments: a focus group study. *British Journal of General Practice*.
- Maynard, M. T., Kennedy, D. M., & Sommer, S. A. (2015). Team adaptation: A fifteen-year synthesis (1998–2013) and framework for how this literature needs to “adapt” going forward. *European Journal of Work and Organizational Psychology*, 24(5), 652-677.
- Maynard, M. T., Kennedy, D. M., Sommer, S. A., & Passos, A. M. (2015). Team cohesion: A theoretical consideration of its reciprocal relationships within the team adaptation nomological network. In *Team cohesion: Advances in psychological theory, methods and practice* (Vol. 17, pp. 83-111). Emerald Group Publishing Limited.
- MBIE. (2023). *Building and Construction Sector Trends*. <https://www.mbie.govt.nz/assets/building-and-construction-sector-trends-annual-report-2023.pdf>
- McAllister, T. P. (2015). Community resilience planning guide for buildings and infrastructure systems, volume I.
- McCann, T. V., Songprakun, W., & Stephenson, J. (2016). Efficacy of a self-help manual in increasing resilience in carers of adults with depression in Thailand. *International journal of mental health nursing*, 25(1), 62-70.
- McGonagle, A. K., Beatty, J. E., & Joffe, R. (2014). Coaching for workers with chronic illness: evaluating an intervention. *Journal of occupational health psychology*, 19(3), 385.
- McLarnon, M. J., & Rothstein, M. G. (2013). Development and initial validation of the workplace resilience inventory. *Journal of Personnel Psychology*.
- McManus, S., Seville, E., Brunsden, D., & Vargo, J. (2007). Resilience management: a framework for assessing and improving the resilience of organisations.
- McManus, S. T. (2008). Organisational resilience in new zealand.
- Meho, L. I., & Rogers, Y. (2008). Citation counting, citation ranking, and h-index of human-computer interaction researchers: a comparison of Scopus and Web of Science. *Journal of the American Society for Information Science and Technology*, 59(11), 1711-1726.
- Mirzaei, N., Kamelnia, H., Islami, S. G., Kamyabi, S., & Assadi, S. N. (2020). The impact of indoor environmental quality of green buildings on occupants' health and Satisfaction: A systematic review. *Journal of Community Health Research*.
- Mitansha, Wilkinson, S., & Potangaroa, R. (2023). An Examination on Individual Resilience to Achieve Organisational Resilience. International Conference on Resilient and Responsible Architecture and Urbanism,
- Mitansha, Wilkinson, S., & Potangaroa, R. (2025). Exploring the Impact of Emotion-Focussed Coping Strategies, Including Humour, on Organisational Resilience: A Systematic Literature Review of the New Zealand Construction Industry. In M. Sutrisna, M. B. Jelodar, N. Domingo, A. Le, & R. Kahandawa, *Creating Capacity and Capability: Embracing Advanced Technologies and Innovations for Sustainable Future in Building Education and Practice* Singapore.
- Mitansha, S. W., & Potangaroa, R. (2024). Organisational Resilience. *Integrating Resiliency Into Future Sustainable Cities*, 319.
- Mitroff, I. I., Pauchant, T., Finney, M., & Pearson, C. (1989). Do (some) organizations cause their own crises? The cultural profiles of crisis-prone vs. crisis-prepared organizations. *Industrial Crisis Quarterly*, 3(4), 269-283.
- Moffitt, T. E., Arseneault, L., Belsky, D., Dickson, N., Hancox, R. J., Harrington, H., Houts, R., Poulton, R., Roberts, B. W., & Ross, S. (2011). A gradient of childhood self-control predicts health,

- wealth, and public safety. *Proceedings of the national Academy of Sciences*, 108(7), 2693-2698.
- Momani, N. M. (2010). Business continuity planning: Are we prepared for future disasters. *American Journal of Economics and Business Administration*, 2(3), 272.
- Morgan, D. L. (2002). Focus group interviewing. *Handbook of interview research: Context and method*, 141, 159.
- Morgeson, F. P., & Hofmann, D. A. (1999). The structure and function of collective constructs: Implications for multilevel research and theory development. *Academy of Management Review*, 24(2), 249-265.
- Morris, S. (1996). Speculative investor behavior and learning. *The Quarterly Journal of Economics*, 111(4), 1111-1133.
- Murphy, K. R., & Kroeker, L. P. (1988). *Dimensions of job performance*.
- Murray, E. (2013). Organisational resilience in UK acute hospitals: an exploratory case study and empirical analysis.
- Nijssen, M., & Paauwe, J. (2012). HRM in turbulent times: how to achieve organizational agility? *The International Journal of Human Resource Management*, 23(16), 3315-3335.
- Nilakant, V., Walker, B., Rochford, K., & Van Heugten, K. (2013). Leading in a post-disaster Setting: Guidance for human resource practitioners. *New Zealand Journal of Employment Relations*, 38(1), 1-13.
- Nkomo, L., & Kalisz, D. (2023). Establishing organisational resilience through developing a strategic framework for digital transformation. *Digital Transformation and Society*, 2(4), 403-426.
- Ogunnusi, M., Hamma-Adama, M., Salman, H., & Kouider, T. (2020). COVID-19 pandemic: the effects and prospects in the construction industry. *International journal of real estate studies*, 14(Special Issue 2).
- Omand, D. (2005). Developing national resilience. *The RUSI Journal*, 150(4), 14-18.
- Ortiz-de-Mandojana, N., & Bansal, P. (2016). The long-term benefits of organizational resilience through sustainable business practices. *Strategic Management Journal*, 37(8), 1615-1631.
- Otulana, O. (2011). *The role of organisational resilience in maintaining long term performance, especially after undergoing major organisational changes: a consideration of the critical success factors involved* [Loughborough University Loughborough].
- Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., & Brennan, S. E. (2021). The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *bmj*, 372.
- Pal, R., Torstensson, H., & Mattila, H. (2014). Antecedents of organizational resilience in economic crises—an empirical study of Swedish textile and clothing SMEs. *International Journal of Production Economics*, 147, 410-428.
- Parent, J. D., Sullivan, C. C., Hardway, C., & Butterfield, D. A. (2012). A model and test of individual and organization factors influencing individual adaptation to change. *Organization Management Journal*, 9(4), 216-235.
- Pargament, K. I., & Cummings, J. (2010). Anchored by faith. *Handbook of adult resilience*, 193-210.
- Pascua, M. C., & Chang-Richards, A. Y. (2018). Investigating the resilience of civil infrastructure firms in New Zealand. *Procedia engineering*, 212, 286-293.
- Patton, M. Q. (2002). *Qualitative research & evaluation methods*. sage.
- Pedler, M., Burgoyne, J., & Boydell, T. (1991). The learning company. *New York*.
- Pemberton, C. (2015). *Resilience: A practical guide for coaches*. McGraw-Hill Education (UK).
- Peterson, G., Carpenter, S., & Brock, W. A. (2003). Uncertainty and the management of multistate ecosystems: an apparently rational route to collapse. *Ecology*, 84(6), 1403-1411.
- Pettigrew, A. M., Woodman, R. W., & Cameron, K. S. (2001). Studying organizational change and development: Challenges for future research. *Academy of Management Journal*, 44(4), 697-713.
- Pidgeon, A. M., Ford, L., & Klaassen, F. (2014). Evaluating the effectiveness of enhancing resilience in human service professionals using a retreat-based Mindfulness with Metta Training Program: a randomised control trial. *Psychology, health & medicine*, 19(3), 355-364.

- Ponomarov, S. Y., & Holcomb, M. C. (2009). Understanding the concept of supply chain resilience. *The international journal of logistics management*, 20(1), 124-143.
- Pooley, J. A., & Cohen, L. (2010). Resilience: A definition in context. *Australian Community Psychologist*, 22(1), 30-37.
- Potrich, L. N., Selig, P. M., Matos, F., & Giugliani, E. (2022). Organisational resilience in the digital age: Management strategies and practices. In *Resilience in a digital age: Global challenges in Organisations and society* (pp. 59-70). Springer.
- Powley, E. H. (2009). Reclaiming resilience and safety: Resilience activation in the critical period of crisis. *Human relations*, 62(9), 1289-1326.
- Prayag, G. (2019). Building destination resilience through community and organizational resilience. *Tourism and hospitality in conflict-ridden destinations*. Routledge.
- Prayag, G., Muskat, B., & Dassanayake, C. (2024). Leading for resilience: Fostering employee and organizational resilience in tourism firms. *Journal of Travel Research*, 63(3), 659-680.
- Prayag, G., Spector, S., Orchiston, C., & Chowdhury, M. (2020). Psychological resilience, organizational resilience and life satisfaction in tourism firms: Insights from the Canterbury earthquakes. *Current Issues in Tourism*, 23(10), 1216-1233.
- Pressman, S. D., Cohen, S., Miller, G. E., Barkin, A., Rabin, B. S., & Treanor, J. J. (2005). Loneliness, social network size, and immune response to influenza vaccination in college freshmen. *Health Psychology*, 24(3), 297.
- Pulakos, E. D., Arad, S., Donovan, M. A., & Plamondon, K. E. (2000). Adaptability in the workplace: Development of a taxonomy of adaptive performance. *Journal of applied psychology*, 85(4), 612.
- Qazi, A. A., Appolloni, A., & Shaikh, A. R. (2024). Does the stakeholder's relationship affect supply chain resilience and organizational performance? Empirical evidence from the supply chain community of Pakistan. *International Journal of Emerging Markets*, 19(7), 1879-1900.
- Qureshi, M. I., Khan, N., Qayyum, S., Malik, S., Hishan, S. S., & Ramayah, T. (2020). Classifications of sustainable manufacturing practices in ASEAN region: A systematic review and bibliometric analysis of the past decade of research. *Sustainability*, 12(21), 8950.
- Raetze, S., Duchek, S., Maynard, M. T., & Kirkman, B. L. (2021). Resilience in organizations: An integrative multilevel review and editorial introduction. *Group & Organization Management*, 46(4), 607-656.
- Rahi, K. (2019). Indicators to assess organizational resilience—a review of empirical literature. *International Journal of Disaster Resilience in the Built Environment*, 10(2/3), 85-98.
- Ram, J. (2023). Investigating staff capabilities to make projects resilient: A systematic literature review and future directions. *International Journal of Production Economics*, 255, 108687.
- Reinmoeller, P., & Van Baardwijk, N. (2005). The link between diversity and resilience. *MIT Sloan management review*.
- ResOrgs. (2012). *What is organisational resilience?* <https://www.resorgs.org.nz/about-resorgs/what-is-organisational-resilience/>
- ResOrgs. (2020). *GUIDE: Chaos to teamwork: A leader's role in crisis*. Resilient Organisation Limited. https://www.researchgate.net/publication/345989046_GUIDE_Chaos_to_teamwork_A_leader's_role_in_crisis#:~:text=%E2%80%A2%20Introduce%20new%20team%20members,skill%20and%20knowledge%20they%20bring
- ResOrgs. (2025). *Building crisis response and recovery capabilities*. <https://www.resorgs.org.nz/our-services/crisis-response-recovery-capabilities/>
- Richardson, G. E. (2002). The metatheory of resilience and resiliency. *Journal of clinical psychology*, 58(3), 307-321.
- Rioli, L., & Savicki, V. (2003). Information system organizational resilience. *Omega*, 31(3), 227-233. [https://doi.org/10.1016/s0305-0483\(03\)00023-9](https://doi.org/10.1016/s0305-0483(03)00023-9)
- Ritchie, J., Ormston, R., McNaughton Nicholls, C., & Lewis, J. (2013). *Qualitative research practice: A guide for social science students and researchers*.
- Robert, B. (2009). *Organizational Resilience: Concepts and evaluation method*.

- Robinson, O., & Griffiths, A. (2005). Coping with the stress of transformational change in a government department. *The Journal of Applied Behavioral Science*, 41(2), 204-221.
- Romme, G., & Dillen, R. (1997). Mapping the landscape of organizational learning. *European Management Journal*, 15(1), 68-78.
- Rotimi, J. O., & Ramanayaka, C. D. (2015). Analysis of the influence of a strategy-led planning approach on successful construction project implementation. *Construction Economics and Building*, 15(2), 13-30.
- Rotimi, J. O. B., Witton, F., & Rasheed, E. O. (2023). The predictive power of managers' leadership attributes on workers' performance: a case of New Zealand construction industry. *International Journal of Construction Management*, 23(7), 1214-1222.
- Rutter, M. (1985). Resilience in the face of adversity: Protective factors and resistance to psychiatric disorder. *The British journal of psychiatry*, 147(6), 598-611.
- Sabouripour, F., Roslan, S., Ghiami, Z., & Memon, M. A. (2021). Mediating role of self-efficacy in the relationship between optimism, psychological well-being, and resilience among Iranian students. *Frontiers in psychology*, 12, 675645.
- Sagoe, D. (2012). Precincts and prospects in the use of focus groups in social and behavioral science research. *Qualitative Report*, 17, 29.
- Santoro, G., Messeni-Petruzzelli, A., & Del Giudice, M. (2021). Searching for resilience: the impact of employee-level and entrepreneur-level resilience on firm performance in small family firms. *Small Business Economics*, 57(1), 455-471.
- Sapeciay, Z., Wilkinson, S., Costello, S., & Sajoudi, M. (2013). Potential key indicators of organisational resilience for the construction industry. The 38th Australasian Universities Building Education Association Conference,
- Sapeciay, Z., Wilkinson, S., & Costello, S. B. (2017). Building organisational resilience for the construction industry: New Zealand practitioners' perspective. *International Journal of Disaster Resilience in the Built Environment*, 8(1), 98-108.
- Sapeciay, Z., Wilkinson, S., Costello, S. B., & Adnan, H. (2019). Building Organisational Resilience for the Construction Industry: Strategic Resilience Indicators. IOP Conference Series: Earth and Environmental Science,
- Saunders, M., Lewis, P., & Thornhill, A. (2016). *Research Methods for Business Students* (Seventh edition ed.). Pearson Education Limited.
- Saunders, M., Lewis, P., Thornhill, A., & Bristow, A. (2015). Understanding research philosophies and approaches: Research methods for business students. *Pearson*.
- Schäffer, U. (2020). Levers of organizational resilience. *Controlling & Management Review*, 64(6), 8-19.
- Scott, J. M., Hussain, J. G., Salia, S., & Deakins, D. (2023). Entrepreneurial financial resilience and financial innovation in a turbulent era. In *Entrepreneurial Financial Resilience and Financial Innovation in a Turbulent Era* (pp. 1-20). Edward Elgar Publishing.
- Semmer, N. K., Elfering, A., Jacobshagen, N., Perrot, T., Beehr, T. A., & Boos, N. (2008). The emotional meaning of instrumental social support. *International journal of stress management*, 15(3), 235.
- Seville, E., Brunsdon, D., Dantas, A., Le Masurier, J., Wilkinson, S., & Vargo, J. (2008). Organisational resilience: Researching the reality of New Zealand organisations. *Journal of business continuity & emergency planning*, 2(3), 258-266.
- Sharma, S., & Sharma, S. K. (2016). Team resilience: scale development and validation. *Vision*, 20(1), 37-53.
- Shin, J., Taylor, M. S., & Seo, M.-G. (2012). Resources for change: The relationships of organizational inducements and psychological resilience to employees' attitudes and behaviors toward organizational change. *Academy of Management Journal*, 55(3), 727-748.
- Shirey, M. R. (2012). How resilient are your team members? *JONA: The Journal of Nursing Administration*, 42(12), 551-553.
- Siddiqui, S. (2022). Building organizational and individual resilience in times of moral distress. *Journal of Critical Care*, 67, 184-185.

- Silverman, D. (2021). Doing qualitative research.
- Smith, M. M., Saklofske, D. H., Keefer, K. V., & Tremblay, P. F. (2016). Coping strategies and psychological outcomes: The moderating effects of personal resiliency. *The journal of psychology*, 150(3), 318-332.
- Somers, S. (2009). Measuring resilience potential: An adaptive strategy for organizational crisis planning. *Journal of Contingencies and Crisis Management*, 17(1), 12-23.
- Sommer, S. A., Howell, J. M., & Hadley, C. N. (2016). Keeping positive and building strength: The role of affect and team leadership in developing resilience during an organizational crisis. *Group & Organization Management*, 41(2), 172-202.
- Sonenshein, S., & Nault, K. (2024). When the symphony does jazz: How resourcefulness fosters organizational resilience during adversity. *Academy of Management Journal*, 67(3), 648-678.
- Songprakun, W., & McCann, T. V. (2012). Effectiveness of a self-help manual on the promotion of resilience in individuals with depression in Thailand: a randomised controlled trial. *BMC psychiatry*, 12(1), 1-10.
- Sood, A., Prasad, K., Schroeder, D., & Varkey, P. (2011). Stress management and resilience training among Department of Medicine faculty: a pilot randomized clinical trial. *Journal of general internal medicine*, 26, 858-861.
- Southwick, S. M., & Charney, D. S. (2018). *Resilience: The science of mastering life's greatest challenges*. Cambridge University Press.
- Starr, R., Newfrock, J., & Delurey, M. (2003). Enterprise resilience: managing risk in the networked economy. *Strategy and business*, 30, 70-79.
- StatsNZ. (2023). *Labour market statistics: June 2023 quarter*. <https://www.stats.govt.nz/information-releases/labour-market-statistics-june-2023-quarter/>
- Steffen, W., Crutzen, P. J., & McNeill, J. R. (2007). The Anthropocene: are humans now overwhelming the great forces of nature. *Ambio-Journal of Human Environment Research and Management*, 36(8), 614-621.
- Stephenson, A., Vargo, J., & Seville, E. (2010). Measuring and comparing organisational resilience in Auckland. *Australian Journal of Emergency Management*, The, 25(2), 27-32.
- Stewart, D. W., & Shamdasani, P. N. (2014). *Focus groups: Theory and practice*. Sage publications.
- Steyer, V., & Gilbert, C. (2013). Exploring the ambiguous consensus on public-private partnerships in collective risk preparation. *Pandemics and Emerging Infectious Diseases: The Sociological Agenda*, 122-133.
- Stoverink, A. C., Kirkman, B. L., Mistry, S., & Rosen, B. (2020). Bouncing back together: Toward a theoretical model of work team resilience. *Academy of Management Review*, 45(2), 395-422.
- Su, W., & Junge, S. (2023). Unlocking the recipe for organizational resilience: A review and future research directions. *European Management Journal*.
- Suddaby, R. (2010). EDITOR'S COMMENTS: CONSTRUCT CLARITY IN THEORIES OF MANAGEMENT AND ORGANIZATION. *The Academy of Management Review*, 35(3), 346-357. <http://www.jstor.org/stable/25682418>
- Sullivan-Taylor, B., & Wilson, D. C. (2009). Managing the threat of terrorism in British travel and leisure organizations. *Organization Studies*, 30(2-3), 251-276.
- Suryaningtyas, D., Sudiro, A., Eka, T. A., & Dodi, I. W. (2019). Organizational resilience and organizational performance: examining the mediating roles of resilient leadership and organizational culture. *Academy of Strategic Management Journal*, 18(2), 1-7.
- Sutcliffe, K. M. (2003). Organizing for resilience. *Positive organizational scholarship: Foundations of a new discipline*.
- Tasic, J., Amir, S., Tan, J., & Khader, M. (2020). A multilevel framework to enhance organizational resilience. *Journal of Risk Research*, 23(6), 713-738.
- Teng-Calleja, M., Hechanova, M. R. M., Sabile, P. R., & Villasanta, A. P. V. P. (2020). Building organization and employee resilience in disaster contexts. *International Journal of Workplace Health Management*, 13(4), 393-411. <https://doi.org/10.1108/ijwhm-09-2019-0122>

- Tierney, K. J. (2003). Conceptualizing and measuring organizational and community resilience: Lessons from the emergency response following the September 11, 2001 attack on the World Trade Center.
- Tognazzo, A., Gubitta, P., & Favaron, S. D. (2016). Does slack always affect resilience? A study of quasi-medium-sized Italian firms. *Entrepreneurship & Regional Development*, 28(9-10), 768-790.
- Tonetto, M. S., Formoso, C. T., Saurin, T. A., Bonesi De Luca, F., Lora, F. P., & Lantelme, E. (2023). Resilient performance on construction projects in the post-pandemic era: an organizational perspective. *Engineering, Construction and Architectural Management*.
- Tonkin, K., Malinen, S., Näswall, K., & Kuntz, J. C. (2018). Building employee resilience through wellbeing in organizations. *Human Resource Development Quarterly*, 29(2), 107-124.
- Tough, H., Siegrist, J., & Fekete, C. (2017). Social relationships, mental health and wellbeing in physical disability: a systematic review. *BMC public health*, 17(1), 414.
- Tugade, M. M., Fredrickson, B. L., & Feldman Barrett, L. (2004). Psychological resilience and positive emotional granularity: Examining the benefits of positive emotions on coping and health. *Journal of personality*, 72(6), 1161-1190.
- Turner, M., Scott-Young, C., & Holdsworth, S. (2019). Developing the resilient project professional: examining the student experience. *International Journal of Managing Projects in Business*, 12(3), 716-729.
- Turner, R. J., & Brown, R. L. (2010). Social support and mental health. *A handbook for the study of mental health: Social contexts, theories, and systems*, 2, 200-212.
- Uhr, C. (2017). Leadership Ideals as Barriers for Efficient Collaboration During Emergencies and Disasters. *Journal of Contingencies and Crisis Management*, 25(4), 301-312.
<https://doi.org/10.1111/1468-5973.12157>
- Ungar, M. (2011). The social ecology of resilience: addressing contextual and cultural ambiguity of a nascent construct. *American journal of orthopsychiatry*, 81(1), 1.
- van der Vegt, G. S., Essens, P., Wahlström, M., & George, G. (2015). Managing Risk and Resilience. *Academy of Management Journal*, 58(4), 971-980. <https://doi.org/10.5465/amj.2015.4004>
- van Heerden, A. H., Chawynski, G., & Bartolo-Doblas, J. (2021). Building resilience among construction professionals in New Zealand: A study of major stressors and stress reduction strategies. *International Journal of Construction Supply Chain Management*, 11(2), 107-120.
- Vasileiou, K., Barnett, J., Thorpe, S., & Young, T. (2018). Characterising and justifying sample size sufficiency in interview-based studies: systematic analysis of qualitative health research over a 15-year period. *BMC medical research methodology*, 18(1), 148.
- Vogus, T. J., & Sutcliffe, K. M. (2007). Organizational resilience: towards a theory and research agenda. 2007 IEEE international conference on systems, man and cybernetics,
- Walker, B., Holling, C. S., Carpenter, S. R., & Kinzig, A. (2004). Resilience, adaptability and transformability in social-ecological systems. *Ecology and society*, 9(2).
- Walker, B., Malinen, S., Näswall, K., Nilakant, V., & Kuntz, J. (2020). 21. Organizational resilience in action: a study of a large-scale extended-disaster setting. *Research handbook on organizational resilience*, 320.
- Wang, C. L., & Ahmed, P. K. (2003). Organisational learning: a critical review. *The Learning Organization*, 10(1), 8-17. <https://doi.org/10.1108/09696470310457469>
- Wang, D., & Wang, P. (2024). Effect of employee resilience on organizational resilience in construction projects: considering the role of project tasks. *Engineering, Construction and Architectural Management*, 31(11), 4236-4254.
- Wehbe, F., Al Hattab, M., & Hamzeh, F. (2016). Exploring associations between resilience and construction safety performance in safety networks. *Safety Science*, 82, 338-351.
- Weick, K. (1993). 1993 'The collapse of sensemaking in organizations: The Mann Gulch disaster'. *Administrative Science Quarterly* 38: 628-652.
- Weick, K. E. (1996). Enactment and the boundaryless career: Organizing as we work. *The boundaryless career: A new employment principle for a new organizational era*, 40-57.

- Wesner, A. C., Behenck, A., Finkler, D., Beria, P., Guimarães, L. S., Manfro, G. G., Blaya, C., & Heldt, E. (2019). Resilience and coping strategies in cognitive behavioral group therapy for patients with panic disorder. *Archives of psychiatric nursing*, 33(4), 428-433.
- Wild, J., El-Salahi, S., Degli Esposti, M., & Thew, G. R. (2020). Evaluating the effectiveness of a group-based resilience intervention versus psychoeducation for emergency responders in England: A randomised controlled trial. *PloS one*, 15(11), e0241704.
- Wilkinson, S., Chang-Richards, A. Y., Sapeciay, Z., & Costello, S. B. (2016). Improving construction sector resilience. *International Journal of Disaster Resilience in the Built Environment*, 7(2), 173-185.
- Wilkinson, S., Chang-Richards, A. Y., Sapeciay, Z., & Organisations, R. (2014). Investment in the construction sector to reduce disaster risk management. *United Nations Office for Disaster Risk Reduction Resilient Organisations*.
- Wilkinson, S., & Potangaroa, R. (2022). Building a more resilient construction sector. *BRANZ build*. <https://doi.org/https://www.buildmagazine.org.nz/assets/PDF/Build-192-54-Feature-Resilience-Building-A%20More-Resilient-Construction-Sector.pdf>
- Wilkinson, S., Potangaroa, R., Cameron, R., & Mitansha, M. (2024). Improving disaster response: Combining organisational and individual resilience for improved outcomes.
- Williams, T. A., Gruber, D. A., Sutcliffe, K. M., Shepherd, D. A., & Zhao, E. Y. (2017). Organizational response to adversity: Fusing crisis management and resilience research streams. *Academy of management annals*, 11(2), 733-769.
- Williams, T. A., & Shepherd, D. A. (2016). Building resilience or providing sustenance: Different paths of emergent ventures in the aftermath of the Haiti earthquake. *Academy of Management Journal*, 59(6), 2069-2102.
- [Record #330 is using a reference type undefined in this output style.]
- Woods, D. D. (2017). Essential characteristics of resilience. In *Resilience engineering* (pp. 21-34). CRC Press.
- Wu, C., Li, N., & Fang, D. (2017). Leadership improvement and its impact on workplace safety in construction projects: A conceptual model and action research. *International Journal of Project Management*, 35(8), 1495-1511.
- Xiao, L., & Cao, H. (2017). Organizational resilience: The theoretical model and research implication. *ITM Web of Conferences*,
- Yang, J., & Cheng, Q. (2020). The impact of organisational resilience on construction project success: Evidence from large-scale construction in China. *Journal of Civil Engineering and Management*, 26(8), 775-788.
- Youssef, C. M., & Luthans, F. (2007). Positive organizational behavior in the workplace: The impact of hope, optimism, and resilience. *Journal of management*, 33(5), 774-800.
- Zagelmeyer, S., Heckmann, M., & Kettner, A. (2012). Management responses to the global financial crisis in Germany: Adjustment mechanisms at establishment level. *The International Journal of Human Resource Management*, 23(16), 3355-3374.
- Zarghami, S. A., & Zwikael, O. (2022). Measuring project resilience—Learning from the past to enhance decision making in the face of disruption. *Decision Support Systems*, 160, 113831.
- Zhang, Y., Zhang, G.-y., & Zhang, H.-z. (2025). How incumbents respond to the threat of disruptive innovation: an organisational resilience perspective. *Technology Analysis & Strategic Management*, 37(8), 951-966.
- Zhu, Y., Yan, J., Tang, Y., Sun, Y. L., & He, H. (2014). Resilience analysis of power grids under the sequential attack. *IEEE Transactions on Information Forensics and Security*, 9(12), 2340-2354.

APPENDICES

Appendix 1: Ethics Approval

Appendix 2: Coding Framework: From Initial Codes to Themes for Chapter 5

Appendix 3: Semi-Structured Interview Questions (First Round)

Appendix 4: Coding Framework: From Initial Codes to Themes for Chapter 6

Appendix 5: Semi-Structured Interview Questions (Second Round)

Appendix 6: Coding Framework: From Initial Codes to Themes for Chapter 7

Appendix 7: Focus Group Discussion Questions

Appendix 1: Ethics Approval



Dear:

Thank you for submitting a low risk notification for your research/teaching/evaluation.

This email is to acknowledge receipt of the low risk notification and to inform you that the details of your project have been recorded in our database for inclusion in the annual reports to the Health Research Council Ethics Committee (HRCEC) and the Massey University Research Committee (URC).

You may proceed with your research, though it is advisable to provide a couple of weeks before commencing, as all low risk notifications are checked for completeness and clarity by a Research Ethics Advisor. You may be contacted if your application is incomplete and/or further clarification is required.

The low risk notification for this project is valid for a maximum of three years.

Please notify me if situations subsequently occur which cause you to reconsider your initial ethical analysis.

If a sponsoring organisation, funding authority (e.g., the Health Research Council) or a journal require evidence of ethical approval from a Human Ethics Committee (with an approval number), you need to complete a full Massey University Human Ethics application to be reviewed and approved by one of our Human Ethics Committees. Applications must be submitted and approved prior to the commencement of the research.

Please note that travel undertaken by students must be approved by the supervisor and the relevant Pro Vice- Chancellor and be in accordance with the Policy and Procedures for Course-Related Student Travel Overseas. In addition, the supervisor must advise the University's Insurance Officer.

If you have any concerns about the conduct of this research that you want to raise with someone other than the researcher(s), please contact the Research Ethics Office, email humanethics@massey.ac.nz. "

Please include the following statement on all public documents (e.g., information sheet, consent form) related to your project:

This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named above are responsible for the ethical conduct of this research.

If you have any concerns about the ethical conduct of this research that you want to raise with someone other than the researcher(s), please contact Massey University Human Ethics by email: humanethics@massey.ac.nz.

I wish you all the best in your research, teaching or evaluation activities and appreciate your thoughtful consideration of ethics principles and practices.

Ngā mihi nui,

Research Ethics, Graduate Research School and Ethics
Massey University, Private Bag 11 222, Palmerston North, 4442,
New Zealand E humanethics@massey.ac.nz;
animalethics@massey.ac.nz www.massey.ac.nz/research/ethics

Appendix 2: Coding Framework: From Initial Codes to Themes for

Chapter 5

Concept Identified	Theme	Peer-Reviewed Sources
National-level coordination and emergency plan Community role in national resilience Role of Individuals in governance during crisis Central vs. local authority response Integration of resilience in national policy frameworks.	National Resilience	(Eshel & Kimhi, 2016; Golverdi, 2018; Kimhi, 2016; Kimhi et al., 2020; Omand, 2005)
Community networks and social cohesion Informal mutual-aid systems Volunteer mobilisation Role of cultural identity and values	Community Resilience	(Choi, 2018; Johansen et al., 2017; Kimhi, 2016; McAllister, 2015; Prayag, 2019; Qazi et al., 2024)
Staff empowerment Delegated decision-making authority Bottom-up innovation during disruption Skills transfer from individuals to teams Employee-driven adaptive practices.	Staff Role in Resilience Transfer	(Clements & Kinman, 2023; Groschke et al., 2022; Liang & Cao, 2021; Ram, 2023)
Supplier reliability and flexibility Multiple sourcing strategies Local vs. global supply chain resilience Crisis-induced supply issues	Supplier Dependence	(A. Papadopoulos et al., 2016; Ponomarov & Holcomb, 2009; Qazi et al., 2024)
Pipeline of projects Retained clients during downturn Long-term contracts as resilience enablers Backlog projects as recovery accelerators Reliance on government-funded projects.	Project Continuity as a Resource Buffer	(He et al., 2022; Ram, 2023; Tonetto et al., 2023; Wang & Wang, 2024; Yang & Cheng, 2020; Zarghami & Zwikael, 2022)
Individual-organisational recovery overlap Leadership visibility boosting staff morale Employee resilience initiatives supporting OR strategies Reciprocal learning between staff and organisation Shared crisis narratives.	Overlapping IR–OR Functions	(Caniëls & Baaten, 2019; Malik & Garg, 2020; Mitansha & Potangaroa, 2024; Wilkinson et al., 2024)

Leadership decision-making in crises Crisis communication clarity Distributed vs. centralised authority Ethical leadership in crisis Role modelling by leaders.	Leadership and Governance	(Barasa et al., 2018; DiLiello & Houghton, 2006; Everly et al., 2013; King & McSpedon, 2022; Larsson et al., 2015; Rotimi et al., 2023; Suryaningtyas et al., 2019; Uhr, 2017; Wu et al., 2017)
Team synergy and interpersonal trust Peer support systems Informal mentoring under stress Multi-disciplinary collaboration Trust-building through transparency.	Collaboration and Team Trust	(Alliger et al., 2015; Clements & Kinman, 2023; Kaplan et al., 2013; Maynard, Kennedy, Sommer, et al., 2015; Sharma & Sharma, 2016; Shirey, 2012; Stoverink et al., 2020)
Inter-organisational cooperation Cross-sectoral alliances Client-contractor trust Government-industry collaboration Knowledge-sharing partnerships.	Stakeholder Engagement	(Aldunce et al., 2021; BRANZ., 2024b; Liu & Yin, 2020; Qazi et al., 2024)
Digital Technology Real-time data transfer Availability of resources Innovation Supporting	Access of Technology	(Nkomo & Kalisz, 2023; Potrich et al., 2022; Wilkinson et al., 2024; Zhang et al., 2025)
Transfer of resilience across levels IR supporting team resilience Team resilience strengthening OR Multi-Level System of Resilience	Cascading Resilience Logic	(Clements & Kinman, 2023; Cunha et al., 2013; Lengnick-Hall et al., 2011; Xiao & Cao, 2017)
Assets and Cash Flow On-Time Salary Payment Presence of Financial Reserve Balance between debt and profit	Financial Resilience	(Barasa et al., 2018; Crespo et al., 2025; De Koning, 2016; Scott et al., 2023; Zagelmeyer et al., 2012)
Rebranding strategies Public trust rebuilding.	Post-Crisis Branding	(Al Harthi et al., 2026)
Digital simulation exercises Virtual crisis scenarios Real-time adaptive drills.	Simulation Tool for Resilience	(Bergström et al., 2017; Deutsch et al., 2018)

Appendix 3: Semi- Structured Interview Questions (First Round)



**School of Built Environment
Massey University, Auckland**

Private Bag 102904

**North Shore
Auckland 0745
New Zealand**

Participant Information Sheet

Title of Project: The Analysis of Individual Resilience to achieve Organisational Resilience

- **Name of Researcher:** Mitansha
- **Degree:** PhD candidate
- **Department:** School of Built Environment Research
- **Supervisors:** Professor Regan Potangaroa and Professor Suzanne Wilkinson

Background

Environmental complexities and continuously evolving scenarios have become a major challenge for the construction organisations all across the globe. Since no system or organisation can be designed to anticipate all probable risks related to such turbulent and fluctuating conditions, hence, resilience has become the need of the hour. It imparts stability to organisations and also facilitates the overall growth and development of built environment. In order to attain resilience at organisational level, it is vital to consider, assess and utilise individual resilience of the employees as they constitute the core of the organisational system. In several instances, coping mechanism, social support, behaviour, skills, and technical knowledge of resilient employees have supported the organisation to gain competitiveness, quick response, and adaptation required for achieving organisational resilience. Consequently, individual resilience has turned to be one of the most notably discussed subject in context of organisational resilience. Therefore, this research aims to increase resilience of the construction sector of New Zealand by examining the role of employee's resilience. The findings of the study would unfold how the two concepts, organisational resilience and individual resilience are related to each other and how they co-exist in nature. This will help in developing the understanding of researchers and industry practitioners regarding the potential resilience strategies which can support individual resilience to attain organisational resilience. Ultimately, the results of the research would provide necessary grounds for the development and implementation of productive strategies which can help the organisations in replicating the theoretical aspect of resilience into a much more practical construct and will minimise the void between resilient individuals and resilient organisation.

Aim of the project

The overarching aim of this study is to analyse the role of individual resilience to achieve organisational resilience. This research aims to answer the question of "how organisational resilience and Individual resilience related to each other?"

Data Collection

The interviews will be conducted in two different sections:

- Section A- Demographic Questions
- Section B- Specific Interview Questions

The interview information is anonymous, and individual data will not be identifiable. The Massey University data repository will securely keep all the information gathered through this interview, and only the researchers involved in this project will have access to it.

Ethics Notification (No: 4000027659)

The researcher(s) named in this document are responsible for the ethical conduct of this research. If you have any concerns about the conduct of this research that you want to raise with someone other than the researcher(s), please contact the Research Ethics Office, email humanethics@massey.ac.nz.

Ethics Notification Number: 4000027659.

Funding

The researcher acknowledges the funding of the New Zealand Ministry of Business, Innovation and Employment, Endeavour Programme Research Grant. Contract Number: MAUX2005..

Statement of Consent

I agree to voluntarily take part in this research study undertaken by Mitansha. I have read the participant information sheet (PIS). I understand the nature of the research and the basis on which I have been selected. I have had the opportunity to ask questions and have them answered to all my satisfaction.

- I understand that any participation in the research is voluntary and where my employer's consent for my participation is required, my employer has provided an assurance that my participation or non-participation will not affect my employment status and relationship in any way.
- I understand that the raw data gathered during the data collection procedures will be kept confidential and stored securely without access of any other party except the research team members for three years and subsequently be destroyed by appropriate means.
- I understand estimated time duration of the interview/survey questionnaire stated in the PIS.
- I agree/ do not agree for the interview to be audio- recorded.
- I understand that I may choose to have the recorder turned off anytime during the interview.
- I understand that any audio recording or data collection done under my permission will be transcribed by the researcher herself without involvement of the third party.

- I understand that I may request a copy of the raw data collected during the interview and researcher transcription to be reviewed and edited as I wish and provide further feedback to the researcher if necessary.
- I understand the confidentiality of the research and any data collected from any employee and organisation member will not be disclosed to any other party, even the organisation authorities.
- I wish/ do not wish to receive the summary of findings (Please provide email if you wish to receive summary of findings).
- I understand that I'm free to withdraw participation and at any time and to withdraw any data traceable to me up to two months after the data collection period.

Name

Position

Email

Phone number

Signature

Date

Section-A

Demographic Questions

Age	☐ 18-29 ☐ 30-39 ☐ 40-49 ☐ 50-59
Education Level	☐ Primary or below ☐ Secondary ☐ Certificates and diplomas ☐ Bachelor's Degree or higher
How long have you been working for your company?	☐ ≤ 5 years (less than or equal) ☐ 5-10 years ☐ ≥ 11 years (greater than or equal)
What is your current level in your company?	☐ Manager ☐ Skilled Worker ☐ Top level leader ☐ Other
What is your current designation?	☐ General Manager ☐ Site Engineer ☐ Project Manager ☐ Casual/ Day laborer ☐ Director ☐ Others
What is your cultural background?	☐ New Zealand citizen ☐ Māori ☐ European ☐ Asian ☐ MELAA ☐ Pacific ☐ Other

Section-B

Individual Perspective

1. How would you define individual resilience and organisational resilience, based on your personal or professional experience?

Follow-up: How have you observed these concepts play out in your own role or workplace?

2. What factors enable individuals with different mindsets or backgrounds to work collaboratively and take charge during high-pressure situations?

Follow-up: Can you recall a specific example where this occurred?

3. How did you and your colleagues manage stress and emotional pressure during particularly challenging or disruptive events?

Follow-up: Who or what supported you most leaders, policies, peers?

4. During organisational crises, what enables employees to shift quickly into an emergency response mode involving new teams, agencies, or procedures?

Follow-up: Is this response spontaneous, or does it rely on preparation and training?

5. Do you believe resilient individuals are essential for building a resilient organisation? Why or why not?

Follow-up: Can individual resilience compensate for weak organisational systems?

6. Have you encountered situations where a highly resilient individual posed challenges during recovery or adaptation processes?

7. What organisational practices, policies, or leadership behaviours help in leveraging individual resilience during a crisis?

Follow-up: Are there any formal systems that enhance or hinder this?

8. In your view, can individuals who are not naturally resilient still contribute meaningfully to a resilient organisation? Why or why not?

Follow-up: What support systems might help them contribute effectively?

9. How should organisations manage or support less resilient individuals during disruption or uncertainty?

Follow-up: Do interventions like mental well-being support or scenario-based training help build performance under pressure?

10. Resource utilisation is crucial during disruption, but often organisations fall short. What factors ensure effective deployment of people and materials in such scenarios?

Follow-up: Is this more about planning, culture, or leadership?

11. How do you believe organisations and leaders promote learning from past challenges to better prepare for future disruptions?

Follow-up: How is that learning captured or documented in your experience?

12. Do you think an individual's position or designation affects their role in building organisational resilience?

Follow-up: Should leaders be held to higher resilience standards than their teams?

Organisational and Individual Perspective

13. How do resilient organisations accommodate the varying resilience levels of their employees during crises?

Follow-up: Is this shaped by pre-existing organisational culture or more by spontaneous adaptation?

14. How do traits such as personal accountability and ownership contribute to individual and organisational resilience?

15. What helps organisations in anticipating and preparing for crises, cultural values, leadership traits, or employee attributes?

16. How does the structure of an organisation, formal or informal affect its resilience?

Follow-up: Do rigid hierarchies delay action, or do they ensure accountability?

17. 1To what extent does employee self-leadership influence organisational resilience, especially when formal leadership is overwhelmed?

Follow-up: Can strong self-leadership lead to individualism or friction within teams?

18. How important is community connectedness or empathy toward the wider public in shaping organisational resilience?

Follow-up: Has your organisation ever demonstrated this in a meaningful way?

19. Should resilient organisations aim to return to a previous state after disruption, or pursue improvement and transformation instead?

Appendix 4: Coding Framework: From Initial Codes to Themes for Chapter 6

Codes	Themes
Leadership stability Guiding workforce Visionary thinking Trust in leadership Decisive action Leadership empathy Crisis navigation capacity	Leadership and Governance
Weekly project meetings Transparency Reporting systems Instant updates Internal broadcast channels	Communication and Information Flow
Peer reliance Team covered for me Shared ownership Psychological safety Mutual accountability Role substitution	Team Collaboration and Trust
Peer mentoring Mental health check-ins Counselling services Family Support Informal peer support EAP initiatives	Support Systems
Decentralised decision-making No-blame culture Respect for autonomy Supportive environment	Working Culture and Psychological Safety
Anticipating risks Scenario planning Project simulations Rapid mobilisation plans Contingency awareness Toolbox crisis talks	Proactive Planning and Scenario Training

Shifting priorities as per need Learning from mistakes Fast project realignment Quick turnaround on decisions	Adaptive Capacity
Local supplier engagement Council partnerships Māori stakeholder liaison Community consultation Client outreach	Community Engagement and Connectivity
Post-crisis debriefs Feedback loops Learning from past errors On-the-job learning Reflective sessions	Continuous Learning
Initiative without fear Skipping formal approvals Decentralised authority Taking ownership	Empowerment and Autonomy
Effective material distribution Tech upskilling Digital tools for resilience Equipment sharing protocols	Resource/Technology Management
Unified project direction Consistent messaging from leaders Alignment on objectives Vision reinforcement	Shared Vision and Goal
Creative problem-solving Non-traditional resource use Encouragement to “try something new”	Innovation and Creativity
Mid-project reflections Constructive feedbacks Documentation of the Lessons-learned Monthly review meetings	Feedback and Reflective Practices
Access to counselling Leader support and encouragement Normalising vulnerability Encouraging mental break Wellness surveys	Mental Well-being Initiatives

Appendix 5: Semi- Structured Interview Questions (Second Round)



School of Built Environment
Massey University, Auckland

Private Bag 102904

North Shore
Auckland 0745
New Zealand

Participant Information Sheet

Title of Project: The Analysis of Individual Resilience to achieve Organisational Resilience

- **Name of Researcher:** Mitansha
- **Degree:** PhD candidate
- **Department:** School of Built Environment Research
- **Supervisors:** Professor Regan Potangaroa and Professor Suzanne Wilkinson

Background

Environmental complexities and continuously evolving scenarios have become a major challenge for the construction organisations all across the globe. Since no system or organisation can be designed to anticipate all probable risks related to such turbulent and fluctuating conditions, hence, resilience has become the need of the hour. It imparts stability to organisations and also facilitates the overall growth and development of built environment. In order to attain resilience at organisational level, it is vital to consider, assess and utilise individual resilience of the employees as they constitute the core of the organisational system. In several instances, coping mechanism, social support, behaviour, skills, and technical knowledge of resilient employees have supported the organisation to gain competitiveness, quick response, and adaptation required for achieving organisational resilience. Consequently, individual resilience has turned to be one of the most notably discussed subject in context of organisational resilience. Therefore, this research aims to increase resilience of the construction sector of New Zealand by examining the role of employee's resilience. The findings of the study would unfold how the two concepts, organisational resilience and individual resilience are related to each other and how they co-exist in nature. This will help in developing the understanding of researchers and industry practitioners regarding the potential resilience strategies which can support individual resilience to attain organisational resilience. Ultimately, the results of the research would provide necessary grounds for the development and implementation of productive strategies which can help the organisations in replicating the theoretical aspect of resilience into a much more practical construct and will minimise the void between resilient individuals and resilient organisation.

Aim of the project

The overarching aim of this study is to analyse the role of individual resilience to achieve organisational resilience. This research aims to answer the question of "how organisational resilience and Individual resilience related to each other?"

Data Collection

The interviews will be conducted in two different sections:

- Section A- Demographic Questions
- Section B- Specific Interview Questions

The interview information is anonymous, and individual data will not be identifiable. The Massey University data repository will securely keep all the information gathered through this interview, and only the researchers involved in this project will have access to it.

Ethics Notification (No: 4000027659)

The researcher(s) named in this document are responsible for the ethical conduct of this research. If you have any concerns about the conduct of this research that you want to raise with someone other than the researcher(s), please contact the Research Ethics Office, email humanethics@massey.ac.nz.

Ethics Notification Number: 4000027659.

Funding

The researcher acknowledges the funding of the New Zealand Ministry of Business, Innovation and Employment, Endeavour Programme Research Grant. Contract Number: MAUX2005.

Statement of Consent

I agree to voluntarily take part in this research study undertaken by Mitansha. I have read the participant information sheet (PIS). I understand the nature of the research and the basis on which I have been selected. I have had the opportunity to ask questions and have them answered to all my satisfaction.

- I understand that any participation in the research is voluntary and where my employer's consent for my participation is required, my employer has provided an assurance that my participation or non-participation will not affect my employment status and relationship in any way.
- I understand that the raw data gathered during the data collection procedures will be kept confidential and stored securely without access of any other party except the research team members for three years and subsequently be destroyed by appropriate means.
- I understand estimated time duration of the interview/survey questionnaire stated in the PIS.
- I agree/ do not agree for the interview to be audio- recorded.
- I understand that I may choose to have the recorder turned off anytime during the interview.
- I understand that any audio recording or data collection done under my permission will be

transcribed by the researcher herself without involvement of the third party.

- I understand that I may request a copy of the raw data collected during the interview and researcher transcription to be reviewed and edited as I wish and provide further feedback to the researcher if necessary.
- I understand the confidentiality of the research and any data collected from any employee and organisation member will not be disclosed to any other party, even the organisation authorities.
- I wish/ do not wish to receive the summary of findings (Please provide email if you wish to receive summary of findings).
- I understand that I'm free to withdraw participation and at any time and to withdraw any data traceable to me up to two months after the data collection period.

Name

Position

Email

Phone number

Signature

Date

Section-A

Demographic Questions

Age	☐ 18-29 ☐ 30-39 ☐ 40-49 ☐ 50-59
Education Level	☐ Primary or below ☐ Secondary ☐ Certificates and diplomas ☐ Bachelor's Degree or higher
How long have you been working for your company?	☐ ≤ 5 years (less than or equal) ☐ 5-10 years ☐ ≥ 11 years (greater than or equal)
What is your current level in your company?	☐ Manager ☐ Skilled Worker ☐ Top level leader ☐ Other
What is your current designation?	☐ General Manager ☐ Site Engineer ☐ Project Manager ☐ Casual/ Day laborer ☐ Director ☐ Others
What kind of company you're working in?	☐ Contracting ☐ Consultancy ☐ Insolvency ☐ Others
What is your cultural background?	☐ New Zealand citizen ☐ Māori ☐ European ☐ Asian ☐ MELAA ☐ Pacific ☐ Other

Section-B

1. What is individual resilience?

2. What is organisational resilience?

3. Do you think resilience involves re-structuring of activities, functions, etc., to ensure survival during crises or disasters?

Follow-up: Can you discuss major re-structuring steps that organisations did—or did not—take during a crisis, based on your experience?

4. "Resilience is not about doing the same thing better; it's about doing a new thing when the old way no longer works."

In such a scenario, how do you think organisations can rapidly re-structure themselves when existing plans and practices fail?

5. Building on the above, how would you describe the relationship between individual resilience and organisational resilience?

Follow-up: Can one exist meaningfully without the other?

6. In your view, what are the primary reasons that lead organisations toward liquidation?

Is it purely a matter of resource availability (e.g., finance, workforce), or do broader structural and cultural issues play a role?

7. How are resourcefulness (i.e., access to supporting assets) and resilience related?

Follow-up: Do you consider them to be the same, or fundamentally different?

8. “Resilience arises not when minor disruptions are handled smoothly, but when the context fundamentally shifts, like in the case of a pandemic, a company collapse, or structural upheaval.”

In accordance to this, what major factors such as leadership style, organisational culture, or workforce adaptability, do you believe facilitate the resilience process within organisations?

9. When there’s no incoming business, organisations may lay off a significant portion of employees to manage expenses and survive.

Do you think this reflects organisational resilience through structural adaptation, or is it a sign of systemic vulnerability?

10. Some interviewees have described experiences of organisational transformation during crises:

“I was serving at 2 roles at the same time during a setback.”

“We can't adapt and be flexible to deploying our staff and keeping our staff busy. People lose their jobs. That's the impact—either the organisation adapts by moving people where they're needed, or it slowly dies and goes out of business.”

“People actually always go, ‘OK, we can go from 40 hours to 24 hours.’ We can reduce or accept cuts in our salary to maintain financial stability of the company.”

Based on this, how would you assess the resilience of such organisations, and how do you see it interlinked with the individual responses of employees?

11. How do you think resilient individuals and resilient organisations are dependent on one another?

Follow-up: If they are not, what might bridge the gap?

12. Do you believe resilient organisations require resilient individuals but for long-term effectiveness, resilient individuals may depend even more on resilient organisations?

Follow-up: How does this asymmetry influence overall resilience planning?

13. Is the overall resilience of an organisation more strongly influenced by individual resilience, organisational resilience, or an equal combination of both?

14. Can individual resilience be created by an organisation or can it only be influenced, modified, or diminished?

15. Do you consider the IR–OR relationship a two-way process, where both influence each other? Or is it primarily one-directional?

16. If you had to visualise the relationship between individual and organisational resilience, what metaphor or image would you use?

For example: a tree, a Venn diagram, concentric circles, or something else?

Appendix 6: Coding Framework: From Initial Codes to Themes for Chapter 7 and 8

Category	Theme	Initial Codes
Enablers of Resourcefulness	Leadership Foresight	Strategic vision Anticipating risks. Proactive planning Guiding workforce Confidence in leadership
	Collaborative Culture & Role Flexibility	Team spirit Role substitution Cross-training Peer reliance Mutual trust
	Information Sharing & Open Communication	Transparency Weekly meetings Reporting systems Real-time data sharing
	Strategic Decision-Making	Quick pivots Scenario planning Adaptive project delivery Balancing priorities
	Experience-based Judgement	Learning from past crises Intuition from senior staff Embedded industry knowledge
Contextual Factors	Money	Salaries maintained Cash flow management Cost-cutting under stress
	Name and Popularity of the Organisation	Strong brand Industry credibility Trustworthiness Market positioning
	Reciprocity (Give-and-Take)	Loyalty Organisational support Employee commitment Mutual obligation
	Resourcefulness	Resource Mobilisation Fair sharing of resources Effective resource use

Appendix 7: Focus Group Discussion Questions



School of Built Environment
Massey University, Auckland

Private Bag 102904

North Shore
Auckland 0745
New Zealand

Participant Information Sheet

Title of Project: The Analysis of Individual Resilience to achieve Organisational Resilience

- **Name of Researcher:** Mitansha
- **Degree:** PhD candidate
- **Department:** School of Built Environment Research
- **Supervisors:** Professor Regan Potangaroa

Background

Environmental complexities and continuously evolving scenarios have become a major challenge for the construction organisations all across the globe. Since no system or organisation can be designed to anticipate all probable risks related to such turbulent and fluctuating conditions, hence, resilience has become the need of the hour. It imparts stability to organisations and also facilitates the overall growth and development of built environment. In order to attain resilience at organisational level, it is vital to consider, assess and utilise individual resilience of the employees as they constitute the core of the organisational system. In several instances, coping mechanism, social support, behaviour, skills, and technical knowledge of resilient employees have supported the organisation to gain competitiveness, quick response, and adaptation required for achieving organisational resilience. Consequently, individual resilience has turned to be one of the most notably discussed subject in context of organisational resilience. Therefore, this research aims to increase resilience of the construction sector of New Zealand by examining the role of employee's resilience.

Prior to this phase, the researchers conducted two rounds of semi-structured interview to unfold how the two concepts, organisational resilience and individual resilience are related to each other and how they co-exist in nature. Based on the findings, a modified integrated model is proposed. To increase the robustness and validity of the model, the last stage involving the focus group discussion would assess each component of the model. This would ensure the readability, and applicability of the model.

Aim of the project

The overarching aim of this study is to analyse the role of individual resilience to achieve organisational resilience. This research aims to answer the question of "how organisational resilience and Individual resilience related to each other?"

Data Collection

The focus group meeting will last 3 to 4 hours. The participant information is anonymous and individual, or project data will not be identifiable. The Massey University data repository will securely keep all the information gathered through this questionnaire, and only the researchers involved in this project will have access to it.

Ethics Notification (No: 4000027659)

The researcher(s) named in this document are responsible for the ethical conduct of this research. If you have any concerns about the conduct of this research that you want to raise with someone other than the researcher(s), please contact the Research Ethics Office, email humanethics@massey.ac.nz.
Ethics Notification Number: 4000027659.

Funding

The researcher acknowledges the funding of the New Zealand Ministry of Business, Innovation and Employment, Endeavour Programme Research Grant. Contract Number: MAUX2005.

Statement of Consent

I agree to voluntarily take part in this research study undertaken by Mitansha. I have read the participant information sheet (PIS). I understand the nature of the research and the basis on which I have been selected. I have had the opportunity to ask questions and have them answered to all my satisfaction.

- I understand that any participation in the research is voluntary and where my employer's consent for my participation is required, my employer has provided an assurance that my participation or non-participation will not affect my employment status and relationship in any way.
- I understand that the raw data gathered during the data collection procedures will be kept confidential and stored securely without access of any other party except the research team members for three years and subsequently be destroyed by appropriate means.
- I understand estimated time duration of the interview/survey questionnaire stated in the PIS.
- I agree/ do not agree for the interview to be audio- recorded.
- I understand that I may choose to have the recorder turned off anytime during the interview.
- I understand that any audio recording or data collection done under my permission will be transcribed by the researcher herself without involvement of the third party.
- I understand that I may request a copy of the raw data collected during the interview and researcher transcription to be reviewed and edited as I wish and provide further feedback to the researcher if necessary.
- I understand the confidentiality of the research and any data collected from any employee and

organisation member will not be disclosed to any other party, even the organisation authorities.

- I wish/ do not wish to receive the summary of findings (Please provide email if you wish to receive summary of findings).
- I understand that I'm free to withdraw participation and at any time and to withdraw any data traceable to me up to two months after the data collection period.

Name

Position

Email

Phone number

Signature

Date

Section-A

Demographic Questions

Age	☐ 18-29 ☐ 30-39 ☐ 40-49 ☐ 50-59
Education Level	☐ Primary or below ☐ Secondary ☐ Certificates and diplomas ☐ Bachelor's Degree or higher
How long have you been working for your company?	☐ ≤ 5 years (less than or equal) ☐ 5-10 years ☐ ≥ 11 years (greater than or equal)
What is your current level in your company?	☐ Manager ☐ Skilled Worker ☐ Top level leader ☐ Other
What is your current designation?	☐ General Manager ☐ Site Engineer ☐ Project Manager ☐ Casual/ Day laborer ☐ Director ☐ Others
What is your cultural background?	☐ New Zealand citizen ☐ Māori ☐ European ☐ Asian ☐ MELAA ☐ Pacific ☐ Other

Section-B

The Focus Group Discussions is based on the following criteria:

Criteria	Definition / Focus	Relevance to Current Study
Accuracy of Representation	Evaluates whether the model reflects real-world dynamics and stakeholder experiences	Ensures the IR–OR interaction, themes, and organisational conditions match construction sector realities
Need for Modification	Identifies whether the model needs refinement in structure, flow, or component relationships	Allows tailoring based on feedback from sector professionals to increase contextual fit
Relevance of Influencing Factors	Assesses whether key themes (e.g., leadership, team trust, empowerment) are valid contributors to resilience	Validates the theoretical foundation of model elements derived from literature and interviews
Identification of Missing Elements	Detects gaps or overlooked aspects in the model	Enhances the completeness of the framework by surfacing factors not captured in the initial thematic analysis

Strength and Direction of Links	Evaluates the flow and intensity of relationships among IR, OR, and mediating/enabling factors	Confirms bidirectionality and conditional links as observed in practical settings
Practical Usability	Determines the model's potential to inform organisational planning, policy, or training	Ensures the model is not just theoretical but applicable in construction project environments
Addition or Removal of Themes	Redundant or missing themes may hinder the usability of the model	Enhance the understanding of the mechanisms related to the model
Clarity and Visual Logic	Reviews how clearly the model is presented and whether its layout supports comprehension	Enhances usability by reducing ambiguity in visual and structural presentation
Title and Framing	Assesses whether the title and framing of the model convey its intended purpose and scope	Ensures alignment between the model's design and its communication to stakeholders

Validation Questionnaire for the Integrated IR–OR Resilience Model

1) Accuracy of the Model and Its Components

Do you find the elements and relationships in the Integrated IR–OR Resilience Model accurate based on your experience in the construction sector?

Follow-up: Are there any components (individual or organisational) that seem misrepresented or underdeveloped?

2) Need for Modifications

Does the model require any modifications to better reflect the dynamics of resilience within real-world construction settings?

Follow-up: If so, what specific components, relationships, or assumptions would you recommend modifying?

3) Relevance of Factors to Resilience Development

Are the themes and influencing factors (e.g. leadership, team trust, empowerment, contextual conditions) correctly positioned in the model?

Follow-up: Do these factors align with your observations on what truly shapes resilience in construction projects.

4) Identification of Missing Elements

Are there any important factors or feedback mechanisms missing in the current model?

5) Strength and Direction of Relationships

Do you agree with the bidirectional flow between individual and organisational resilience as shown in the model?

Follow-up: Should any relationships be shown as stronger, weaker, or conditional based on context (e.g. leadership culture, project scale)?

6) Applicability of the Model in Practice

Can you envision using this model in real project or organisational planning?

Follow-up: In your opinion, does the model provide clear insights that practitioners (e.g. team leads, HR managers, H&S advisors) can act on?

7) Addition or Removal of Themes

Are there any themes or concepts you believe should be added to strengthen the model's explanatory power?

Follow-up: Are there any themes you find redundant or less relevant in the context of organisational resilience?

8) Clarity of Model Presentation

Is the visual representation of the model (Figure 7.1) clear and easy to understand?

Would you suggest any improvements in layout, terminology, or hierarchy to enhance its interpretability?

9) Title and Framing of the Model

Does the model title, "Modified Integrated Resilience Model", clearly convey its scope and focus?

Follow-up: If not, what alternative title or framing would you propose to better reflect its intent?

Appendix 8: Statement of Contribution Forms



MASSEY UNIVERSITY
GRADUATE RESEARCH SCHOOL

STATEMENT OF CONTRIBUTION DOCTORATE WITH PUBLICATIONS/MANUSCRIPTS

We, the candidate and the candidate's Primary Supervisor, certify that all co-authors have consented to their work being included in the thesis and they have accepted the candidate's contribution as indicated below in the *Statement of Originality*.

Name of candidate:	MITANSHA		
Name/title of Primary Supervisor:	Dr. Fei Ying		
Name of Research Output and full reference:			
Mitansha, M., Wilkinson, S., Potangaroa, R. (2023). 'Impact of Individual Resilience on Organisational Resilience: An Exploratory Study'. World Academy of Science, Engineering and Technology, Open Science Index 204. International Journal of Economics and Management Engineering, 17(12), 901 - 907			
In which Chapter is the Manuscript /Published work:			
Please indicate:			
The percentage of the manuscript/Published Work that was contributed by the candidate:		90	
and			
Describe the contribution that the candidate has made to the Manuscript/Published Work:			
Main Author, Conducted the study and Prepared the Manuscript			
For manuscripts intended for publication please indicate target journal:			
Candidate's Signature:			
Date:	23/09/25		
Primary Supervisor's Signature:	Fei Ying		
Date:	 Digitally signed by Fei Ying Date: 2025.11.03 10:44:14 +13'00'		

(This form should appear at the end of each thesis chapter/section/appendix submitted as a manuscript/ publication or collected as an appendix at the end of the thesis)



MASSEY UNIVERSITY
GRADUATE RESEARCH SCHOOL

STATEMENT OF CONTRIBUTION DOCTORATE WITH PUBLICATIONS/MANUSCRIPTS

We, the candidate and the candidate's Primary Supervisor, certify that all co-authors have consented to their work being included in the thesis and they have accepted the candidate's contribution as indicated below in the *Statement of Originality*.

Name of candidate:	MITANSHA	
Name/title of Primary Supervisor:	Dr. Fei Ying	
Name of Research Output and full reference:		
Mitansha, N., Wilkinson, S., & Potangaroa, R. (2024). An examination on individual resilience to achieve organisational resilience. In <i>Advances in Science, Technology & Innovation/Advances in science, technology & innovation</i> (pp. 319–326). https://doi.org/10.1007/978-3-031-63203-7_25		
In which Chapter is the Manuscript /Published work:		
Please indicate:		
The percentage of the manuscript/Published Work that was contributed by the candidate:	90	
and		
Describe the contribution that the candidate has made to the Manuscript/Published Work:		
Main Author, Conducted the study and Prepared the Manuscript		
For manuscripts intended for publication please indicate target journal:		
Candidate's Signature:		
Date:	23/09/25	
Primary Supervisor's Signature:	Fei Ying	
Date:	Digitally signed by Fei Ying Date: 2025.11.03 11:04:13 +13'00'	

(This form should appear at the end of each thesis chapter/section/appendix submitted as a manuscript/ publication or collected as an appendix at the end of the thesis)



MASSEY UNIVERSITY
GRADUATE RESEARCH SCHOOL

STATEMENT OF CONTRIBUTION DOCTORATE WITH PUBLICATIONS/MANUSCRIPTS

We, the candidate and the candidate's Primary Supervisor, certify that all co-authors have consented to their work being included in the thesis and they have accepted the candidate's contribution as indicated below in the *Statement of Originality*.

Name of candidate:	MITANSHA		
Name/title of Primary Supervisor:	Dr. Fei Ying		
Name of Research Output and full reference:			
Mitansha, & Potangaroa, R., & Wilkinson, S (2025). Investigating the Connection Between Individual and Organisational Resilience. <i>Systems</i> , 13(10), 907. https://doi.org/10.3390/systems13100907			
In which Chapter is the Manuscript /Published work:			
Please indicate:			
The percentage of the manuscript/Published Work that was contributed by the candidate:		75	
and			
Describe the contribution that the candidate has made to the Manuscript/Published Work:			
Main Author, Conducted the study and Prepared the Manuscript			
For manuscripts intended for publication please indicate target journal:			
Candidate's Signature:			
Date:	23/09/25		
Primary Supervisor's Signature:	Fei Ying		Digitally signed by Fei Ying Date: 2025.11.03 15:17:38 +13'00'
Date:			

(This form should appear at the end of each thesis chapter/section/appendix submitted as a manuscript/ publication or collected as an appendix at the end of the thesis)



MASSEY UNIVERSITY
GRADUATE RESEARCH SCHOOL

STATEMENT OF CONTRIBUTION DOCTORATE WITH PUBLICATIONS/MANUSCRIPTS

We, the candidate and the candidate's Primary Supervisor, certify that all co-authors have consented to their work being included in the thesis and they have accepted the candidate's contribution as indicated below in the *Statement of Originality*.

Name of candidate:	MITANSHA	
Name/title of Primary Supervisor:	Dr. Fei Ying	
Name of Research Output and full reference:		
Mitansha, & Potangaroa, R. (2025). Exploring the Interplay between Individual Resilience and Organisational Resilience of New Zealand in the Construction sector: A Comprehensive Analysis Sustainability, 17(16), 7229.		
In which Chapter is the Manuscript /Published work:		
Please indicate:		
The percentage of the manuscript/Published Work that was contributed by the candidate:	75	
and		
Describe the contribution that the candidate has made to the Manuscript/Published Work:		
Main Author, Conducted the study and Prepared the Manuscript		
For manuscripts intended for publication please indicate target journal:		
Candidate's Signature:		
Date:	23/09/25	
Primary Supervisor's Signature:	Fei Ying	
Date:	Digitally signed by Fei Ying Date: 2025.11.03 10:29:55 +13'00'	

(This form should appear at the end of each thesis chapter/section/appendix submitted as a manuscript/ publication or collected as an appendix at the end of the thesis)



MASSEY UNIVERSITY
GRADUATE RESEARCH SCHOOL

STATEMENT OF CONTRIBUTION DOCTORATE WITH PUBLICATIONS/MANUSCRIPTS

We, the candidate and the candidate's Primary Supervisor, certify that all co-authors have consented to their work being included in the thesis and they have accepted the candidate's contribution as indicated below in the *Statement of Originality*.

Name of candidate:	MITANSHA		
Name/title of Primary Supervisor:	Dr. Fei Ying		
Name of Research Output and full reference:			
Mitansha, & Potangaroa, R. (2025). Resources verses Resourcefulness- The need for achieving organisational resilience. AUBEA, Canberra, Australia (ACCEPTED)			
In which Chapter is the Manuscript /Published work:			
Please indicate:			
The percentage of the manuscript/Published Work that was contributed by the candidate:		75	
and			
Describe the contribution that the candidate has made to the Manuscript/Published Work:			
Main Author, Conducted the study and Prepared the Manuscript			
For manuscripts intended for publication please indicate target journal:			
Candidate's Signature:			
Date:	27/09/25		
Primary Supervisor's Signature:	Fei Ying		Digitally signed by Fei Ying Date: 2025.11.03 15:16:34 +13'00'
Date:			

(This form should appear at the end of each thesis chapter/section/appendix submitted as a manuscript/ publication or collected as an appendix at the end of the thesis)



MASSEY UNIVERSITY
GRADUATE RESEARCH SCHOOL

STATEMENT OF CONTRIBUTION DOCTORATE WITH PUBLICATIONS/MANUSCRIPTS

We, the candidate and the candidate's Primary Supervisor, certify that all co-authors have consented to their work being included in the thesis and they have accepted the candidate's contribution as indicated below in the *Statement of Originality*.

Name of candidate:	MITANSHA	
Name/title of Primary Supervisor:	Dr. Fei Ying	
Name of Research Output and full reference:		
Mitansha, Ying, F., & Rotimi, J. (2025). Conceptual Refinement and Validation of the IR–OR Model- Draft Preparation		
In which Chapter is the Manuscript /Published work:		
Please indicate:		
The percentage of the manuscript/Published Work that was contributed by the candidate:	90	
and		
Describe the contribution that the candidate has made to the Manuscript/Published Work:		
Main Author, Conducted the study and Prepared the Manuscript		
For manuscripts intended for publication please indicate target journal:		
Candidate's Signature:		
Date:	27/09/25	
Primary Supervisor's Signature:	Fei Ying	
Date:	Digitally signed by Fei Ying Date: 2025.11.03 10:50:39 +13'00'	

(This form should appear at the end of each thesis chapter/section/appendix submitted as a manuscript/ publication or collected as an appendix at the end of the thesis)