COGNITIVE BIASES AND IT'S IMPACT ON STRATEGIC BUSINESS DECISIONS

by

BIPIN GAUTAM TAKSANDE

DISSERTATION

Presented to the Swiss School of Business and Management, Geneva
In Partial Fulfillment
of the Requirements
For the Degree

DOCTOR OF BUSINESS ADMINISTRATION

SWISS SCHOOL OF BUSINESS AND MANAGEMENT GENEVA

JUNE 2025

COGNITIVE BIASES AND IT'S IMPACT ON STRATEGIC BUSINESS DECISIONS

by

BIPIN GAUTAM TAKSANDE

Supervised by

Prof. David Annan

APPROVED BY

Iva Buljubasic

Dissertation chair

RECEIVED BY

SSBM Representative

Dedication

This dissertation is dedicated to helping strategic professionals, organisational leaders, and decision-makers improve their decision-making processes' efficacy, objectivity, and clarity. This study will enable them to build moral leadership, identify and reduce cognitive biases, and advance long-term strategic results. The insights presented here should aide their attempts to create resilient organisations that flourish responsibly in the face of complexity and uncertainty, producing beneficial effects for all stakeholders and future generations.

Acknowledgments

I want to express my heartfelt gratitude to my mentor, Prof. David Annan of the Swiss School of Business and Management, whose invaluable guidance, support, and encouragement have been pivotal in completing this research. His insightful feedback, academic expertise, and unwavering belief in my work have enriched this study's quality and contributed immensely to my personal and professional growth. I am truly privileged to have had the opportunity to learn under his mentorship.

I would also like to extend my most profound appreciation to my family, whose unconditional love, patience, and constant support have been my foundation throughout this journey. Their understanding during long hours of study and writing and their continuous motivation gave me the strength to remain focused and committed. Their belief in my potential helped me overcome the many challenges.

This research reflects the collective encouragement, inspiration, and unwavering support that fuelled its development. The journey was filled with moments of challenge and discovery, each contributing to the depth and direction of the final work. The insights gained, the discipline developed, and the resilience built throughout this process have shaped this study. With immense gratitude, I acknowledge the many academic and personal influences that have helped transform an idea into a meaningful contribution.

ABSTRACT

COGNITIVE BIASES AND IT'S IMPACT ON STRATEGIC BUSINESS DECISIONS

BIPIN GAUTAM TAKSANDE

2025

Prof. David Annan

This research explores how cognitive biases influence strategic decision-making in businesses and management. It draws from a wide range of previous literature to comprehensively understand how cognitive biases shape decision-making outcomes over time. It also examines the long-term effects of these biases on organisational sustainability and performance. By analysing the literature from the perspective of cognitive biases, the goal is to provide practical insights for businesses aiming to improve their strategic decision-making methods and long-term performance sustainability in a complex and uncertain environment. The central question is: How do cognitive biases affect an organisation's long-term sustainability and performance, and what strategies should they use to reduce their impact on strategic decision-making?

TABLE OF CONTENTS

List of Tables viii

List of Figures viii

CHAPTER I: INTRODUCTION 2

1.1 Introduction 2
1.2 Research Problem 4
1.3 Purpose of Research 6
1.4 Significance of the Study 8
1.5 Research Purpose and Questions 12
1.6 Thesis Outline 13
1.7 Summary 15

CHAPTER II: REVIEW OF LITERATURE 17

2.1 Introduction 17
2.2 Decision Theories 28
2.3 Theoretical Frameworks 35
2.4 Bias Recognition and Management 39
2.5 Gaps and Future Needs 55
2.6 Summary 75

CHAPTER III: METHODOLOGY 78

3.1 Overview of the Research Problem 78
3.2 Operationalisation of Theoretical Constructs 79
3.3 Research Purpose and Questions 81
3.4 Research Design 82
3.5 Population and Sample 84
3.6 Participant Selection 85
3.7 Instrumentation 86
3.8 Data Collection Procedures 89
3.9 Data Analysis 94
3.10 Research Design Limitations 99
3.11 Conclusion 102

CHAPTER IV: RESULTS 104

4.1 Introduction 104
4.2 Demographic Information 105
4.3 General Survey Analysis 115
4.4 Reliability Analysis 118
4.5 Reliability Statistics of the Data 118

4.6 Forms of Cognitive Biases 120
4.7 Long-Term Implications 120
4.8 Key Factors Mediating and Moderating the Relationships 124
4.9 Ethical Implications 129
4.10 Summary of Findings 135
4.11 Conclusion 136

CHAPTER V: DISCUSSION 138

5.1 Introduction 138
5.2 Triangulation with Conceptual Framework 140
5.3 Discussion on Research Question 1 143
5.4 Discussion on Research Question 2 147
5.5 Discussion on Research Question 3 151
5.6 Discussion on Research Question 4 156
5.7 Summary 160

CHAPTER VI: DISCUSSION SUMMARY IMPLICATIONS AND RECOMMENDATION 162

6.1 Summary 162
6.2 Implications 165
6.3 Recommendation for Future Research 166
6.4 Conclusion 168

APPENDIX A SURVEY COVER LETTER 170

APPENDIX B INFORMED CONSENT 172

REFERENCES 173

LIST OF TABLES

Table 1: List of Questions 118
Table 2: Case Processing Summary 118
Table 3: Reliability Statistics 119
Table 4: Statistics on Bias 120
Table 5: Descriptive Statistics 122
Table 6: Rotated Component Matrix 123
Table 7: Regression Analysis 124

LIST OF FIGURES

Figure 1: Distribution of Job Title 106
Figure 2: Distribution of Industry 107
Figure 3: Distribution of Experience 108
Figure 4: Distribution of Organisation Size 109
Figure 5: Distribution of the number of Direct reports 110
Figure 6: Distribution of Primary Market 111
Figure 7: Distribution of education level 112
Figure 8: Distribution of Area of Expertise 113
Figure 9: Distribution of Annual Revenue 114
Figure 10: Distribution of Decision-Making Frequency 115

CHAPTER I:

INTRODUCTION

1.1 Introduction

In today's rapidly evolving and uncertain business environment, organisations face mounting pressure to make strategic decisions that support long-term sustainability, adaptability, and competitive advantage. Strategic decision-making involves evaluating complex alternatives under conditions of ambiguity and risk. While traditional models emphasise rationality and data-driven logic, research in behavioural economics and cognitive psychology has revealed that decision-makers often rely on mental shortcuts, known as cognitive biases, that can distort reasoning and lead to flawed judgments (Lovallo and Sibony, 2010).

Cognitive biases such as overconfidence bias (excessive belief in one's judgment), anchoring bias (overreliance on initial information), confirmation bias (preference for information that supports pre-existing beliefs), and the sunk cost fallacy (continued investment based on prior commitment rather than future viability) have been shown to affect a wide range of strategic activities including mergers and acquisitions, innovation, risk assessment, and crisis management (Xiao, 2020; Paulus et al., 2022; Zhang, Van Der Bij and Song, 2020). These biases can lead to overinvestment, resistance to change, and neglect of contradictory evidence, ultimately impairing long-term organisational performance.

Although cognitive biases are well-documented, much of the existing research focuses on short-term decision outcomes, with limited attention paid to their long-term

cumulative effects on strategic trajectories (Petticrew et al., 2020; Murata, Nakamura and Karwowski, 2015). Furthermore, tools intended to support decision-making, such as Decision Support Systems (DSS), may unintentionally reinforce biases when not critically evaluated or properly implemented (Silver, 1990; Phillips-Wren et al., 2019). This underlines the need for a deeper investigation into how biases persist and shape organisational decisions over time, especially in high-stakes, resource-intensive contexts.

This thesis aims to investigate the long-term impact of cognitive biases on strategic business decision-making, addressing a significant gap in current research. It seeks to explore how biases emerge, evolve, and impact performance metrics, including profitability, adaptability, and sustainability. The study also aims to assess how organisations can reduce bias-driven errors through structured decision-making processes and cognitive mitigation strategies.

Through a comprehensive analysis of academic literature, empirical data, and relevant theoretical frameworks, this research identifies patterns of bias in strategic thinking. It investigates the mediating roles of leadership, organisational culture, and decision protocols. It also critically evaluates the ethical implications of bias in strategic contexts, particularly in terms of fairness, stakeholder accountability, and transparency (Holmgren et al., 2018; Shuraida and Titah, 2023).

In conclusion, this thesis serves as both a theoretical contribution to the understanding of behavioural decision-making and a practical guide for business leaders seeking to enhance the quality and integrity of their strategic choices. It provides evidence-based insights into how organisations can build decision-making frameworks that reduce

the impact of cognitive biases and support long-term sustainable success in a complex and uncertain world.

1.2 Research Problem

Strategic decision-making is fundamental to the long-term success and sustainability of organisations. However, in practice, decision-makers are not purely rational agents. A growing body of research in behavioural economics and cognitive psychology has shown that individuals are influenced by cognitive biases – systematic deviations from rational judgment – that can distort their interpretation of information, risk perception, and strategic judgment (Tversky and Kahneman, 1974; Lovallo and Sibony, 2010). While such biases may sometimes serve as useful heuristics under uncertainty, their unchecked presence often results in flawed decision-making, resource misallocation, and diminished organisational adaptability (Paulus et al., 2022; Holmgren et al., 2018).

Existing research primarily addresses the short-term impacts of cognitive biases, focusing on isolated decision-making episodes or functional domains such as finance, marketing, or operations (Petticrew et al., 2020). However, there is limited understanding of how these biases affect decision-making over time and whether their cumulative influence has broader implications for long-term strategic outcomes. This is particularly concerning as strategic decisions—unlike operational ones—tend to involve far-reaching consequences and require sustained commitment to a chosen course of action. Moreover, the persistence of biases across decision cycles may reinforce ineffective patterns and hinder an organisation's ability to adapt to changing environments (Murata, Nakamura and Karwowski, 2015).

In addition, digital tools such as Decision Support Systems (DSS) and AI-based analytics—although designed to aid objectivity—can either reinforce or reduce biases depending on their implementation and user interaction (Silver, 1990; Phillips-Wren et al., 2019). Despite technological advancement, human cognition remains central to strategic thinking, and organisations often lack structured methods to monitor and mitigate bias throughout the decision lifecycle. The lack of integrated frameworks that address both behavioural and structural dimensions of decision-making contributes to a critical gap in the literature.

The research problem at hand pertains to the long-term impact of cognitive biases on strategic business decision-making. Specifically, it seeks to understand how these biases manifest over time, influence organisational performance and sustainability, and what measures can be employed to mitigate their effects. This study aims to address the following key questions:

- How do cognitive biases manifest in strategic decision-making processes within organisations?
- What are the long-term implications of cognitive biases on key organisational performance indicators such as profitability, growth, innovation, and competitive advantage?
- What contextual or organisational factors mediate or moderate the relationship between cognitive biases and strategic outcomes?
- What are the ethical implications of cognitive biases in strategic decision-making, and how can organisations promote ethical and unbiased decision practices?

By delving into these research questions, this study aims to fill a crucial gap in the literature by moving beyond short-term or siloed perspectives and adopting a longitudinal view of how cognitive biases shape organisational trajectories. It contributes to both theory and practice by exploring the mechanisms through which biases influence decision outcomes and the structural, cultural, and ethical considerations necessary to counteract them. Understanding these dynamics is essential for leaders and policymakers seeking to strengthen organisational resilience, improve the quality of decision-making, and embed ethical accountability within strategic frameworks.

1.3 Purpose of Research

The primary purpose of this research is to examine how cognitive biases influence strategic decision-making in organisations over extended periods and to identify strategies for mitigating their long-term effects. By their nature, strategic decisions involve uncertainty, complexity, and high stakes. As such, they are particularly susceptible to distortions introduced by cognitive biases, including overconfidence, anchoring, confirmation bias, and the sunk cost fallacy (Lovallo and Sibony, 2010; Zhang, Van Der Bij and Song, 2020).

While much of the existing literature focuses on the immediate or isolated impact of these biases, few studies have investigated how their cumulative effects unfold across multiple decision cycles and influence broader organisational outcomes such as resilience, innovation capacity, and sustained competitive advantage (Petticrew et al., 2020; Holmgren et al., 2018). This research aims to move beyond short-term analysis by

examining how cognitive biases become ingrained in strategic processes and how they may evolve, intensify, or be mitigated over time.

Moreover, the study aims to explore how contextual factors—such as leadership behaviour, organisational culture, governance structures, and technological tools—moderate or mediate the influence of cognitive biases on decision outcomes. For instance, organisations that promote cognitive diversity, foster ethical reflection, and implement structured decision-making frameworks may be better equipped to counteract biases and enhance long-term decision quality (Phillips-Wren et al., 2019; Shuraida and Titah, 2023).

The ethical dimension of cognitive biases is also a central focus. When biases go unrecognised, they may compromise transparency, inclusiveness, and fairness, particularly in areas such as performance evaluations, resource allocation, and strategic prioritisation. Understanding these ethical implications is critical for promoting responsible and accountable decision-making practices (Bogan and Just, 2009; Holmgren et al., 2018).

Ultimately, this research aims to make both theoretical and practical contributions. On a theoretical level, it extends the current discourse on behavioural decision-making by integrating insights from cognitive psychology, strategic management, and ethics. Practically, it provides evidence-based recommendations for organisations seeking to improve strategic decision processes through bias-awareness training, structured protocols, and technology-enabled decision support.

By addressing these dimensions, the study seeks to empower organisational leaders with actionable insights that foster better strategic judgment, reduce the risk of long-term decision failures, and build more resilient, adaptive, and ethically grounded organisations.

1.4 Significance of the Study

Cognitive biases pose a significant challenge to the quality and sustainability of strategic decision-making in business organisations. Although previous research has extensively explored individual biases and their influence on specific decisions, a critical gap remains in understanding how these biases affect organisational outcomes over extended periods and across various contexts. This study addresses that gap by exploring the long-term implications of cognitive biases on strategic business decisions and offers a comprehensive framework for identifying, assessing, and mitigating these effects The research aims to provide the following contributions and significance:

Theoretical Contribution: This research contributes to the existing body of knowledge by extending the understanding of cognitive biases beyond isolated decision-making episodes. Traditional models of rational decision-making have long been challenged by behavioural theories that acknowledge the influence of psychological factors on judgment (Tversky and Kahneman, 1974; Simon, 1997). However, the literature still lacks a robust framework for examining how cognitive biases persist and evolve across strategic decision cycles. By integrating insights from behavioural economics, cognitive psychology, and strategic management, this study advances theoretical discourse by linking individual-level biases to organi**s**ational-level consequences (Lovallo and Sibony, 2010; Bernoster et al., 2018). Furthermore, this research builds upon dual-process theories of cognition, which suggest that biases emerge from intuitive (System 1) thinking, while more deliberate (System 2) reasoning can correct them (Krämer, W. 2013; Kahneman, D. ,2011). The study

contextualises these cognitive processes within strategic decision environments, emphasising how time pressure, high uncertainty, and complex trade-offs may reinforce intuitive errors in judgment over time.

Empirical Contribution: A second major contribution of this study is its empirical focus on the long-term impact of cognitive biases on organisational performance. While several studies have documented the presence of biases in decision-making, few have investigated their sustained influence on key business outcomes such as profitability, innovation, strategic agility, and sustainability (Petticrew et al., 2020; Paulus et al., 2022). This study addresses this limitation by analysing how repeated exposure to bias, uncorrected over time, can create structural inertia, misaligned resource allocation, and compromised ethical standards. The study also explores mediating and moderating variables—such as leadership styles, organisational culture, governance mechanisms, and decision-support technologies—that influence how biases manifest and are addressed. These empirical findings help fill a knowledge gap concerning the contextual factors that either exacerbate or reduce the impact of biases on strategic decisions.

Practical and Managerial Contribution: From a practical standpoint, this research provides valuable guidance for business leaders, strategy professionals, and organisational consultants. It offers actionable recommendations for recognising and mitigating cognitive biases at both the individual and organisational levels. These include implementing structured decision-making frameworks, such as pre-mortem analysis, scenario planning, and red-teaming approaches, which encourage critical evaluation and reduce overreliance on intuition (Shuraida and Titah, 2023; Phillips-Wren et al., 2019). Additionally, the study

highlights the importance of cultivating cognitive diversity within leadership teams, fostering a culture of dissent and open inquiry, and encouraging cross-functional perspectives. Such practices not only reduce the likelihood of groupthink and confirmation bias but also improve the overall quality of strategic deliberation (Zhu et al., 2023). In an era where organi**s**ations increasingly rely on data-driven technologies, this research also emphasi**s**es the importance of the ethical and transparent deployment of decision-support systems. While AI and analytics tools can reduce human error, they can also embed biases if algorithms are trained on flawed data (Silver, 1990; Holmgren et al., 2018). The study offers recommendations for responsible technology use that complement human judgment rather than replac**e** it blindly.

Ethical Contribution: Strategic decisions influenced by cognitive biases often carry ethical implications, especially in areas such as performance evaluation, hiring, stakeholder engagement, and crisis response. Unchecked biases may lead to unfair outcomes, erode stakeholder trust, and compromise corporate responsibility (Bogan and Just, 2009). This study draws attention to the ethical dimensions of strategic decision-making by analysing how biases interact with values such as transparency, accountability, and inclusivity. By exploring ethical frameworks that support bias mitigation, the research contributes to ongoing debates around responsible leadership and governance. It emphasises the need for organisations to embed ethical reflection within strategic planning processes and to develop institutional safeguards, such as independent review boards or ethical oversight committees, that help monitor decision integrity (Cristofaro et al., 2023).

Methodological Contribution: Methodologically, this study contributes to advancing research design in behavioural strategy by employing a mixed-methods approach that combines quantitative survey data with qualitative insights from organi**s**ational leaders. This triangulation offers a more comprehensive understanding of how cognitive biases influence decision-making across various contexts and types (Murata, Nakamura, and Karwowski, 2015). It also provides a replicable model for future researchers seeking to examine the intersection of cognition, ethics, and strategic management over extended periods. Moreover, the development and validation of survey instruments tailored to capture long-term bias effects and mitigation practices represent a valuable addition to the empirical tools available in the field.

Academic Contribution: This research contributes to academic scholarship by integrating insights from cognitive psychology, behavioural economics, and strategic management to examine how cognitive biases affect decision-making over time. While cognitive biases have been extensively studied at the individual level (Tversky and Kahneman, 1974; Kahneman D., 2011), their long-term organi**s**ational effects remain underexplored in strategic contexts. The study extends the behavioural strategy literature by shifting focus from isolated decisions to how biases become embedded in organi**s**ational routines and influence strategic trajectories (Lovallo and Sibony, 2010; Nuijten et al., 2020). It also provides a more balanced academic perspective by considering both the detrimental and adaptive roles of certain biases, such as optimism or overconfidence, in varying strategic environments (Zhang, Van Der Bij and Song, 2020). Additionally, by emphasising long-term impacts and contextual variables, the research encourages new

theoretical and empirical work on sustainable decision-making and bias mitigation within organisations.

1.5 Research Purpose and Questions

The primary purpose of this study is to investigate the long-term impact of cognitive biases on strategic decision-making within organisations and to explore practical, ethical, and organisational mechanisms for mitigating their influence. In the context of increasing uncertainty and complexity in global business environments, understanding how systematic judgment errors affect strategic thinking over time is vital for enhancing organisational resilience, sustainability, and decision quality. Building on gaps identified in behavioural strategy and decision science literature, this study adopts a multi-dimensional approach that examines the manifestation of cognitive biases, their long-term consequences, the contextual variables influencing their effects, and the ethical challenges they pose. The investigation is structured around the following core research questions:

Research Questions:

- How do cognitive biases manifest in strategic decision-making processes within organisations?
- What are the long-term implications of cognitive biases on key organisational performance indicators such as profitability, growth, innovation, and competitive advantage?
- What contextual or organisational factors mediate or moderate the relationship between cognitive biases and strategic outcomes?

- What are the ethical implications of cognitive biases in strategic decision-making, and how can organisations promote ethical and unbiased decision practices?

Research Hypotheses:

Hypothesis (H_1): Cognitive biases have a significant long-term impact on strategic decision-making, leading to measurable effects on organisational performance and sustainability.

Null Hypothesis (H_0): Cognitive biases do not have a statistically significant long-term impact on strategic decision-making or organisational performance.

By addressing these research questions, this study aims to provide both theoretical and practical contributions to the fields of behavioural strategy, organisational decision-making, and business ethics. It seeks to offer a nuanced understanding of how cognitive biases influence strategic trajectories over time, identify the structural and cultural mechanisms that exacerbate or mitigate their effects, and develop actionable recommendations to improve ethical and effective decision-making within complex organisational systems.

1.6 Thesis Outline

This thesis is structured into six chapters, each contributing to a comprehensive exploration of how cognitive biases influence long-term strategic decision-making in organisational settings.

Chapter One introduces the research by presenting the background and context of the study. It defines the research problem, outlines the objectives and purpose, and establishes

the overall aim of investigating how cognitive biases impact organisational sustainability and strategic effectiveness over time.

Chapter Two provides a critical review of existing literature on cognitive biases, strategic decision-making, and organisational behaviour. It synthesises foundational theories and contemporary research, identifies key cognitive biases relevant to strategic contexts, and highlights gaps in the literature that justify the present study.

Chapter Three outlines the research methodology adopted for the investigation. It explains the qualitative research design and justifies the use of semi-structured interviews as the primary data collection tool. The chapter also details the sampling approach and data analysis methods.

Chapter Four presents the findings derived from empirical data. It identifies and analyses key themes emerging from the interviews, illustrating how various cognitive biases manifest in strategic decision-making and influence long-term organisational performance. The chapter further explores how organisational context, leadership, and decision frameworks shape these outcomes.

Chapter Five discusses the findings in relation to the theoretical frameworks and existing literature reviewed in Chapter Two. It interprets the implications of the observed biases, explores how they evolve and persist across strategic decisions, and considers the ethical and operational challenges associated with mitigating them.

Chapter Six concludes the thesis by summarising the key insights and contributions of the study. It outlines the theoretical, practical, and ethical implications of the research, acknowledges its limitations, and provides evidence-based recommendations for

organisational leaders, policymakers, and future researchers aiming to enhance decision quality and resilience through bias mitigation strategies.

1.7 Summary

This chapter has established the foundational framework for the study by contextualising the research within the broader field of strategic management and behavioural decision theory. It introduced the significance of cognitive biases in strategic decision-making processes, particularly in environments characterised by complexity, uncertainty, and long-term implications. The discussion underscored how biases such as overconfidence, anchoring, confirmation bias, and the sunk cost fallacy can systematically distort executive judgment and, if left unaddressed, contribute to suboptimal strategic outcomes and diminished organisational sustainability.

The research problem was delineated with reference to a critical gap in the existing literature—namely, the limited examination of the cumulative and long-term effects of cognitive biases within organisational decision-making frameworks. The chapter articulated the need for a longitudinal and multidimensional analysis that incorporates behavioural, structural, and ethical perspectives.

The overarching purpose of the research was presented as an inquiry into how cognitive biases manifest over time in strategic contexts, and how organisations might develop mechanisms to mitigate their adverse effects. In doing so, the study aims to contribute to both theoretical knowledge and practical application in behavioural strategy and ethical leadership.

The significance of the study was elaborated across six key dimensions: theoretical, empirical, practical, ethical, methodological, and academic. Each dimension was discussed in terms of how the study addresses current limitations in the field and offers value to scholars, practitioners, and policymakers seeking to enhance the quality of strategic decisions and organisational resilience.

The chapter also presented the research questions guiding the study, which focus on the forms of cognitive biases, their long-term implications, the moderating and mediating organisational variables, and the associated ethical considerations. A research hypothesis and null hypothesis were articulated to support empirical investigation.

Finally, the thesis outline was provided, offering a structured overview of the subsequent chapters and clarifying how each contributes to the study's objectives.

CHAPTER II:

REVIEW OF LITERATURE

2.1 Introduction

The literature review for this research presents the current knowledge available on the topic under scrutiny. The literature review will also be used to identify existing material that supports the research topic in question.

This section thoroughly examines cognitive biases and their enduring impact on strategic business decisions, as well as the significant gaps and obstacles to understanding the lasting effects of bias.

Cognitive biases play a significant role in shaping strategic decision-making within organisations. These biases, stemming from systematic patterns of deviation in judgment, influence how leaders interpret information, assess risks, and make critical business decisions (Parnell & Crandall, 2017). While cognitive biases can sometimes lead to efficient decision-making in uncertain environments, their long-term impact on organisational sustainability and performance remains a complex and underexplored area. Overconfidence, anchoring, and status quo bias have been observed in various contexts, including market entry, product development, branding, mergers and acquisitions, technology adoption, risk management, sustainability initiatives, and crisis management (Paulus et al., 2023). The growing interest in behavioural economics and cognitive psychology has highlighted the need for organisations to recognise and mitigate these biases to enhance strategic outcomes (Schebesch & Șoim, 2022).

Strategic business decisions, particularly those with long-term implications, require a balance between intuition and analytical reasoning. However, decision-makers often fall prey to cognitive biases, which can distort rational judgment and lead to suboptimal choices (Zhang, Van Der Bij & Song, 2020). For instance, anchoring bias in mergers and acquisitions can cause firms to overpay for assets based on initial price expectations rather than objective valuation metrics (Xiao, 2020). Similarly, data biases in crisis management can reinforce flawed decision-making, as seen in humanitarian responses, where certain narratives dominate resource allocation while others are overlooked (Paulus et al., 2022). These biases not only influence immediate business decisions but also have compounding effects on long-term organisational performance, profitability, and resilience.

Despite extensive research on cognitive biases, a consensus remains lacking on their long-term impact on business sustainability and strategic success. Studies have primarily focused on short-term decision outcomes, with limited empirical evidence on how biases accumulate and shape an organisation's trajectory over time (Petticrew et al., 2020). Additionally, there is an ongoing debate about whether certain cognitive biases can be beneficial under specific circumstances, such as in entrepreneurial decision-making, where biases like overconfidence and optimism may enhance risk-taking and innovation (Zhang, Van Der Bij & Song, 2020). This divergence in perspectives underscores the need for further research into how biases influence strategic decisions over extended periods.

Given the increasing complexity of the global business environment, organisations must develop robust strategies to recognise and mitigate cognitive biases. Ethical considerations also play a crucial role, as biases can lead to decisions that compromise

corporate integrity and social responsibility (Shuraida & Titah, 2023). The challenge lies in designing decision-making frameworks that minimise bias-driven errors while maintaining the agility necessary for a competitive advantage. Research in this area must bridge the gap between theoretical understanding and practical applications, providing actionable insights for businesses seeking to enhance the sustainability of their long-term performance.

This literature review explores the existing research on cognitive biases in strategic decision-making, highlighting key theories, areas of agreement and disagreement, and gaps in understanding their long-term effects. By synthesising findings from multiple disciplines, this study offers a comprehensive perspective on how biases shape business strategies and what organisations can do to mitigate their negative impact.

Cognitive Biases in Strategic Decision-Making

Cognitive biases significantly influence strategic decision-making within organisations, often leading to systematic deviations from rational judgment. While decision-making in business is ideally based on data analysis, structured frameworks, and logical reasoning, biases can distort perceptions, risk assessments, and resource allocation. These biases shape long-term strategic choices, influencing an organisation's sustainability, financial stability, and competitive positioning (Parnell & Crandall, 2017). Despite growing awareness of their impact, cognitive biases continue to be a persistent challenge for business leaders, influencing decisions related to market entry, product development, mergers and acquisitions, crisis management, and organisational change (Paulus et al., 2023).

One of the most prevalent biases in strategic decision-making is overconfidence bias, where leaders overestimate their ability to predict future outcomes or control uncertain situations. Overconfidence can lead to aggressive expansion strategies, excessive risk-taking, and misjudged investments, ultimately affecting long-term business viability (Thomas et al., 2007). This bias is evident in mergers and acquisitions, where executives frequently overestimate synergy benefits, leading to overvaluation and post-merger integration failures (Xiao, 2020). Similarly, anchoring bias affects financial and strategic decisions by causing individuals to rely too heavily on initial information, such as past performance metrics or early-stage valuation estimates, even when new, contradictory data becomes available (Zhang, Van Der Bij & Song, 2020). This can result in inflexible strategies, mispriced acquisitions, or reliance on outdated business models.

Another common distortion in strategic decision-making is status quo bias, which leads organisations to resist change despite clear evidence of evolving market trends or technological advancements (Shuraida & Titah, 2023). Companies often maintain inefficient processes or outdated business models due to the perceived risks associated with change, even when adaptation is necessary for long-term success. This resistance is evident in industries slow to adopt digital transformation, where legacy businesses struggle against more agile competitors. Similarly, confirmation bias encourages decision-makers to selectively seek information that aligns with their preexisting beliefs while dismissing contradictory evidence (Paulus et al., 2022). This can be particularly detrimental in risk management, where leaders may underestimate emerging threats or overlook alternative

strategies. For example, financial firms that dismissed early warning signs before the 2008 economic crisis were significantly affected by confirmation bias in their risk assessments (Miller & Rosenfeld, 2009).

The availability heuristic further distorts decision-making by causing individuals to give undue weight to recent or emotionally striking information when assessing risks. For instance, leaders may focus on highly publicised corporate failures while underestimating less visible but equally significant risks, such as gradual declines in customer satisfaction or slow market share erosion (Petticrew et al., 2020). Relatedly, framing influences how information is presented, affecting the perceived attractiveness of strategic options. Business leaders may react differently to a 20% success rate versus an 80% failure rate, even though both statements describe the same probability (Zhu et al., 2023). Such biases can impact risk-taking behavior, investment decisions, and crisis management strategies.

Cognitive biases also influence resource allocation and investment decisions, often leading to inefficiencies. The sunk cost fallacy causes organisations to continue investing in failing projects due to past commitments rather than rationally assessing future viability (Paulus et al., 2023). This bias is particularly evident in large infrastructure projects, where companies persist with unprofitable ventures despite mounting financial losses. Similarly, the halo effect, where success in one area creates an illusion of competence in others, can lead to overexpansion into unrelated markets without sufficient expertise (Zhang, Van Der Bij, & Song, 2020).

In corporate governance and leadership, groupthink frequently emerges when decision-making teams prioritize consensus over critical evaluation, leading to poor

strategic choices (Shuraida & Titah, 2023). Organisations suffering from groupthink discourage dissenting opinions, reducing the likelihood of identifying flaws in proposed strategies. The escalation of commitment further reinforces this issue, as companies persist with failing strategies despite clear signs of declining effectiveness (Paulus et al., 2022). High-profile corporate failures often stem from these biases, where leadership teams ignored warning signs and maintained ineffective policies due to a reluctance to admit past mistakes.

Beyond financial and operational risks, cognitive biases also raise ethical concerns in strategic decision-making. Implicit biases in leadership selection, performance evaluations, and customer interactions can lead to unfair hiring practices, reduced workplace diversity, and biased marketing strategies (Zhu et al., 2023). Ethical blind spots, reinforced by cognitive biases, can also lead to regulatory violations, compliance failures, and reputational damage (Petticrew et al., 2020). In industries such as finance and healthcare, where ethical considerations are paramount, biases can have severe long-term consequences for public trust and stakeholder relationships.

Organisations must adopt structured decision-making frameworks that incorporate systematic evaluation methods to mitigate the impact of cognitive biases. One approach is scenario planning, which requires leaders to consider multiple future possibilities rather than relying on a single, biased forecast (Zhang, Van Der Bij & Song, 2020). Decision-making protocols, such as the "premortem" method, encourage teams to assume a project has failed and work backward to identify potential pitfalls, reducing the influence of overconfidence and confirmation bias (Shuraida & Titah, 2023).

Data-driven decision-making is another critical strategy for reducing bias. Organisations that integrate AI-driven analytics into their strategic processes can identify patterns that might otherwise be overlooked due to human cognitive limitations (Paulus et al., 2023). Machine learning algorithms can detect biases in financial forecasting, hiring decisions, and market trend analysis, offering more objective recommendations. However, it is essential to ensure that AI models do not reinforce existing biases through flawed training data.

Encouraging cognitive diversity within leadership teams is another effective mitigation strategy. Diverse perspectives help challenge groupthink and provide alternative viewpoints that reduce bias-driven decision errors (Paulus et al., 2023). Companies that actively seek input from individuals with different backgrounds, industry experiences, and cognitive styles tend to make more balanced and effective strategic choices. Research has shown that decision-making teams with greater thought-process diversity perform better in uncertain and rapidly changing business environments (Zhu et al., 2023).

Lastly, bias training and awareness programs can help executives recognise and counteract their unconscious biases. Organisations that implement structured training sessions on cognitive biases and decision-making heuristics see improvements in strategic judgment and risk assessment (Zhang, Van Der Bij & Song, 2020). Studies suggest that executives who participate in bias awareness programs are more likely to challenge their assumptions and make data-driven decisions (Shuraida & Titah, 2023).

While cognitive biases are inherent in human decision-making, their negative impact on strategic business decisions can be mitigated through deliberate, structured

interventions. Organisations can mitigate the risks associated with irrational judgment by leveraging decision-making frameworks, integrating technology, promoting cognitive diversity, and fostering awareness of bias. Addressing cognitive biases is essential for long-term business sustainability, ensuring that strategic decisions are made with clarity, rationality, and ethical consideration.

Strategic Business Decisions and Cognitive Biases

Strategic business decisions encompass a wide array of critical choices that shape the direction and performance of organisations (Khattar & Gallo, 2023). These decisions span market entry strategies, product development, branding and positioning, mergers and acquisitions, technology adoption, risk management, sustainability practices, and crisis management (Ahi et al., 2017; Cristofaro et al., 2023). However, these decisions are susceptible to cognitive biases that can distort judgment and lead to suboptimal outcomes (Han, 2022). Understanding how cognitive biases influence strategic decision-making is crucial, as these biases impact the way executives perceive, process, and respond to information in complex and uncertain environments.

Cognitive biases can significantly impact market entry strategies, as decision-makers often rely on heuristics when assessing new opportunities. Anchoring bias, for instance, leads executives to fixate on initial information or preconceived notions about a particular market, potentially causing them to overlook alternative opportunities or risks (Acciarini et al., 2020). Availability bias may also play a role, as decision-makers might overestimate the attractiveness of markets based on recent or quickly recalled examples rather than conducting thorough research and analysis (Thomas et al., 2007). These biases

can lead to misguided market entry strategies, ultimately impacting long-term business performance and sustainability.

In product development and innovation, confirmation bias frequently influences decision-making, causing individuals to seek information that aligns with their preexisting beliefs while overlooking contradictory data (Phillips-Wren et al., 2019). This can result in the persistence of flawed product ideas, as teams may dismiss critical feedback or alternative perspectives that challenge their assumptions. Moreover, the sunk cost fallacy can exacerbate poor decision-making in product development, where firms continue investing in failing projects due to prior resource commitments rather than objectively assessing feasibility and market potential (Zhang et al., 2020). Such biases hinder innovation, reduce resource efficiency, and negatively impact long-term sustainability.

Overconfidence bias is particularly prominent in mergers and acquisitions, as executives may exhibit excessive confidence in their ability to assess and execute deals (Xiao, 2020). This can lead to overvaluation of target companies, underestimation of integration challenges, and failure to account for cultural and operational disparities. Additionally, the illusion of control bias can cause decision-makers to overestimate their influence over post-merger integration outcomes, resulting in unrealistic expectations and flawed strategic planning (Zhu et al., 2023). The consequences of these biases in M&A transactions include financial losses, reputational damage, and diminished shareholder value, highlighting the importance of objective and data-driven decision-making.

Technology adoption decisions are also vulnerable to biases, particularly status quo bias, where individuals resist change and favour existing technologies over new, potentially

beneficial innovations (Shuraida & Titah, 2023). This reluctance can hinder digital transformation efforts and slow the adoption of emerging technologies that could enhance operational efficiency and competitive advantage. Similarly, loss aversion bias may cause organisations to focus excessively on potential risks associated with new technology investments rather than considering long-term benefits (Zhang et al., 2020). Overcoming these biases requires a structured approach to evaluating technological opportunities, leveraging data-driven insights, and fostering a culture of adaptability.

Risk management decisions are also susceptible to cognitive biases affecting how organisations assess and respond to threats. Optimism bias, for instance, can lead to underestimation of risks, resulting in inadequate preparation for potential crises (Ahi et al., 2017). Similarly, hindsight bias may distort risk assessments by making past events appear more predictable than they were, leading to overconfidence in forecasting abilities and ineffective risk mitigation strategies (Ehrlinger et al., 2016). Addressing these biases is crucial for improving organisational resilience and ensuring robust risk management frameworks.

Sustainability practices are increasingly recognised as a key component of strategic decision-making, yet they, too, are subject to cognitive biases. Decision-makers may experience temporal discounting, prioritising short-term gains over long-term sustainability objectives (Bogan & Just, 2009). This bias can lead organisations to delay investments in sustainable initiatives, even when such actions would yield long-term competitive advantages. Additionally, social desirability bias may influence corporate sustainability decisions, where firms engage in superficial sustainability efforts primarily

for reputational benefits rather than genuine long-term commitment (Holmgren et al., 2019). Addressing these biases requires a shift in organisational culture, integrating sustainability into core business strategies rather than treating it as a secondary concern.

Crisis management is another domain where cognitive biases can have profound effects. During times of crisis, decision-makers may experience framing effects, where the way a situation is presented influences their choices, often leading to risk-averse or excessively aggressive responses (Parnell & Crandall, 2017). Groupthink is also a significant concern in crisis management, as teams under pressure may prioritise consensus over critical evaluation, thereby overlooking alternative solutions (Cristofaro et al., 2023). Organisations must develop structured crisis response protocols to mitigate these biases, encourage diverse perspectives, and ensure transparent communication.

Despite the diversity of strategic business decisions, cognitive biases manifest similarly across different contexts, highlighting their pervasive nature and impact on decision-making effectiveness (Ehrlinger et al., 2016). Recognising and addressing cognitive biases in strategic decision-making is essential for firms looking to improve their competitiveness and long-term sustainability. Organisations can take several proactive measures to mitigate the detrimental effects of biases, including cognitive bias awareness training, implementing decision-making frameworks that promote systematic analysis and information processing, and fostering a culture of open-mindedness and critical thinking (Holmgren et al., 2019). Technological advancements such as decision support systems and artificial intelligence can also provide objective insights, counteracting cognitive biases by offering data-driven recommendations (Bogan & Just, 2009).

Integrating cognitive bias mitigation strategies into strategic decision-making processes is essential for organisations to adapt to dynamic market conditions, capitalise on emerging opportunities, and achieve sustainable growth and success. By acknowledging the influence of biases and implementing structured decision-making frameworks, organisations can enhance their ability to navigate uncertainty, optimise resource allocation, and secure long-term competitive advantages in an increasingly complex business environment.

2.2 Decision Theories

Bounded Rationality and Strategic Decision-Making: Bounded rationality, a concept first introduced by Herbert A. Simon (1957) remains a foundational theoretical lens for understanding cognitive limitations in decision-making. The theory contends that individuals make decisions not as entirely rational agents but within the constraints of limited cognitive capacity, incomplete information, and restricted time. This theoretical perspective is particularly salient in strategic decision-making, where uncertainty, complexity, and high stakes are common.

In the context of contemporary organisational strategy, the implications of bounded rationality are profound. Unlike operational decisions, strategic choices typically involve ambiguity, multiple objectives, and long-term consequences. Decision-makers under these conditions are unlikely to process all available information optimally, leading instead to satisficing behaviour—selecting an option that is "good enough" rather than optimal (Gigerenzer and Selten, 2002). This limitation is not a flaw but an adaptive response to real-world constraints. Recent literature has reaffirmed the relevance of bounded rationality

in this regard, especially in volatile environments such as startups, innovation management, and high-growth sectors (Gonçalves and Rocha, 2022).

Strategic decisions often unfold in fast-paced environments, where managers must make judgments under severe information asymmetry and cognitive overload. For example, Deshpande (2025) demonstrates how leaders in technology-driven firms are prone to cognitive filtering—selectively attending to information that aligns with prior beliefs—when time is constrained and the strategic stakes are high. This phenomenon is directly aligned with Simon's notion of bounded rationality, suggesting that managerial cognition remains fundamentally constrained, even in data-rich environments.

Recent empirical studies have sought to operationalise bounded rationality in strategic settings. For instance, a survey by Fasolo et al. (2024) explores how decision-makers in multinational organisations often rely on heuristics due to the impracticality of comprehensive data analysis. The findings suggest that while heuristics can occasionally yield effective outcomes, they also introduce systematic errors, particularly in strategic contexts that require long-term planning and stakeholder engagement.

Additionally, the growing complexity of decision environments exacerbates the effects of bounded rationality. With the increasing use of artificial intelligence and big data analytics in business strategy, decision-makers often face an illusion of objectivity. However, Phillips-Wren et al. (2019) argue that abundant data does not eliminate bounded rationality but reshapes its manifestations. Decision-makers may experience "analysis paralysis" or become overly dependent on algorithmic outputs without adequately considering contextual or ethical dimensions, thus reaffirming Simon's cognitive limits.

Leadership style and organisational structure also influence how bounded rationality manifests in strategic decisions.

Importantly, bounded rationality does not imply that decision-makers are irrational. Instead, it reflects the notion of "procedural rationality," where decisions are made based on available processes, even if the outcomes are not strictly optimal (Simon, 1997). This distinction is crucial for understanding why even experienced leaders may repeatedly fall into cognitive traps when confronting complex, strategic problems. For instance, Gonçalves and Rocha (2023) found that strategic missteps in high-stakes negotiations were often not due to a lack of intent or capability but to bounded information processing and premature closure on options.

From a normative perspective, understanding bounded rationality has significant implications for designing better strategic processes. Incorporating decision audits, red-teaming, and structured scenario planning can help organisations account for cognitive constraints and improve decision quality. Embedding these practices into routine strategic planning may help mitigate the effects of bounded rationality, particularly when paired with leadership training that enhances cognitive awareness and reflective thinking (Beddeley et al., 2025).

Despite its robust theoretical foundation, bounded rationality has also faced criticism for being overly general and difficult to measure empirically. However, contemporary research has made strides in quantifying its manifestations.

In summary, bounded rationality provides a critical lens for understanding how strategic decisions are shaped by human limitations in perception, information processing,

and time management. It underscores the importance of designing organisational processes that compensate for these constraints rather than ignore them. As strategic environments continue to grow more complex, bounded rationality remains not only relevant but also indispensable in explaining why even well-intentioned, experienced leaders make flawed decisions and how they might improve with structured cognitive support.

Dual Process Theory

Dual-process theory is a pivotal framework in understanding the cognitive mechanisms underlying decision-making processes. This theory posits the existence of two distinct systems of thought: System 1, which is fast, automatic, and intuitive; and System 2, which is slow, deliberate, and analytical (Evans & Stanovich, 2013). The interplay between these systems significantly influences the emergence of cognitive biases, particularly in strategic decision-making contexts.

System 1 operates effortlessly, using heuristics and past experiences to generate quick judgments. While this system is efficient for routine decisions, it is susceptible to systematic errors and biases due to its reliance on mental shortcuts. Conversely, System 2 requires conscious effort, analytical reasoning and critical evaluation. It monitors and, when necessary, overrides the intuitive responses generated by System 1 (Kahneman, 2011). However, due to cognitive load or time constraints, individuals may default to System 1 processing, increasing the likelihood of biased decisions.

Recent empirical studies have explored the implications of dual-process theory in organisational settings. For instance, a survey by Baddeley et al. (2025) examined cognitive biases in online opinion platforms, highlighting how users often rely on intuitive judgments

(System 1) when evaluating information, leading to susceptibility to biases such as confirmation bias and anchoring. The study emphasises the need for interventions that promote analytical thinking (System 2) to mitigate such biases.

In strategic decision-making, the balance between intuitive and analytical processing is crucial. A study examined the complementary effects of rationality and intuition on the quality of strategic decisions, suggesting that integrating both approaches can enhance outcomes, particularly in dynamic environments that require adaptability and flexibility. This combination enables decision-makers to benefit from the speed of intuitive judgments while maintaining accuracy through analytical reasoning (Calabretta et al., 2016). Moreover, the dual-process framework has been instrumental in understanding moral and ethical decision-making. It has been proposed that deontological judgments are mainly influenced by automatic emotional responses associated with System 1, while consequentialist judgments rely on deliberate reasoning linked to System 2. This distinction helps explain how individuals approach complex situations, striking a balance between instinctive reactions and analytical evaluation of potential outcomes (Greene et al., 2001).

Individual differences also influence the susceptibility to cognitive biases in cognitive styles and abilities. A study investigated how the need for cognition and numeracy levels influence decision-making processes, revealing that individuals with a higher need for cognition are more inclined to engage in System 2 thinking, which in turn reduces their susceptibility to cognitive biases (Berthet, 2022). Conversely, individuals

with lower numeracy skills tend to rely more on intuitive judgments, which increases the risk of biased decisions.

Understanding the dual-process model is vital in the context of artificial intelligence (AI) and decision-support systems. Research has explored the impact of cognitive biases in AI-assisted decision-making, highlighting how human dependence on intuitive judgments can influence the interpretation of AI-generated outputs. The findings underscore the importance of designing AI systems that promote analytical engagement, thereby fostering System 2 processing and mitigating bias influence (Rastogi et al., 2022). Furthermore, the framing effect, a well-documented cognitive bias, illustrates the impact of information presentation on decision-making. Research indicates that how options are framed can significantly influence individuals' choices, with positive or negative connotations triggering different responses (Tversky & Kahneman, 1981). This effect highlights the prevalence of System 1 processing in certain contexts and underscores the need for deliberate analytical evaluation to counteract such biases.

To mitigate the adverse effects of cognitive biases, interventions that enhance System 2 engagement are essential. Training programs focusing on critical thinking, knowledge of biases, and decision-making strategies can empower individuals to recognise and counteract intuitive errors. Additionally, organisational structures that promote reflective practices and encourage diverse perspectives can facilitate more balanced decision-making processes.

In conclusion, dual-process theory provides a comprehensive framework for understanding the cognitive underpinnings of decision-making and the emergence of

biases. By acknowledging the interplay between intuitive and analytical systems, organisations and individuals can develop strategies to enhance decision quality, particularly in complex and high-stakes environments.

Prospect Theory and Decision Making: Prospect Theory, developed by Kahneman and Tversky (1979), offers a descriptive framework for understanding decision-making under risk and uncertainty. Contrary to the traditional Expected Utility Theory, which assumes rational agents maximising utility, Prospect Theory posits that individuals evaluate potential gains and losses relative to a reference point, exhibiting loss aversion and nonlinear probability weighting. These cognitive biases significantly influence strategic decision-making processes within organisations.

Recent empirical studies have reinforced the applicability of Prospect Theory in various organisational contexts. The framing effect, a core component of Prospect Theory, demonstrates how the presentation of information influences decision-making. Individuals' choices can vary significantly based on whether options are framed positively or negatively, even when the underlying information remains constant. This phenomenon underscores the importance of critical thinking and seeking alternative perspectives to mitigate biased decisions.

Advancements in modelling decision-making under risk have incorporated Prospect Theory into computational frameworks. Yousaf et al. (2025) proposed a symbolic approximation of Prospect Theory, replacing complex utility curves with transparent, effect-size-guided features. This approach enhances interpretability and applicability in AI safety and economic policy analysis.

Furthermore, Brihaye et al. (2025) extended Prospect Theory into sequential decision-making by integrating it with Markov Decision Processes (MDPs). Their work provides algorithms for computing the cumulative prospect value in MDPs, facilitating risk-aware strategies in dynamic environments.

In organisational change management, Prospect Theory explains resistance to change through the concept of loss aversion. Individuals perceive potential losses from change more acutely than equivalent gains, leading to a preference for the status quo. This insight helps managers design change initiatives that minimise perceived losses and emphasise gains to reduce resistance.

Cultural and individual differences also modulate the influence of Prospect Theory's principles. A study by González Ramírez et al. (2018) on Argentine agri businesses found that decision-makers exhibited significant loss aversion and overweighted low-probability events, such as droughts. These findings suggest that tailored strategies accounting for cultural contexts are essential for adequate decision-making support.

Prospect Theory provides a robust framework for understanding cognitive biases in strategic decision-making. Its principles have been validated across various domains, including cybersecurity, finance, organisational change, and agriculture. Incorporating insights from Prospect Theory into decision-making processes can enhance organisational resilience and effectiveness in the face of risk and uncertainty.

2.3 Theoretical Frameworks

Theoretical frameworks provide valuable lenses to understand the interplay between cognitive biases and organisational strategic decision-making processes (Ehrlinger et al., 2016).

Integrating bounded rationality, dual-process theory, and prospect theory offers a multidimensional understanding of how cognitive biases shape strategic decision-making in organisational settings. While developed from distinct psychological and behavioural perspectives, these theories converge in their explanation of why decision-makers deviate from rationality and how such deviations affect long-term organisational performance. Their relevance becomes particularly apparent in the high-stakes, complex, and uncertain environments in which strategic decisions are made.

Bounded rationality, initially introduced by Simon (1997), asserts that individuals do not seek optimal solutions but settle for satisfactory ones due to limitations in information processing, time constraints, and cognitive capacity. This framework is especially pertinent in organisational contexts where decision-makers are inundated with vast information and pressured to act quickly. Recent research by Gonçalves and Rocha (2023) confirms that executives in fast-paced business environments frequently adopt satisficing behaviours when confronted with complexity and ambiguity. Their findings highlight that even seasoned leaders often depend on simplified models of reality, mainly when operating under conditions of uncertainty or limited data.

Organisational structure and culture can further exacerbate or mitigate the effects of bounded rationality. Phillips-Wren et al. (2019) argue that decision support systems designed with an awareness of cognitive constraints, not in opposition to them, can enhance

strategic decision quality by presenting information in digestible formats and prompting deliberative thinking.

Complementing this framework, dual-process theory elucidates how individuals alternate between two modes of cognition: System 1, which is fast, intuitive, and automatic, and System 2, which is slow, deliberate, and analytical (Kahneman, 2011). In organisational environments, leaders often rely on System 1 processing to make quick judgments, particularly under time pressure or when relying on experience. While intuition can be practical in specific contexts, it increases the risk of cognitive biases, such as confirmation bias, overconfidence, and the availability heuristic (Calabretta et al., 2017). These biases can distort strategic judgments, especially when unchecked by reflective analysis.

Rastogi et al. (2022) argue that the increasing use of AI and algorithmic tools in corporate strategy does not eliminate cognitive biases but can obscure them. Their study shows that intuitive errors persist when decision-makers accept algorithmic outputs without scrutiny, highlighting the need for deliberate System 2 engagement. Organisational cultures that prioritise critical reflection and encourage dissent are better positioned to leverage the strengths of both systems while minimising their drawbacks (Baddeley et al., 2025).

Prospect theory, developed by Kahneman and Tversky (1979), adds a valuable dimension by illustrating how individuals evaluate choices based on perceived gains and losses rather than absolute outcomes. This theory explains why managers often exhibit risk aversion when facing potential gains but become risk-seeking when attempting to avoid

losses. This behavioural pattern is especially evident in phenomena such as the sunk cost fallacy and escalation of commitment—common issues in strategic planning and investment decisions (Sharma, 2024). Leaders may persist with failing projects due to the psychological discomfort of accepting a loss, even when withdrawal would be more rational.

Brihaye et al. (2025) extend prospect theory into sequential decision-making by incorporating it into Markov Decision Processes. Their work demonstrates how decision-makers overweight low-probability outcomes and undervalue future benefits, directly affecting strategic contexts such as supply chain management, product development, and long-term investment planning. Moreover, the framing of strategic issues—how options are presented—can dramatically alter decision outcomes.

Together, these three theories offer a comprehensive framework for understanding the cognitive, emotional, and contextual drivers of strategic decision-making. Bounded rationality explains the structural and informational constraints that limit optimal reasoning. Dual-process theory reveals how intuitive versus analytical thinking influences the decision-making process. Prospect theory provides insight into how decision-makers perceive and respond to risk, especially in situations involving potential loss. When considered together, they illuminate how biases emerge, persist, and interact within complex organisational environments.

Practical implications of this theoretical integration are significant. Organisations can design decision-making systems that account for cognitive limitations, promote reflective analysis, and reduce the distortive effects of loss aversion and framing.

Structured decision reviews, red-teaming exercises, scenario planning, and bias-awareness training are among the tools that can operationalise these theories in practice. As strategic environments evolve and grow in complexity, an integrated application of cognitive theories will be essential for cultivating robust, ethical, and adaptive decision-making cultures within organisations.

2.4 Bias Recognition and Management

Recognition of Influence on Cognitive Bias: Decision-makers must acknowledge the existence of cognitive biases and their potential impact on judgment and behaviour to mitigate their adverse effects (Holmgren et al., 2019). Cognitive biases are systematic deviations from rationality that influence decision-making, causing individuals to rely on heuristics and subjective judgments instead of objective analysis (Bogan & Just, 2009). These biases can distort strategic business decisions, leading to inefficient resource allocation, missed opportunities, and flawed risk assessments (Cristofaro et al., 2023). Recognising cognitive biases is the first step toward minimising their negative consequences in decision-making. This requires fostering self-awareness, promoting critical reflection, and implementing systematic approaches to counteract biased thinking patterns (Shuraida & Titah, 2023).

Self-awareness and humility are essential traits for recognising the limitations of individual cognitive processes and the inherent susceptibility to biases (Bogan & Just, 2009). Research suggests that individuals who acknowledge their cognitive limitations are likelier to engage in metacognitive strategies that enhance decision accuracy (Holmgren et al., 2018). Decision-makers who identify their biases can critically assess their judgments,

leading to more rational and data-driven strategic decisions (Phillips-Wren et al., 2019). Without self-awareness, biases operate unconsciously, influencing decision-making that may not align with organisational goals or market realities (Ehrlinger et al., 2016).

Organisational leaders play a crucial role in fostering a culture that encourages open dialogue and critical reflection on decision-making practices (Cristofaro et al., 2023). Leadership commitment to bias awareness can create an environment where employees feel comfortable questioning assumptions and challenging prevailing perspectives (Shuraida & Titah, 2023). Encouraging diverse viewpoints, promoting inclusivity in decision-making, and welcoming dissenting opinions reduce the likelihood of groupthink and improve the quality of decisions (Ahi et al., 2017). By fostering psychological safety, leaders enable employees to voice concerns, consider alternative perspectives, and engage in constructive debates without fear of retribution (Han, 2022).

Groupthink, a cognitive bias characterised by the tendency for consensus-seeking behaviors to override critical evaluation, can significantly undermine strategic decision-making (Knox, 2004). Organisations that fail to create mechanisms for challenging dominant perspectives may reinforce flawed assumptions and make suboptimal choices (Parnell & Crandall, 2017). For example, unchecked overconfidence bias may lead executives to overvalue target companies in mergers and acquisitions. At the same time, escalation of commitment may cause firms to persist with failing investments despite clear warning signs (Xiao, 2020). Encouraging open dialogue and independent critical thinking helps counteract these biases and facilitates more balanced decision-making processes (Phillips-Wren et al., 2019).

Leveraging decision support tools and techniques can help decision-makers identify and correct cognitive biases in real-time (Holmgren et al., 2018). Structured decision-making frameworks, such as decision trees, scenario analysis, and pre-mortem techniques, offer systematic ways to evaluate alternatives and reduce reliance on intuition (Acciarini et al., 2020). These methods introduce a structured approach that forces decision-makers to consider multiple perspectives, analyse risks objectively, and avoid snap judgments (Ehrlinger et al., 2016). Additionally, data-driven decision-making tools, such as artificial intelligence and predictive analytics, can provide empirical insights that challenge biased assumptions and support evidence-based strategic choices (Bogan & Just, 2009).

Training programs and workshops play a crucial role in enhancing awareness of cognitive biases among decision-makers and equipping them with strategies for mitigating biases in decision-making (Lovallo & Sibony, 2010). Cognitive bias training interventions, such as debiasing workshops and scenario-based learning, have improved decision-makers' ability to recognise and correct biased thinking patterns (Holmgren et al., 2019). Organisations can integrate bias-awareness training into leadership development programs, ensuring key decision-makers possess the skills to identify and mitigate cognitive distortions (Cristofaro et al., 2023). Research suggests continuous exposure to bias-mitigation strategies leads to long-term improvements in decision quality and strategic effectiveness (Shuraida & Titah, 2023).

One of the most effective ways to reduce the impact of biases in strategic decision-making is to institutionalise processes that encourage objective assessments and counteract

cognitive distortions (Han, 2022). For instance, implementing structured decision-making protocols, such as requiring multiple independent evaluations of significant business decisions, can help minimise the influence of individual biases (Phillips-Wren et al., 2019). Encouraging external advisors or decision review committees introduces additional perspectives, reducing the risk of biased judgments and increasing decision accuracy (Parnell & Crandall, 2017).

By fostering a culture of recognising and mitigating cognitive biases, organisations can enhance decision-making effectiveness and achieve better outcomes in strategic endeavours (Holmgren et al., 2019). Companies that proactively address biases through structured decision-making processes, leadership commitment, and the integration of decision-support tools are better equipped to navigate market uncertainties, capitalize on emerging opportunities, and sustain long-term success (Cristofaro et al., 2023). Identifying and mitigating biases enhances individual decision quality, organisational adaptability, resilience, and overall performance (Bogan & Just, 2009).

Companies can enhance their decision-making processes and improve long-term outcomes by fostering self-awareness, encouraging open dialogue, leveraging decision-support tools, and investing in bias-awareness training (Shuraida & Titah, 2023). Addressing cognitive biases enables firms to make more informed choices, reduce decision errors, and achieve sustainable competitive advantages in an increasingly complex and uncertain business environment (Holmgren et al., 2018).

Importance of Mitigating Biases in Strategic Decision-Making: Cognitive biases significantly impact decision-making processes by shaping how individuals

perceive, process, and interpret information (Holmgren et al., 2019). These biases can lead to distorted judgments, often resulting in decisions based on subjective intuition rather than objective evaluation (Bogan & Just, 2009). When biases influence decision-makers, they may unconsciously prioritize certain information over others, leading to an incomplete or misleading assessment of risks and opportunities (Cristofaro et al., 2023). Biases such as overconfidence, anchoring, and confirmation bias contribute to rigid thinking patterns, limiting the ability to explore alternative strategies (Shuraida & Titah, 2023). This can directly impact strategic business decisions, where accurate assessments and flexibility are critical to success.

Organisations that take a proactive approach to identifying and mitigating biases can reduce the likelihood of decision-making errors while improving their ability to recognise potential risks and growth opportunities (Bogan & Just, 2009). Many biases, including status quo bias and loss aversion, create resistance to change, preventing organisations from adapting effectively to market fluctuations (Holmgren et al., 2018). Decision-makers who develop an awareness of these biases can adopt structured decision-making processes that ensure a broader and more thorough analysis of available information (Phillips-Wren et al., 2019). Implementing formalised evaluation frameworks encourages decision-makers to base their choices on well-supported evidence rather than instinctive or emotionally driven responses (Knox, 2004).

A systematic approach to reducing cognitive biases fosters greater organisational accountability and transparency (Cristofaro et al., 2023). When decisions are made based on verifiable data rather than subjective assumptions, organisations can establish more

consistent and reliable strategic planning processes (Shuraida & Titah, 2023). Ensuring that key business choices undergo rigorous examination minimizes the risks associated with flawed reasoning and enhances the quality of outcomes (Ahi et al., 2017). Additionally, by embedding critical thinking practices into their decision-making models, organisations create an environment where diverse perspectives are actively considered. Encouraging open dialogue and constructive dissent helps counteract biases like groupthink, where decisions become overly influenced by the dominant opinion rather than objective assessment (Han, 2022).

Cognitive bias mitigation also plays a crucial role in fostering trust and credibility among stakeholders (Shuraida & Titah, 2023). Investors, business partners, and employees tend to have greater confidence in organisations that rely on structured and logical decision-making frameworks, as these approaches reduce uncertainty and perceived risk (Ehrlinger et al., 2016). In contrast, inconsistent or erratic decision-making, often influenced by cognitive biases, can create uncertainty and diminish stakeholder confidence over time (Holmgren et al., 2019). Organisations that actively address bias-related distortions in their strategic planning are better positioned to maintain a reputation for fairness, reliability, and competence (Phillips-Wren et al., 2019). Businesses can improve stakeholder engagement and strengthen long-term professional relationships by enhancing decision-making transparency.

Another essential benefit of addressing cognitive biases is improved strategic alignment and resource allocation (Holmgren et al., 2018). Cognitive biases, such as escalation of commitment, often lead decision-makers to persist with failing projects

despite clear indications that a change in direction is necessary (Acciarini et al., 2020). Such biases can result in inefficient allocation of financial and human resources, causing organisations to invest in initiatives that no longer align with strategic objectives (Parnell & Crandall, 2017). When decision-making frameworks are structured to account for potential biases, organisations can ensure that resources are allocated based on data-driven evaluations rather than emotional or psychological attachments (Cristofaro et al., 2023). This helps companies optimize capital investment, workforce deployment, and operational efficiency, ultimately supporting sustained growth and profitability.

Mitigating cognitive biases is critical for organisations operating in dynamic and uncertain environments (Knox, 2004). Biases such as availability and hindsight bias may lead decision-makers to overestimate their ability to predict market trends based on past experiences (Bogan & Just, 2009). This can result in an overreliance on historical patterns while overlooking emerging variables and new industry dynamics (Holmgren et al., 2018). By acknowledging these tendencies, organisations can implement adaptive decision-making models prioritising continuous learning, scenario planning, and contingency analysis (Shuraida & Titah, 2023). Such frameworks enhance an organisation's flexibility and resilience, ensuring a more effective response to sudden market shifts and disruptions.

Incorporating cognitive bias awareness into organisational culture is crucial in improving decision-making effectiveness (Cristofaro et al., 2023). Companies that invest in training programs to help employees and executives recognise common biases can strengthen their decision-making capabilities (Phillips-Wren et al., 2019). Workshops, simulations, and bias-reduction techniques such as pre-mortem analysis or devil's

advocacy can help decision-makers develop strategies to counteract their cognitive tendencies (Knox, 2004). Additionally, leveraging technological tools such as decision support systems and artificial intelligence can provide objective data-driven insights that reduce reliance on biased judgment (Bogan & Just, 2009). Decision-making platforms that integrate predictive analytics and structured evaluation criteria help organisations minimize the risks of intuitive or heuristic-based reasoning.

Cognitive bias mitigation extends beyond individual decision-making to influence broader organisational strategies (Holmgren et al., 2019). Businesses integrating bias-awareness into corporate governance, risk management, and operational planning can improve overall performance and competitiveness (Bogan & Just, 2009). Strategies like structured deliberation, cross-functional decision-making committees, and external advisory reviews help organisations challenge assumptions and enhance decision reliability (Cristofaro et al., 2023). Furthermore, implementing systematic post-decision reviews allows organisations to evaluate the effectiveness of past decisions and identify patterns where cognitive biases may have played a role (Shuraida & Titah, 2023).

While inherent to human thinking, cognitive biases can be managed effectively through structured interventions and organisational commitment to bias mitigation (Phillips-Wren et al., 2019). Addressing biases improves strategic decision-making and enhances business resilience, stakeholder confidence, and long-term sustainability (Holmgren et al., 2018). By embedding bias-awareness strategies into decision-making processes, organisations can reduce susceptibility to errors, enhance strategic alignment,

and maintain a competitive advantage in evolving business landscapes (Cristofaro et al., 2023).

Effectiveness of Bias Mitigation Strategies: Various approaches have been developed to mitigate cognitive biases, significantly enhancing organisational decision-making processes by reducing subjective distortions and improving objectivity (Holmgren et al., 2019). Among these approaches, decision-support tools, training programs, organisational interventions, and technological advancements are particularly effective strategies. When combined strategically, these methods can help organisations counteract cognitive biases and improve their effectiveness in making critical decisions (Bogan & Just, 2009).

Decision-support tools are among the most practical and immediately implementable methods for reducing cognitive biases. Tools such as decision trees, checklists, and structured analytic techniques offer decision-makers clear frameworks that help systematically evaluate alternatives, minimising reliance on intuitive and potentially flawed judgments (Bogan & Just, 2009). Checklists, for instance, ensure that essential criteria are consistently considered, thereby mitigating risks associated with oversight or selective perception (Holmgren et al., 2018). Decision trees provide a visual and analytical approach that enables decision-makers to outline potential outcomes and systematically assess their probabilities and implications. This structured process reduces the influence of biases, such as anchoring and overconfidence, by encouraging a more objective evaluation of all relevant variables (Cristofaro et al., 2023).

Training programs are another critical mechanism for enhancing organisational awareness and managing cognitive biases. Structured educational interventions, such as workshops, seminars, and simulations, help decision-makers recognise specific cognitive biases and their potential impact on judgment and behavior (Cristofaro et al., 2023). These training initiatives are often interactive, encouraging participants to engage in reflective exercises and scenario-based learning that illustrates how biases manifest in real-world situations (Phillips-Wren et al., 2019). For example, pre-mortem analyses during training sessions help participants proactively identify potential decision pitfalls by imagining future failure scenarios, thus reducing optimism bias and enhancing decision quality (Holmgren et al., 2019). Continuous and repeated exposure to bias-awareness training can reinforce cognitive vigilance, equipping decision-makers with lasting skills for recognising and mitigating bias (Bogan & Just, 2009).

Organisational interventions represent a broader cultural approach to reducing cognitive biases. Creating an organisational culture that values critical reflection, openness to diverse perspectives, and ongoing dialogue encourages decision-makers to examine their assumptions and judgments more rigorously (Shuraida & Titah, 2023). Leaders who actively promote cognitive diversity within teams reduce the risk of groupthink by ensuring multiple viewpoints are considered during decision-making processes (Knox, 2004). Additionally, implementing procedural safeguards, such as independent review committees or cross-functional teams, can reduce individual biases by incorporating diverse perspectives and challenging prevailing assumptions. This approach prevents dominant individuals or opinions from disproportionately influencing decisions, thereby

enhancing the overall quality and reliability of organisational strategies (Cristofaro et al., 2023).

Leveraging technological advancements, including artificial intelligence (AI) and machine learning (ML), provides a modern and powerful means to mitigate cognitive biases. AI-driven decision support systems can analyse vast amounts of data rapidly and objectively, identifying patterns and providing insights that might go unnoticed due to cognitive biases (Holmgren et al., 2018). Machine learning algorithms can be explicitly designed to detect and flag anomalies or biases in data or decision processes, prompting human decision-makers to reconsider or verify their judgments. For example, predictive analytics and AI-supported forecasting tools can mitigate confirmation and availability biases by presenting evidence-based predictions rather than anecdotal or selectively recalled information (Bogan & Just, 2009).

Additionally, real-time monitoring and feedback systems utilising advanced analytics can help identify biased decision-making patterns as they occur, allowing organisations to take corrective action immediately (Holmgren et al., 2018). AI systems can systematically review past decisions, identify inconsistencies or patterns indicative of cognitive biases, and offer actionable feedback for improving future decisions. However, it remains essential to acknowledge the potential for algorithmic biases in AI and ML systems themselves, underscoring the importance of careful design, continuous monitoring, and human oversight in technology-supported bias mitigation strategies (Phillips-Wren et al., 2019). The integration of these diverse approaches is critical for comprehensive bias mitigation.

Decision-support tools, training programs, organisational culture initiatives, and advanced technological solutions complement each other, addressing different aspects and manifestations of cognitive biases within decision-making processes. While decision-support tools offer structured frameworks, training programs enhance individual awareness and cognitive skillsets. Organisational interventions establish a supportive context for unbiased decision-making, while technology-based solutions provide objective, data-driven insights and real-time corrections.

Incorporating these methods systematically allows organisations to cultivate a decision-making environment of objectivity, transparency, and rational analysis. The comprehensive application of these strategies can help organisations significantly reduce errors resulting from cognitive biases, aligning decisions more closely with organisational objectives and stakeholder expectations. Furthermore, consistently applying and reinforcing these strategies can enhance organisational adaptability, resilience, and long-term strategic alignment (Knox, 2004).

Ethical Implications of Biases in Strategic Decision-Making: Cognitive biases significantly impact organisational decision-making, resulting in outcomes that disproportionately advantage specific stakeholders while disadvantaging or marginalising others (Holmgren et al., 2019). When biases infiltrate strategic decisions, they may lead to ethically questionable outcomes by distorting information interpretation, risk assessment, and judgment, ultimately affecting fairness and equity within organisational practices (Bogan & Just, 2009). The ethical implications of cognitive biases are far-reaching,

touching upon areas such as fairness, accountability, transparency, and integrity within decision-making processes.

Confirmation bias exemplifies how cognitive distortions can manifest ethically problematic outcomes. This bias occurs when decision-makers favor information that aligns with their beliefs, expectations, or preferences, inadvertently discounting contradictory evidence or alternative viewpoints (Bogan & Just, 2009). Such selective information processing can result in decisions that unfairly support the interests of specific stakeholders, perpetuating biases or inequities. For example, confirmation bias may lead executives to overlook critical employee feedback or consumer concerns, disregarding dissenting voices essential for balanced, fair decision-making (Cristofaro et al., 2023). This selective information processing can erode stakeholder trust and contribute to decisions perceived as biased or unjust, undermining ethical standards and organisational legitimacy.

Similarly, overconfidence bias often results in ethical dilemmas by skewing risk assessments and inflating decision-makers perceptions of their predictive accuracy or control over outcomes (Cristofaro et al., 2023). Overconfidence can lead to decisions that underestimate potential harms or negative impacts on stakeholders, exposing individuals or groups to unintended risks or losses. Decision-makers driven by overconfidence might pursue overly ambitious strategies, failing to adequately consider potential consequences or ethical responsibilities (Shuraida & Titah, 2023). This can significantly harm vulnerable stakeholders, such as employees, consumers, or community members, whose well-being depends on cautious and responsible decision-making practices. Overconfidence thus

raises ethical concerns related to accountability and the duty of care that organisations owe to their stakeholders.

Anchoring bias, another common cognitive distortion, involves placing undue weight on initial information when making decisions, often resulting in flawed or ethically compromised outcomes (Shuraida & Titah, 2023). For instance, when decision-makers anchor on initial pricing or valuation estimates, they might inadvertently undervalue stakeholder contributions or external impacts, leading to resource allocations or compensation decisions perceived as unfair. Anchoring can distort perceptions and skew outcomes, ultimately creating discrepancies between organisational practices and established ethical standards (Holmgren et al., 2018). Consequently, anchoring bias challenges organisations to develop mechanisms to ensure decision processes remain balanced and aligned with fairness and equity.

Framing effects further complicate ethical decision-making by altering how information is presented or interpreted, thus influencing choices in ethically relevant ways (Shuraida & Titah, 2023). Depending on how situations or alternatives are framed positively or negatively, decision-makers might opt for options that appear beneficial in the short term but neglect broader ethical implications or long-term stakeholder welfare. Framing can thus obscure potential risks, moral responsibilities, or stakeholder interests, raising critical questions about transparency and accountability (Holmgren et al., 2019). Organisations must recognise framing's ethical implications, ensuring balanced, clear, and unbiased information presentation to support ethical decision-making processes.

Addressing these ethical challenges requires organisations to emphasize transparency, accountability, and fairness throughout their decision-making structures (Holmgren et al., 2018). Transparency involves openly sharing the rationale, criteria, and information sources underlying strategic decisions, enabling stakeholders to evaluate choices critically and identify potential biases or inequities (Knox, 2004). When organisations prioritize transparency, they build stakeholder trust, foster collaborative relationships, and uphold ethical accountability. Transparent decision-making also encourages proactive identification and mitigation of biases, reinforcing organisational commitment to moral integrity.

Accountability mechanisms further help organisations navigate ethical complexities associated with cognitive biases. Establishing clear, enforceable ethical guidelines and oversight frameworks ensures that decision-makers remain responsible for their choices and adhere to ethical standards (Knox, 2004). Oversight bodies, such as ethics committees or advisory boards, can independently review critical decisions to identify potential biases or ethical shortcomings, recommending corrective actions when necessary. These institutional checks and balances safeguard against bias-driven decisions and reinforce ethical accountability, helping organisations align with societal expectations and stakeholder interests.

Moreover, fostering a culture of ethical leadership and integrity significantly mitigates bias-related ethical risks (Lovallo & Sibony, 2010). Ethical leadership involves leaders modeling ethical behavior, clearly communicating expectations regarding ethical standards, and holding themselves and others accountable for maintaining them. Leaders

championing fairness, inclusivity, and transparency set the organisational tone, promoting ethical awareness and responsibility among employees and decision-makers. An organisational culture deeply rooted in ethical leadership encourages open discussion of potential biases, welcomes diverse perspectives, and reinforces collective responsibility for ethical decision-making.

Implementing targeted training programs also supports organisations in addressing cognitive biases' ethical dimensions. By educating decision-makers about biases' ethical implications, training programs enhance awareness and equip individuals with strategies for ethical decision-making (Cristofaro et al., 2023). Interactive training initiatives, such as scenario-based workshops or simulations, help participants recognise biases' potential ethical consequences and practice applying ethical principles when evaluating alternatives. This structured educational approach reinforces organisational commitment to fairness, accountability, and ethical integrity, strengthening stakeholder trust and credibility.

Integrating technological tools, such as artificial intelligence and decision analytics, further aids organisations in managing cognitive biases ethically. AI systems can systematically identify patterns indicative of biases, offering objective evaluations to counterbalance subjective human judgments (Holmgren et al., 2018). However, technology must be employed thoughtfully, ensuring algorithms are unbiased and transparent, reinforcing rather than undermining ethical standards.

Organisations reinforce their dedication to equitable, transparent, and responsible decision-making by systematically recognising and addressing the' ethical implications of cognitive biases. Such commitment ensures alignment with moral norms and stakeholder

expectations and enhances organisational resilience and sustainability in complex, dynamic environments.

2.5 Gaps and Future Needs

Limited Studies on Long-Term Impact: While existing research extensively explores cognitive biases and their immediate impacts on decision-making, a significant gap remains concerning how these biases influence organisations' sustainability and performance over extended periods (Khattar & Gallo, 2023). Many studies have traditionally concentrated on the immediate consequences of cognitive biases, focusing predominantly on singular decision scenarios or short-term outcomes, offering limited insights into how biases might affect organisational success, competitive advantage, and longevity (Nuijten et al., 2020). This narrow scope overlooks the possibility that biases, when repeatedly influencing critical strategic choices, may lead to compounding consequences that undermine or enhance long-term performance outcomes.

The dynamic and complex nature of contemporary business environments further complicates efforts to identify and measure the enduring effects of cognitive biases (Paulus et al., 2022). Organisations operate within intricate networks influenced by numerous variables, including industry trends, market conditions, competitive dynamics, technological developments, regulatory changes, and economic cycles. Such contextual factors frequently interact with decision-making processes, making it challenging to isolate the long-term impact specifically attributable to cognitive biases. Consequently, there remains ambiguity about how biases directly shape strategic trajectories or if they merely moderate or amplify the effects of other strategic variables.

Additionally, a notable shortcoming within current literature is the scarcity of longitudinal studies that systematically track and document the decision-making processes and resultant organisational outcomes over sustained timeframes (Murata et al., 2015). Most available research employs cross-sectional or short-duration designs, making it challenging to assess how biases persistently influence strategic choices and accumulate over time. Without empirical studies examining prolonged periods, researchers and practitioners are uncertain whether biases initially deemed negligible or transient may have long-lasting and significant implications for organisational sustainability and competitiveness.

Moreover, existing scholarship frequently lacks comprehensive analyses of how cognitive biases interact dynamically with internal organisational factors such as corporate culture, leadership styles, organisational structures, and strategic planning practices (Parnell & Crandall, 2017). For instance, cognitive biases and organisational culture can exacerbate or mitigate bias-related decision errors. An organisational culture emphasising critical reflection, accountability, and evidence-based decision-making may help limit the adverse impacts of biases. Conversely, a culture characterised by complacency, groupthink, or hierarchical rigidity might inadvertently amplify biases' adverse outcomes over time. However, limited research explicitly examines these nuanced interactions, creating an essential research gap that requires further exploration.

The role of leadership practices in moderating or exacerbating cognitive biases also represents an essential yet under-investigated dimension within strategic decision-making literature. Leaders influence organisational norms, decision-making processes, and the

mental frameworks of the management team (Parnell & Crandall, 2017). Effective leadership could potentially recognise and reduce the adverse effects of biases by promoting diversity of thought, critical thinking, and structured decision-making practices. Conversely, leaders exhibiting pronounced biases, such as overconfidence or confirmation bias, may unintentionally reinforce flawed strategic approaches, negatively influencing organisational performance over the long term. Yet, comprehensive studies explicitly addressing the long-term role of leadership in managing or propagating cognitive biases remain relatively scarce.

The relationship between biases and strategic planning processes also warrants deeper examination. Strategic planning inherently involves predictions and assumptions about future environments and organisational capabilities. Cognitive biases-particularly overconfidence, anchoring, and status quo biases-can significantly distort these planning assumptions, causing persistent misalignment between strategic objectives and actual capabilities or opportunities (Nuijten et al., 2020). Understanding how biases consistently shape strategic plans, influence resource allocation, and impact long-term strategic outcomes is critical. Nonetheless, scholarly attention toward systematically exploring these enduring impacts remains limited.

Given these gaps, research investigating the long-term implications of cognitive biases on organisational resilience, adaptability, and competitive positioning becomes essential.

In addition, researchers must expand analytical frameworks to incorporate multi-dimensional assessments of how biases interact with organisational structures, leadership

practices, and strategic planning methodologies. By systematically examining these interactions, scholars can better understand under which conditions biases manifest most severely and under which conditions they might be effectively mitigated or even leveraged positively (Paulus et al., 2022)..

While the current research provides valuable insights into the immediate impacts of cognitive biases on decision-making, there is a compelling need for more extensive research into their long-term organisational consequences. Understanding these enduring implications will enrich theoretical knowledge of strategic decision-making processes and equip organisations with essential tools to recognise, manage, and mitigate biases, promoting long-term sustainability, resilience, and sustained competitive advantage.

Lack of Consensus on the Long-Term Effects of Biases: Uncertainty surrounding the enduring effects of cognitive biases on strategic business decisions arises due to several interrelated factors. Firstly, cognitive biases do not manifest uniformly across all organisational contexts; instead, they often appear in distinct forms depending on specific organisational characteristics, industry norms, and competitive dynamics (Han, 2022). For instance, biases such as overconfidence or anchoring may significantly impact strategic outcomes in dynamic sectors like technology or finance, where rapid decision-making and frequent market shifts amplify their potential consequences. Conversely, these biases may exert a relatively subdued influence in more stable sectors or manifest differently due to differences in organisational routines, culture, or competitive pressures. As a result, researchers face challenges in generalising findings regarding the long-term

implications of cognitive biases, highlighting the necessity of context-sensitive analyses (Han, 2022).

Secondly, the complex and evolving nature of modern business environments further complicates efforts to identify the clear and lasting impacts of cognitive biases on strategic choices (Asaoka, 2019). Strategic decisions rarely occur in isolation; instead, they interact with multiple dynamic elements, including changing market conditions, emerging technologies, shifting consumer preferences, and evolving regulatory landscapes. Each of these contextual elements can mediate, moderate, or exacerbate the impact of biases, making it difficult to pinpoint the precise role biases play in shaping long-term strategic outcomes. For instance, a decision-maker's susceptibility to confirmation bias might significantly influence a company's adoption of innovative technologies. Still, external market dynamics, such as competitors' strategic responses or new regulatory constraints, may obscure or alter the eventual outcomes of such decisions (Asaoka, 2019).

A third factor contributing to uncertainty is the scarcity of longitudinal studies explicitly designed to track decision-making processes and outcomes over extended periods (Paulus et al., 2022). Existing research predominantly utilises cross-sectional methodologies or case studies with limited temporal scopes. Without longitudinal evidence, it is challenging to understand how biases evolve, whether initial impacts are transient or persistently influence strategic trajectories, and how subsequent decisions either exacerbate or mitigate earlier biases. Longitudinal research is essential for understanding whether biases gradually erode decision quality, cause cumulative strategic misalignments, or lead to learning and adaptation that corrects earlier bias-driven errors

(Paulus et al., 2022). The lack of such research constrains the ability of scholars and practitioners to definitively assess the enduring implications of cognitive biases on long-term organisational sustainability and competitive advantage.

Additionally, cognitive biases may not exclusively yield adverse outcomes; their impacts can be complex, encompassing positive and negative dimensions depending on the organisational context and specific biases involved (Zhang et al., 2020). For instance, overconfidence bias might spur entrepreneurial risk-taking, innovation, and rapid growth in the short term. Still, it might also lead to excessive risk exposure or resource misallocation in the longer term. Similarly, optimism bias might initially enhance organisational resilience by motivating bold initiatives or sustaining morale in uncertain environments; however, over extended periods, persistent optimism bias might lead to underestimating threats or inadequate contingency planning, ultimately threatening organisational stability (Zhang et al., 2020). Thus, understanding the dual nature of biases and their nuanced long-term implications demands greater attention from researchers.

Furthermore, individual differences among decision-makers significantly influence how biases affect strategic decision-making over the long run. Cognitive styles, personality traits, experience, and training can exacerbate or mitigate biases' long-term impact (Bernoster et al., 2018). Decision-makers with extensive expertise and robust cognitive strategies for managing uncertainty may better recognise and reduce biases; in contrast, inexperienced or overly confident leaders might exacerbate the influence of biases over time, causing repeated errors or missed strategic opportunities. Research exploring individual variability in susceptibility and responses to biases could help clarify the

conditions under which biases produce enduring negative consequences or, conversely, are mitigated by effective leadership and experience (Bernoster et al., 2018).

Moreover, biases can become deeply embedded within organisational cultures, norms, and decision-making routines, influencing strategic trajectories and reinforcing biased thinking patterns over extended periods (Schebesch & Șoim, 2022). When organisational biases become institutionalised, they are perpetuated through shared assumptions, standard procedures, and collective attitudes toward risk, innovation, and change. For example, a culture characterised by substantial conformity and consensus-seeking may institutionalise biases such as groupthink, anchoring, or status quo bias, thereby restricting strategic flexibility and adaptability over time. Conversely, organisational cultures emphasising critical inquiry, evidence-based decision-making, and openness to diverse perspectives may systematically mitigate or even leverage biases positively, turning them into sources of creativity or cautious optimism (Schebesch & Șoim, 2022).

Given these complexities, achieving consensus on how cognitive biases affect long-term organisational outcomes remains challenging. While specific studies highlight the immediate detrimental impacts of biases on decision-making, others reveal conditions under which biases contribute positively to strategic choices, organisational learning, or innovative thinking (Zhang et al., 2020). Thus, determining the exact long-term effects of cognitive biases requires a nuanced understanding of interactions between biases, individual and organisational factors, and external environmental conditions. The interactions among leadership style, organisational culture, strategic planning frameworks,

and market conditions introduce additional layers of complexity that require systematic investigation to unpack fully (Parnell & Crandall, 2017).

Addressing the current gaps in understanding necessitates further research into the intricate dynamics between cognitive biases and organisational decision-making processes. Specifically, researchers need to undertake longitudinal studies designed explicitly to examine how biases evolve, become entrenched, or are corrected over extended periods. Investigations must also explore the interplay between cognitive biases and organisational characteristics- such as leadership, culture, decision-making frameworks, and strategic planning practices- to better identify contexts that exacerbate or mitigate biases' long-term impacts. By exploring these nuanced interactions, scholars and practitioners can recognise, anticipate, and manage cognitive biases more effectively, ultimately enhancing long-term strategic decision-making effectiveness, organisational resilience, and sustained competitive advantage.

Need for Further Research on Sustainable Performance: The need for additional research on sustainable performance emerges due to several notable limitations and gaps in existing literature. Although there has been increasing recognition of sustainability's significance in strategic business decision-making, studies examining the specific influences of cognitive biases on sustainability-related outcomes remain limited (Cristofaro et al., 2023). The relationship between cognitive biases, such as anchoring, confirmation bias, overconfidence, and status quo bias, and sustainable organisational performance is remarkably underexplored. While existing research provides valuable insights into cognitive biases in general strategic contexts, their direct effects on decisions

related to sustainability, environmental stewardship, and corporate social responsibility require deeper investigation (Holmgren et al., 2018).

Furthermore, current studies on organisational performance prioritise short-term metrics, including financial profitability, market share, or immediate returns on investment, rather than addressing broader implications related to long-term resilience and sustainable development (Petticrew et al., 2020). This short-term orientation overlooks the cumulative and lasting effects that cognitive biases may have on sustainability outcomes, potentially leading organisations to undervalue long-term initiatives such as investments in renewable energy, sustainable supply chain management, or ethical governance practices. By focusing predominantly on immediate performance indicators, researchers may inadvertently overlook how biases shape strategic choices affecting sustainability in the long run, thus failing to provide a holistic view of how biases influence organisational longevity and resilience.

Another area that requires further attention is the lack of consensus on the most effective strategies for integrating sustainability considerations into strategic decision-making processes. The existing literature often presents fragmented and conflicting viewpoints on how to effectively incorporate sustainable practices into everyday managerial decisions and strategic planning (Shuraida & Titah, 2023). Moreover, fewer studies explicitly address how cognitive biases might undermine sustainability efforts, particularly in environmental risk assessment, ethical resource allocation, and responsible stakeholder engagement. Identifying practical approaches for managing or counteracting

biases that hinder sustainable strategic decision-making remains crucial yet inadequately addressed in current research.

The inherently dynamic and interconnected nature of sustainability challenges further underscores the necessity for a multidisciplinary approach in examining the influence of biases on strategic sustainability initiatives (Holmgren et al., 2018). Environmental sustainability is integrally linked to social, economic, and ethical considerations, creating complexity that surpasses traditional disciplinary boundaries. Therefore, a comprehensive understanding of how cognitive biases influence sustainable business decisions requires perspectives from multiple disciplines- ecology, organisational theory, environmental science, economics, and ethics. The existing literature frequently does not incorporate such integrative approaches, thereby limiting its ability to fully elucidate the multifaceted relationships between biases, strategic decision-making, and sustainability outcomes.

Additionally, cognitive biases can significantly affect strategic decisions directly related to sustainability initiatives. Biases, such as overconfidence or anchoring, may impact how decision-makers evaluate and invest in renewable energy projects, potentially leading to overly optimistic projections or overly cautious risk assessments, which can influence the long-term success or failure of such initiatives (Knoxx 2004). Similarly, status quo bias may hinder necessary changes in supply chain management practices, causing organisations to overlook sustainable alternatives due to inertia or perceived risks associated with departing from established procedures. Moreover, confirmation bias can distort stakeholder engagement processes, leading organisations to selectively

acknowledge information or stakeholder perspectives that reinforce existing sustainability strategies rather than embracing diverse views necessary for balanced and inclusive sustainability outcomes.

Organisational cultures and structures represent additional dimensions that influence sustainable decision-making; however, these interactions remain insufficiently studied, particularly in relation to cognitive biases (Lovallo & Sibony, 2010). An organisational culture that prioritises short-term financial performance above all else may inadvertently reinforce biases that inhibit sustainability efforts, such as discounting future environmental risks or undervaluing social responsibility initiatives. In contrast, organisations characterised by cultures emphasising long-term value creation, accountability, transparency, and ethical decision-making might better recognise and counteract biases, thus facilitating more sustainable strategic choices. Therefore, examining how biases intersect with organisational dynamics, including leadership styles, internal decision-making norms, reward systems, and communication practices, is essential for understanding and enhancing sustainable organisational performance.

There is also limited research exploring the role of leadership in managing or exacerbating cognitive biases related to sustainability decisions. Leaders profoundly shape organisational priorities and influence how sustainability is integrated into core strategic objectives. Effective leadership that encourages critical reflection, open dialogue, and evidence-based decision-making can significantly reduce biases that are detrimental to sustainable initiatives. In contrast, leadership characterized by bias-prone traits such as overconfidence or excessive optimism may inadvertently undermine sustainability efforts

(Cristofaro et al., 2023). Examining how leadership practices and individual characteristics interact with cognitive biases could illuminate how organisations can cultivate practical leadership approaches for advancing sustainability goals.

There remains limited insight into the effectiveness of specific bias-mitigation strategies within sustainability contexts. While general bias-mitigation interventions such as decision support tools, cognitive awareness training, and structured decision frameworks are well-documented, their effectiveness in enhancing sustainable business practices has not been comprehensively examined (Shuraida & Titah, 2023). Future research could address this gap by empirically investigating which mitigation techniques best support sustainable strategic decision-making, thus offering actionable guidance to practitioners seeking to improve long-term sustainable performance.

The influence of cognitive biases on stakeholder relationships and organisational reputation regarding sustainability remains insufficiently understood. Organisations must manage expectations and maintain trust with diverse stakeholders, including customers, investors, regulatory bodies, and communities. Cognitive biases that distort how organisations interpret stakeholder feedback, manage reputational risks, or communicate sustainability efforts may either bolster or undermine stakeholder trust and long-term sustainability outcomes (Holmgren et al., 2018). Clarifying these interactions through targeted research could significantly enhance our understanding of sustainable performance and its determinants.

Given these notable gaps and challenges, further research is needed to enhance understanding of how cognitive biases shape sustainable performance. Addressing these

limitations through multidisciplinary, longitudinal, and context-sensitive research will allow organisations to more effectively identify, mitigate, and manage biases, ultimately supporting the advancement of strategic decisions that foster sustainable organisational performance and resilience over time.

Challenges in Measuring the Long-Term Impact of Biases: Measuring the long-term impact of cognitive biases on strategic decision-making poses significant challenges due to the inherently complex and multidimensional nature of decision processes and organisational outcomes (Holmgren et al., 2019). Cognitive biases are not restricted to a single analytical level but manifest across multiple dimensions, including individual, group, and organisational. At the personal level, biases shape specific leader's and managers' perceptions, judgments, and decisions. At the group level, biases may influence collective decision-making through groupthink or conformity pressures, leading teams to make suboptimal or overly cautious choices. At the organisational level, biases can become embedded within structures, routines, and cultures, perpetuating systematic decision-making errors over extended periods (Holmgren et al., 2019). The interplay among these multiple levels complicates efforts to identify, measure, and attribute specific long-term effects directly to cognitive biases.

Furthermore, the impact of cognitive biases rarely occurs in isolation; instead, it interacts dynamically with numerous external and internal contextual factors, including market conditions, competitive pressures, regulatory changes, technological developments, and organisational strategy (Zhang et al., 2020). For instance, biases such as overconfidence or anchoring might significantly influence strategic investment decisions.

However, the long-term impacts of these biases might be influenced or obscured by broader economic fluctuations, technological disruptions, or regulatory shifts that concurrently affect organisational outcomes. Consequently, attributing long-term outcomes specifically and solely to cognitive biases becomes exceedingly challenging, as decisions inevitably reflect complex interactions among multiple variables (Zhang et al., 2020).

Additionally, cognitive biases affect decision-making processes directly and indirectly, influencing a wide range of behaviours, including risk assessment, information selection, and strategic prioritisation (Bernault et al., 2023). Direct effects occur when biases explicitly distort judgment, leading decision-makers to overlook critical information or make overly optimistic or pessimistic evaluations. Indirect effects manifest through subtler channels, such as altering decision-makers' willingness to seek diverse perspectives, critically evaluate strategic alternatives, or respond effectively to emerging threats and opportunities. These indirect influences complicate the measurement and attribution of outcomes to specific cognitive biases because they are often less observable and more intertwined with broader cognitive and organisational processes (Bernault et al., 2023).

Moreover, cognitive biases can fluctuate in intensity, prevalence, and influence over extended periods, further complicating measurement efforts (Parnell & Crandall, 2017). Certain biases, such as overconfidence, may become increasingly pronounced as decision-makers gain more experience and develop greater self-assurance, potentially exacerbating the long-term impact of these biases on strategic decisions. Conversely, biases such as anchoring or confirmation bias might diminish over time if decision-makers engage

in ongoing learning and develop systematic approaches for challenging initial assumptions. Variability in bias intensity, combined with evolving decision contexts, makes longitudinal measurement particularly difficult, as researchers must account for the dynamic nature of biases and their changing prevalence within organisational decision-making processes (Parnell & Crandall, 2017).

The long-term effects of cognitive biases may also be masked or obscured by intervening events or variables, further complicating the attribution of causality (Paulus et al., 2023). Strategic decisions influenced by biases may initially appear successful or unsuccessful due to unrelated external factors, including sudden market disruptions, competitor actions, or unanticipated technological advancements. For instance, a decision driven by optimism bias might lead to a risky investment that initially seems advantageous due to favourable market conditions, masking potential long-term vulnerabilities. Conversely, prudent decisions made without biases could experience short-term setbacks due to unpredictable external events. This interplay between biases and extraneous factors creates significant measurement difficulties, particularly in establishing transparent causal relationships between biases and long-term outcomes (Paulus et al., 2023).

Cognitive biases often operate alongside cognitive processes, such as heuristics, emotions, and intuitive judgments (Schebesch & Șoim, 2022). Heuristics, which are mental shortcuts employed under uncertainty, often coexist with biases, further complicating the task of disentangling the distinct contributions of biases to decision outcomes. Emotional states, including fear, optimism, or stress, also interact with biases, shaping decision-making in complex and unpredictable ways. Similarly, intuition, often relied upon during

rapid decision-making or under time pressure, can intertwine with biases, creating overlapping cognitive influences that are difficult to separate clearly. This interplay of cognitive processes makes it challenging for researchers to isolate and measure the precise long-term impact attributable specifically to cognitive biases (Schebesch & Șoim, 2022).

Depending on the decision context and circumstances, cognitive biases may lead to positive and negative consequences (Murata et al., 2015). For example, biases like optimism or overconfidence may encourage innovative risk-taking behaviours, leading to breakthrough innovations or market advantages in specific contexts. However, the same biases can also lead to strategic missteps, excessive risk exposure, or costly resource misallocations in other contexts. This dual potential makes it challenging to generalise the' impacts of biases or predict long-term implications. Therefore, researchers must carefully examine specific contextual conditions to understand when and how cognitive biases generate beneficial or detrimental outcomes over extended periods (Murata et al., 2015).

Given these numerous complexities and challenges, accurately measuring the long-term impact of cognitive biases on organisational performance requires robust research designs and methodological approaches. Longitudinal studies offer considerable potential for addressing these measurement challenges by tracking decision processes and outcomes over extended periods, thereby capturing the cumulative effects of biases. Additionally, sophisticated statistical methods and analytical frameworks are needed to account for multiple interacting variables and cognitive processes, thereby disentangling the impact of biases and incorporating multidimensional analyses that encompass individual, group, and organisational levels of bias manifestation, ensuring a comprehensive understanding of

their impact. Scholars can gain a deeper understanding of how cognitive biases impact long-term strategic decision-making through carefully designed research methodologies and systematic investigations. This enables organisations to develop effective strategies for recognising, mitigating, and managing biases in pursuit of sustained competitive advantage and organisational resilience.

Potential Underestimation of Biases' Long-Term Consequences: The potential underestimation of cognitive biases' long-term consequences in strategic decision-making arises from several interconnected factors, which collectively obscure or diminish the perceived influence of biases on organisational outcomes. Firstly, cognitive biases frequently operate subconsciously, influencing decisions without conscious awareness of decision-makers (Frank et al., 2022). Because these biases function outside the explicit understanding or recognition of leaders, their effects often remain unrecognised or underestimated, even when influencing critical strategic choices. Decision-makers might attribute successful or unsuccessful outcomes to other factors, such as market conditions, luck, or competitive behaviour, rather than recognising that cognitive biases significantly shape their decisions (Frank et al., 2022).

Secondly, cognitive biases may become deeply ingrained within an organisation's culture, routines, and normative decision-making processes (Coccia, 2020). Over time, biases can be institutionalised and normalised so biased behaviours appear typical or acceptable within the organisational context. For instance, organisations characterised by strong hierarchical structures or conformity-oriented cultures may inadvertently institutionalise biases like groupthink, anchoring, or status quo bias, leading these biases

to be perceived as standard operational procedures rather than decision-making errors. As a result, organisational members may not readily recognise or question the biases embedded within routine practices, further exacerbating their long-term, cumulative effects on performance and organisational resilience (Coccia, 2020).

A third factor complicating the recognition and estimation of biases' long-term impacts involves their indirect influence on other cognitive processes, such as attention, memory, and judgment (Bogan & Just, 2009). Cognitive biases can subtly affect how decision-makers interpret information, focus their attention, or recall past experiences. For example, confirmation bias may subtly guide attention toward evidence that supports existing strategic preferences, while leading decision-makers to discount or overlook contradictory evidence. Similarly, anchoring bias can shape memory retrieval, causing decision-makers to recall experiences that validate initial expectations selectively. These indirect effects of biases are difficult to trace explicitly, making it challenging for researchers or managers to pinpoint their precise influence on long-term strategic outcomes (Bogan & Just, 2009).

Cognitive biases frequently interact dynamically with other contextual factors within the organisational environment, such as organisational structure, reward and incentive systems, and stakeholder pressures (Ciriello & Loss, 2023). These interactions further complicate attempts to measure or understand the long-term consequences of biases. For example, an organisational structure emphasising short-term financial performance or rigid decision-making hierarchies may intensify the effects of certain biases, such as overconfidence or escalation of commitment, by creating conditions that

reward risk-taking or discourage dissenting viewpoints. Additionally, incentive systems aligned primarily with short-term outcomes can exacerbate biases like loss aversion or myopic thinking, leading decision-makers to undervalue long-term sustainability considerations. Stakeholder expectations and external pressures can also interact with biases, causing decision-makers to prioritize immediate stakeholder demands or short-term market performance disproportionately, masking biases' potential long-term consequences (Ciriello & Loss, 2023).

Additionally, biases can influence decision-making by causing leaders to discount or disregard information that contradicts their preexisting beliefs, thereby reinforcing biased patterns and perpetuating suboptimal decision-making practices (Hollender et al., 2017). Confirmation bias exemplifies this pattern, as decision-makers may dismiss relevant data or stakeholder input that challenges their strategic assumptions, further entrenching biased choices over time. Consequently, biases are often self-reinforcing, creating a cycle of selective information processing that limits organisational learning and adaptability. This self-perpetuating nature makes it difficult to interrupt or recognise biases' accumulating long-term effects on strategic performance (Hollender et al., 2017).

Furthermore, cognitive biases can significantly contribute to the escalation of commitment- a decision-maker's persistence in failing strategic actions due to cognitive dissonance, emotional attachment, or ego involvement (Hirshleifer et al., 2011). This escalation behaviour can prolong poor decisions or flawed initiatives beyond rational justification, exacerbating adverse organisational outcomes. Decision-makers affected by biases such as overconfidence or sunk cost fallacy may continue investing in failing

projects, unable or unwilling to recognise emerging signals that corrective action is necessary. Escalation of commitment thus represents a clear example of how cognitive biases compound negative consequences over extended periods, further obscuring their actual long-term impact (Hirshleifer et al., 2011).

Moreover, biases often lead decision-makers toward short-term gains or immediate gratification, frequently at the expense of longer-term strategic sustainability and resilience (Phillips-Wren et al., 2019). Present bias, loss aversion, or optimism bias can result in choices prioritising immediate financial returns or market advantages, even if such decisions undermine future performance or strategic flexibility. This focus on short-term metrics or rewards masks the underlying detrimental effects of biases, mainly when organisations measure success primarily in terms of immediate financial outcomes. Over time, the sustained influence of short-term bias-driven decisions can significantly erode an organisation's long-term competitive advantage, adaptability, and sustainability, with consequences that may initially remain unnoticed or underestimated (Phillips-Wren et al., 2019).

Lastly, the' nuanced and context-dependent nature of cognitive biases contributes to their frequent underestimation. Depending on specific circumstances or the organisational environment, the same bias can produce beneficial effects in certain contexts, leading decision-makers to underestimate the potential negative long-term implications. For example, optimism bias might temporarily bolster organisational morale or risk-taking behaviour, enabling short-term gains or breakthroughs. Decision-makers might interpret these immediate positive outcomes as validation of their decision-making

approach, overlooking or downplaying the potential long-term risks or vulnerabilities associated with persistent optimism bias (Murata et al., 2015). Such variability and ambiguity further complicate the recognition of and measurement of consequences.

Given these complexities and challenges, organisations and researchers must recognise the potential for systematically underestimating biases' long-term impacts. Vigilance and sustained efforts are necessary to effectively identify, manage, and mitigate cognitive biases, ensuring that objective analysis, rather than subconscious distortions, informs strategic decisions. Developing mechanisms for bias awareness, structured decision-making frameworks, and organisational cultures that emphasise critical thinking, accountability, and transparency can significantly enhance an organisation's capacity to address cognitive biases proactively and minimise their overlooked long-term effects (Parnell & Crandall, 2017).

2.6 Summary

This chapter reviewed the literature on cognitive biases in strategic decision-making. It established the behavioural foundations required to frame the present study and demonstrated why purely rational models cannot account for persistent judgment errors in complex organisational environments.

First, the review introduced three core decision theories—bounded rationality, dual-process theory, and prospect theory—and justified their relevance to strategic contexts. Bounded rationality explains how managers, constrained by limited time, information, and cognitive capacity, satisfice rather than optimise (Simon, 1997; Gonçalves & Rocha, 2023). Dual-process theory distinguishes between fast, intuitive

System 1 thinking and slower, analytical System 2 reasoning, showing how reliance on intuition under time pressure heightens vulnerability to bias (Kahneman, 2011; Calabretta et al., 2017). Prospect theory introduces a risk-perception lens, illustrating how loss aversion and framing influence risk preferences and the escalation of commitment in corporate settings (Tversky & Kahneman, 1979; Sharma, 2024).

Building on these foundations, the chapter examined how cognitive biases surface in organisational practice. Recent scholarship highlights systematic errors in areas such as capital allocation, crisis response, and change management, and stresses that many firms still lack robust mechanisms to detect or correct them. Ethical implications were emphasised, noting that bias-laden decisions can undermine transparency, fairness, and stakeholder trust.

The review then surveyed mitigation approaches—decision audits, pre-mortems, scenario planning, and leadership interventions—that balance intuitive speed with analytical rigour. Empirical evidence indicates mixed effectiveness: outcomes depend heavily on organisational culture, hierarchy, and leadership commitment to dissent and critical reflection (Phillips-Wren et al., 2019).

Finally, the chapter identified significant research gaps. Existing studies are often short-term or siloed, leaving the long-term effects of cognitive bias on innovation, adaptability, and sustainability underexplored. Further, measuring these effects remains methodologically challenging, and there is limited consensus on best-practice mitigations. Addressing these gaps will require interdisciplinary research integrating behavioural science, strategic management, ethics, and technology.

In summary, Chapter 2 laid a robust intellectual foundation for this dissertation by synthesising contemporary theory and empirical findings. It justified the study's focus on how cognitive biases emerge, persist, and can be mitigated in strategic contexts, guiding the following empirical investigation.

CHAPTER III:

METHODOLOGY

3.1 Overview of the Research Problem

Strategic decision-making has a significant influence on an organisation's long-term performance, sustainability, and competitive advantage. However, strategic choices often involve uncertainty and complexity, making them particularly susceptible to cognitive biases-systematic errors or distortions in judgment resulting from reliance on mental shortcuts and heuristics (Cristofaro et al., 2023). Although extensive research has identified various cognitive biases influencing immediate decision-making outcomes, there remains a limited understanding of how these biases accumulate or evolve over extended periods, shaping strategic trajectories and affecting organisational resilience (Khattar & Gallo, 2023).

Cognitive biases such as overconfidence, anchoring, and confirmation bias can profoundly distort strategic decisions, causing organisations to misjudge market opportunities, underestimate risks, and make suboptimal investments (Bogan & Just, 2009). Furthermore, biases tend to operate subconsciously, influencing decision-makers with awareness and effectively complicating efforts to mitigate their adverse effects (Frank et al., 2022). When left unaddressed, the cumulative impact of these biases may lead to sustained strategic misalignments, reduced adaptability, and diminished competitive positioning, particularly in dynamic and unpredictable business environments (Holmgren et al., 2019).

Given the increasingly complex nature of contemporary business contexts, characterised by rapid technological advancements, shifting regulatory frameworks, and volatile market dynamics, it is critical to examine how cognitive biases influence organisations' long-term sustainability and strategic decision-making processes (Paulus et al., 2022). Current literature provides limited empirical insight into the long-term implications of biases, highlighting the necessity for deeper exploration into how cognitive biases interact with organisational structures, leadership styles, and strategic planning processes to affect sustained organisational performance (Shuraida & Titah, 2023).

3.2 Operationalization of Theoretical Constructs

Operationalising theoretical constructs is vital to accurately measure and analyse abstract concepts such as cognitive biases and their influence on strategic decision-making (Cristofaro et al., 2023). Operationalisation involves clearly defining constructs in measurable terms, enabling empirical testing of research hypotheses and validation through statistical analysis (Holmgren et al., 2019). The key constructs in this research include cognitive biases, strategic decision-making, long-term sustainability, and organisational performance.

Cognitive biases are systematic deviations from rational decision-making that occur due to the reliance on mental shortcuts (heuristics) or subjective judgments (Bogan & Just, 2009). This study operationalises cognitive biases through scales adapted from existing literature, such as self-reported measures of overconfidence, anchoring, confirmation bias, and status quo bias (Bernoster et al., 2018). These reliability scales can

be statistically validated using internal consistency methods, such as Cronbach's alpha, to ensure that the items consistently measure the intended biases (Field, 2018).

Strategic decision-making involves organisational decisions related to resource allocation, market entry, innovation, mergers, technology adoption, and risk management (Khattar & Gallo, 2023). The operationalisation of this construct will include survey questions that address the frequency, quality, and outcomes of strategic decisions, using a structured Likert scale. Exploratory factor analysis (EFA) will identify underlying dimensions within the strategic decision-making construct, ensuring construct validity (Hair et al., 2019).

Long-term sustainability refers to the organisation's ability to maintain stable performance over extended periods, adapting to market volatility and uncertainty (Petticrew et al., 2020). Sustainability will be operationalised by assessing decision-makers' perceptions regarding adaptability, risk management effectiveness, and responsiveness to environmental changes, employing structured scales validated through confirmatory factor analysis (CFA).

Lastly, organisational performance encompasses financial metrics (profitability, revenue growth) and non-financial indicators (market competitiveness, stakeholder trust). This construct will be operationalised using standardised performance measures and subjective managerial assessments. Hypothesis testing, employing multiple regression analysis and structural equation modelling (SEM) techniques, will investigate the relationships between cognitive biases, decision-making quality, sustainability, and performance (Field, 2018).

The study ensures empirical robustness and theoretical clarity by operationalising these constructs with clearly defined measurements and rigorous statistical methods.

3.3 Research Purpose and Questions

The primary purpose of this study is to investigate the long-term impact of cognitive biases on strategic decision-making within organisations and to explore practical, ethical, and organisational mechanisms for mitigating their influence. Understanding how systematic judgment errors affect strategic thinking over time is vital for enhancing organisational resilience, sustainability, and decision quality in the context of increasing uncertainty and complexity in global business environments. Building on gaps identified in the behavioural strategy and decision science literature, this study adopts a multidimensional approach that examines the manifestation of cognitive biases, their long-term consequences, the contextual variables influencing their effects, and the ethical challenges they pose. The investigation is structured around the following core research questions:

Research Questions:

- How do cognitive biases manifest in strategic decision-making processes within organisations?
- What are the long-term implications of cognitive biases on key organisational performance indicators such as profitability, growth, innovation, and competitive advantage?
- What contextual or organisational factors mediate or moderate the relationship between cognitive biases and strategic outcomes?

- What are the ethical implications of cognitive biases in strategic decision-making, and how can organisations promote ethical and unbiased decision practices?

Research Hypotheses:

Hypothesis (H_1): Cognitive biases have a significant long-term impact on strategic decision-making, leading to measurable effects on organisational performance and sustainability.

Null Hypothesis (H_0): Cognitive biases do not have a statistically significant long-term impact on strategic decision-making or organisational performance.

By addressing these research questions, this study aims to provide both theoretical and practical contributions to the fields of behavioural strategy, organisational decision-making, and business ethics. It seeks to offer a nuanced understanding of how cognitive biases influence strategic trajectories over time, identify the structural and cultural mechanisms that exacerbate or mitigate their effects, and develop actionable recommendations to improve ethical and effective decision-making within complex organisational systems.

3.4 Research Design

This study employs a qualitative research design, focusing on understanding the complex and nuanced relationship between cognitive biases and strategic decision-making processes within organisations, with an explicit examination of their impact on long-term sustainability and organisational performance. Qualitative methodologies are particularly suitable for this research because they enable in-depth exploration of decision-makers'

perceptions, experiences, and underlying cognitive processes that quantitative approaches alone might overlook (Cristofaro et al., 2023).

The research employs a sequential qualitative approach comprising two primary phases. In the first phase, data will be collected through structured questionnaires distributed among senior executives and strategic decision-makers across selected industries. The questionnaire gathers preliminary insights into the cognitive biases experienced, their perceived effects on strategic choices, and the existing organisational measures used to mitigate biases. Questions are framed using Likert scales and open-ended questions to allow participants to provide comprehensive and detailed responses (Khattar & Gallo, 2023).

Data collected through questionnaires and interviews will undergo rigorous qualitative analysis, primarily using thematic analysis. Thematic analysis is selected due to its flexibility and suitability for identifying patterns, interpreting meanings, and uncovering relationships within qualitative data sets (Braun & Clarke, 2021). The themes identified will be compared and contrasted across different organisational contexts, facilitating the development of a nuanced understanding of how cognitive biases operate across industries and organisational structures.

To enhance methodological rigour, triangulation of data sources (questionnaires) will be employed, reducing potential biases and strengthening the validity and reliability of the findings (Holmgren et al., 2019). Additionally, member checking will be utilised, wherein key conclusions and interview interpretations are shared with participants to verify accuracy and resonance with their experiences.

This qualitative research design aims to generate robust and practical insights into the complex dynamics of cognitive biases in strategic decision-making, providing actionable strategies for organisations seeking improved sustainability and performance outcomes in an increasingly complex business environment (Cristofaro et al., 2023).

3.5 Population and Sample

The target population for this research consists of thirty two responses from senior organisational leaders and decision-makers who play significant roles in strategic decision-making processes within their organisations. These leaders include positions such as Chief Executive Officers (CEOs), Chief Financial Officers (CFOs), Chief Operating Officers (COOs), directors, and senior management executives. Individuals occupying these roles bear primary responsibility for key strategic choices influencing their organisations' sustainability, competitiveness, and long-term performance outcomes (Cristofaro et al., 2023).

This study encompasses participants from various industries, including technology, finance, healthcare, manufacturing, retail, and services, to provide comprehensive insights. Incorporating diverse industries enhances the research by capturing multiple organisational contexts, each presenting unique strategic challenges and opportunities. Different industries face varying complexities, market dynamics, and regulatory landscapes, which influence how cognitive biases manifest in strategic decisions and impact organisational sustainability and performance (Khattar & Gallo, 2023).

A diverse industry representation enables the researcher to compare and contrast how cognitive biases influence decision-making across sectors. For instance, the

technology and finance sectors often deal with rapid innovation and market volatility, making them particularly susceptible to biases like overconfidence and anchoring (Paulus et al., 2022). In contrast, sectors such as healthcare and manufacturing may face distinct strategic constraints, regulatory complexities, and risk profiles, leading to biases like confirmation bias or status quo bias manifesting in different ways (Bernault et al., 2023). The study can identify patterns and contextual factors influencing biases by analysing leaders from varied sectors.

The sampling strategy employed in this study is purposive sampling, which ensures the selection of participants with direct involvement in strategic decisions and relevant experience in addressing strategic challenges. Purposive sampling enables the intentional selection of participants who are likely to provide rich insights into the phenomenon of interest, aligning with the qualitative nature of this research (Braun & Clarke, 2021). This method guarantees that the collected data are relevant, insightful, and meaningful for effectively addressing the research questions and hypothesis.

Overall, the clearly defined yet diverse population strengthens the study's methodological rigour, facilitating a comprehensive understanding of how cognitive biases influence strategic decisions across varied contexts, ultimately informing practical recommendations to enhance strategic decision-making practices within organisations.

3.6 Participant Selection

Specific criteria have been established to select participants, ensuring that the study gathers relevant and insightful data. These criteria are designed to identify individuals with

significant experience and responsibility in strategic decision-making processes within their organisations. The requirements include the following.

Professional Role: Participants must hold senior management positions such as CEOs, CFOs, COOs, or other executive roles. These individuals are typically involved in high-level strategic decisions that shape the organisation's direction and long-term performance.

Industry Experience: Participants should have substantial experience in their respective industries. This ensures that they deeply understand the sector-specific challenges and opportunities related to strategic decision-making.

Organisational Size: Participants from small, medium, and large enterprises will be selected to capture various perspectives. This diversity allows the study to examine how cognitive biases may impact organisations of different scales differently

Involvement in Strategic Decisions: Participants must have a history of involvement in significant strategic decisions within their organisations. This ensures they can provide detailed insights into how cognitive biases have influenced these decisions.

Willingness to Participate: Participants must be willing to engage in the study, including completing surveys and participating in follow-up interviews if selected.

3.7 Instrumentation

This study employs a structured questionnaire as the primary instrument for data collection, specifically designed to examine the presence, influence, and implications of cognitive biases in strategic decision-making within organisations. The questionnaire

approach is particularly suitable as it allows systematic collection of quantitative and qualitative data from a broad population, enhancing the reliability and comprehensiveness of research findings (Cristofaro et al., 2023).

The questionnaire will be carefully constructed based on an extensive review of existing research and validated instruments from relevant literature on cognitive biases, strategic management, and decision-making theory (Khattar & Gallo, 2023; Paulus et al., 2022). This literature-driven approach ensures robust theoretical grounding and alignment with previous empirical work in cognitive psychology and organisational strategy. Items selected for inclusion will specifically target biases identified as critical within strategic contexts, such as overconfidence, anchoring, confirmation bias, and status quo bias, and their documented effects on strategic decisions (Bernault et al., 2023).

The questionnaire structure will encompass diverse question formats to capture comprehensive insights effectively. Firstly, multiple-choice questions will gather demographic and categorical information regarding participants' roles, organisational sectors, and strategic decision-making experience. Secondly, Likert-scale items ranging from "Strongly Disagree" to "Strongly Agree" will quantitatively assess participants' perceptions of how cognitive biases manifest and affect strategic decision-making within their organisations. Likert scales have demonstrated reliability and validity in measuring subjective attitudes and perceptions, providing robust quantitative insights (Joshi et al., 2015).

Additionally, open-ended questions will be incorporated into the questionnaire to enable respondents to elaborate on their experiences, provide specific examples, and offer

more detailed, qualitative descriptions of the cognitive biases they encounter in practice. Such qualitative data is crucial, as it allows for a deeper exploration of nuanced issues that are not adequately captured through structured quantitative measures, facilitating a thorough understanding of decision-makers' cognitive processes and the organisational contexts that influence biases (Braun & Clarke, 2021).

Before final deployment, the questionnaire will undergo pilot testing with a small, representative group of organisational leaders. This pilot process will identify and address potential ambiguities or comprehension issues, thereby enhancing the validity, reliability, and overall effectiveness of the final instrument (Taherdoost, 2016). Through meticulous design, literature-based construction, and comprehensive piloting, the questionnaire instrument will effectively capture critical insights necessary for addressing the research questions on cognitive biases and strategic decision-making

Multiple-Choice Questions

These questions will identify the types of cognitive biases present in participants' decision-making processes and the contexts in which they occur. Example questions might include:

a. Which of the following biases have you encountered in your strategic decision-making? (e.g., overconfidence bias, anchoring bias, confirmation bias, etc.)
b. In which strategic decisions have these biases most frequently manifested? (e.g., market entry, mergers and acquisitions, product development)

Likert Scale Item

These items will measure the extent to which participants agree or disagree with statements related to cognitive biases and their impact on strategic decisions. Example items might include:

1. On a scale of 1 to 5, rate the extent to which you believe overconfidence bias has affected your organisation's long-term strategic decisions.
2. On a scale of 1 to 5, how strongly do you agree that cognitive biases have negatively impacted your organisation's performance?

3.8 Data Collection Procedures

The data collection process for this study involves a structured, two-phase approach designed to systematically capture comprehensive insights on cognitive biases and their impact on organisational strategic decision-making processes. This structured approach enhances methodological rigor and ensures data quality, reliability, and validity (Cristofaro et al., 2023).

A structured online questionnaire will be distributed to the selected participants in the initial phase. Participants will comprise senior organisational leaders across multiple industries, chosen through purposive sampling to ensure relevant and informed responses (Khattar & Gallo, 2023). Online platforms, such as Google Forms or SurveyMonkey, will facilitate efficient distribution, enabling participants to respond conveniently and confidentially, thereby increasing response rates and data accuracy (Evans & Mathur, 2018). Participants will receive an invitation email outlining the study’s purpose, ethical assurances, confidentiality measures, and an informed consent statement. Follow-up reminders will be sent one week after initial invitations to maximize participation.

Upon completing the questionnaire, the second data collection phase will involve conducting semi-structured, in-depth interviews with a smaller subset of respondents who have indicated their willingness and consent for further engagement. These participants will be selected based on their questionnaire responses to ensure representation of diverse perspectives, industries, and experiences. Interviews (if conducted) will be held virtually via platforms such as Zoom or Microsoft Teams, providing participants with easy access, flexibility, and convenience.

Semi-structured interviews allow deeper exploration of complex cognitive processes, allowing participants to elaborate on questionnaire responses, clarify their experiences, and provide context-specific examples (Braun & Clarke, 2021). Interviews will follow a carefully developed interview guide informed by a literature review designed to probe cognitive biases, organisational decision-making contexts, mitigation strategies, and ethical considerations relevant to the research questions. Interviews will be recorded (with the participant's prior explicit consent) and transcribed verbatim for accuracy in analysis.

Several strategies will be implemented throughout the data collection procedures to enhance credibility and methodological rigour. Member checking will be employed, allowing interviewees to review and confirm the accuracy of interview transcripts, thereby validating collected qualitative data (Birt et al., 2016). Additionally, detailed records and documentation of the data collection process, including participant recruitment logs, consent forms, and communications, will be maintained to ensure transparency and reproducibility.

This data collection procedure ensures rich, valid, and reliable data for exploring how cognitive biases impact strategic decision-making and organisational sustainability by systematically combining structured questionnaires and detailed qualitative interviews.

Survey Distribution

Participant Recruitment: To ensure a diverse sample, participants for the survey will be from various organisations operating in different industries. Potential participants will be identified through professional networks, industry associations, and social media platforms like LinkedIn. An invitation to participate in the study will be sent via email and WhatsApp detailing the purpose of the research, the confidentiality of responses, and the voluntary nature of participation.

Survey Administration: The survey will be administered using an online platform such as SurveyMonkey, Microsoft Forms, or Google Forms, allowing efficient distribution and data collection. Participants will receive a link to the survey, which they can complete at their convenience. The survey will remain open for a specified period, typically 3-4 weeks, to allow ample time for responses.

Follow-Up and Reminders : To maximize response rates, follow-up emails will be sent one week after the initial invitation and again a few days before the survey closes. These reminders will thank participants who have already completed the survey and encourage those who have yet to respond to participate.

Ethical Considerations

Informed Consent: All participants will receive an informed consent form outlining the study's purpose, procedures, potential risks, and benefits. They must agree to/sign the consent form before completing the survey or participating in an interview.

Confidentiality and Anonymity: Participants' identities and responses will be kept confidential. Survey responses will be anonymized. Data will be stored securely and will not be accessible to anyone.

Voluntary Participation: Participation in the survey will be entirely voluntary. Participants can withdraw from the study at any time without penalty and choose not to answer any specific questions they are uncomfortable with.

Data Management

Effective data management procedures will be implemented to ensure the accuracy, confidentiality, integrity, and usability of the research data throughout the study. Given the qualitative nature of the research and the involvement of sensitive organisational insights, robust data management strategies are crucial to maintaining participants' confidentiality, supporting rigorous analysis, and ensuring transparency and replicability of research findings (Cristofaro et al., 2023).

Data obtained from structured questionnaires will initially be collected using secure online survey platforms, such as Google Forms or SurveyMonkey, which provide data encryption and secure storage facilities (Evans & Mathur, 2018). Following collection, raw survey data will be downloaded into password-protected Excel files and securely stored on encrypted devices accessible only to the primary researcher. Questionnaire responses will be anonymized by assigning unique participant identifiers to prevent the identification of

individuals or organisations, safeguarding confidentiality and ethical compliance (Saunders et al., 2019).

Qualitative data gathered through interviews will undergo rigorous management practices to maintain accuracy and confidentiality. Audio recordings obtained during virtual interviews will be securely stored in encrypted digital folders accessible only to authorised research personnel. After transcription, interview transcripts will be anonymised by removing names, identifying references, and sensitive information. Each transcript will be assigned a unique code to facilitate analysis without compromising confidentiality (Braun & Clarke, 2021).

A detailed data inventory log will be maintained, documenting the dates of collection, participant details (using anonymised codes), and data formats (including audio recordings, transcripts, and questionnaire responses). This inventory will facilitate effective data tracking, retrieval, and auditability, thereby enhancing methodological transparency and supporting the reproducibility of the research process (Broman & Woo, 2017).

Data integrity will be ensured through routine data checks and validations. Specifically, upon receipt, questionnaire data will undergo initial checks for completeness and consistency. Interview transcripts will be cross-checked against audio recordings to ensure transcription accuracy, and any discrepancies will be promptly resolved. Backup copies of all data will be stored securely in encrypted cloud storage (e.g., institutional servers or secure platforms like Dropbox Business), ensuring data recovery in case of accidental loss or corruption (Wilkinson et al., 2016).

Through these structured and systematic data management procedures, the study will uphold high standards of ethical compliance, data security, and methodological rigor, ensuring the credibility, reliability, and integrity of the research outcomes.

Data Storage

Survey data will be stored in the online survey platform's secure database, while interview recordings and transcripts will be stored on encrypted, password-protected devices. Regular backups will ensure data integrity.

Data Cleaning and Preparation

Survey data will be cleaned to remove incomplete responses and check for inconsistencies. Interview transcripts will be reviewed for accuracy and completeness.

3.9 Data Analysis

Quantitative survey data will be analysed using statistical software such as PSPP (an open-source alternative to SPSS) to identify patterns and relationships between cognitive biases and strategic decision-making. Qualitative interview data will be analysed using thematic analysis to identify key themes and insights related to the influence of cognitive biases on long-term organisational performance.

Data analysis for this qualitative study will involve systematic approaches designed to uncover patterns, relationships, and nuanced insights into how cognitive biases influence strategic decision-making and organisational sustainability. Given the research objectives and the qualitative nature of the data collected via structured questionnaires and semi-structured interviews, thematic analysis will serve as the primary analytical technique.

Thematic analysis is particularly suited to qualitative research, as it identifies, analyses, and reports themes within data, providing flexibility and depth for interpreting participants' perceptions, experiences, and cognitive processes (Braun & Clarke, 2021). The analysis will begin with thoroughly familiarising the data by reviewing questionnaire responses and interview transcripts multiple times, enabling the researcher to gain comprehensive insights into the data content.

Next, the coding phase will involve systematic categorisation and labelling of data segments to highlight key features related to cognitive biases, strategic decision-making processes, and organisational outcomes. Codes will be generated inductively from the raw data and deductively informed by the theoretical constructs identified through the literature review (Khattar & Gallo, 2023).

Following coding, identified codes will be examined for relationships and grouped into broader themes, directly addressing the central research question and sub-questions. Themes will reflect patterns of cognitive biases manifesting across different strategic contexts, the perceived long-term impact on organisational sustainability, and strategies organisations employ to mitigate biases (Cristofaro et al., 2023). Theme generation will involve iterative refinement and reevaluation, ensuring the accuracy, coherence, and representativeness of the findings.

Triangulation techniques will be employed to enhance the validity and reliability of the analysis, combining and cross-referencing findings from both the structured questionnaire and the semi-structured interviews. This triangulation process ensures

consistency and credibility by verifying that patterns observed through quantitative questionnaire data align with qualitative insights from interviews (Paulus et al., 2022).

Additionally, member checking will further strengthen analysis quality by involving participants in validating themes and interpretations derived from their interview data, ensuring the findings accurately represent their experiences and perspectives (Birt et al., 2016)

Through rigorous thematic analysis, effective use of qualitative software tools, and strategies such as triangulation and member checking, this research ensures comprehensive, credible, and robust analysis capable of addressing the complex research problem regarding cognitive biases and strategic decision-making outcomes.

Survey Data Analysis

Descriptive Statistics: Initially, descriptive statistics will be used to summarize the survey data. Measures such as mean, median, standard deviation, and frequency distributions will be calculated to provide an overview of the demographic characteristics of the respondents and the prevalence of various cognitive biases reported.

Exploratory Factor Analysis (EFA): Exploratory factor analysis (EFA) will be conducted to identify the underlying structure of cognitive biases in strategic decision-making. EFA helps understand cognitive biases' dimensionality by grouping correlated variables. This step is crucial for simplifying the data and identifying key factors representing cognitive biases.

Reliability Analysis: To ensure the internal consistency and measurement reliability of the survey instrument, Cronbach’s alpha will be used as the primary statistical metric.

Cronbach's alpha is a widely accepted measure that evaluates the degree to which a set of items consistently represents the underlying latent construct (Tavakol and Dennick, 2011). It is particularly suitable for Likert-scale-based instruments, where constructs such as attitudes, perceptions, or behaviours are measured through multiple related items.

This reliability analysis aims to assess whether the items grouped under each construct—such as cognitive bias awareness, strategic decision-making quality, and mitigation practices—exhibit sufficient internal cohesion. A high Cronbach's alpha value indicates that the items measure the same underlying construct and are, therefore, reliably interpretable as a single scale.

According to conventional thresholds, an alpha coefficient:

≥ 0.9 is considered excellent,

0.8–0.9 is considered good,

0.7–0.8 is acceptable,

0.6–0.7 is questionable,

< 0.6 is poor (George and Mallery, 2016).

For this study, a minimum threshold of 0.70 will be used to establish acceptable reliability for each construct. Constructs with alpha values below this threshold will be reviewed to identify potentially problematic items. If necessary, item-total correlations will be examined, and poorly performing items may be revised or removed to improve scale reliability without compromising conceptual integrity.

Cronbach's alpha will be computed using PSPP (an open source equivalent of SPSS statistical software). Each alpha coefficient will be interpreted with reference to existing literature to validate the consistency of the measurement scales.

This reliability analysis is a critical step in validating the survey instrument, as it underpins the credibility of subsequent statistical analyses, including correlation, regression, and factor analysis.

Correlation Analysis: Pearson or Spearman correlation coefficients will be calculated to examine the relationships between cognitive biases and strategic decision-making outcomes. This analysis will help understand the strength and direction of associations between biases and various performance metrics.

Regression Analysis: Multiple regression analysis will examine the predictive power of cognitive biases on long-term organisational performance metrics, including profitability, growth, and market competitiveness. This analysis will control for potential confounding variables such as industry, organisational size, and market conditions to isolate the effect of cognitive biases.

Moderation and Mediation Analysis: Moderation and mediation analyses will be conducted to investigate the key factors that mediate or moderate the relationship between cognitive biases and long-term organisational outcomes. These analyses will help identify variables that influence the strength or direction of the relationship between cognitive biases and strategic decision-making outcomes.

Coding Framework: A coding framework will be developed based on the initial review of the transcripts and relevant literature. Codes will be assigned to segments of text that

represent specific cognitive biases, decision-making processes, and long-term impacts. The coding framework will be refined iteratively as new themes emerge.

Inter-coder Reliability: Inter-coder reliability will be assessed using Cohen's kappa to measure the level of agreement between coders. Discrepancies will be discussed and resolved to improve the consistency of the coding process.

Integration of Quantitative and Qualitative Data: The findings from the survey and interviews will be integrated to provide a comprehensive understanding of the research problem. Triangulation will be used to cross-verify the results from different data sources, enhancing the validity and reliability of the findings.

3.10 Research Design Limitations

Despite careful methodological planning, this study's qualitative research design inherently carries certain limitations that must be acknowledged transparently to ensure the accurate interpretation of the findings.

Firstly, due to the qualitative nature and purposive sampling strategy, the study's findings may not be broadly generalisable across all industries or organisations (Queirós, Faria, & Almeida, 2017). Qualitative research emphasises depth and contextual richness over generalisation, potentially limiting applicability beyond the specific contexts studied. The findings derived from selected industries and senior leaders' perspectives may not fully reflect experiences or contexts encountered by decision-makers at different organisational levels or across industries not represented.

Secondly, the study relies substantially on participants' self-reported perceptions and recollections regarding cognitive biases in decision-making. This self-reporting

approach can introduce recall bias or subjective interpretations, as participants might unknowingly overlook or inaccurately recall past experiences or decisions influenced by cognitive biases (Althubaiti, 2016). Despite mitigation strategies such as triangulation and member checking, this limitation inherently remains, impacting the depth of the research findings.

Thirdly, the study faces potential limitations associated with respondents' willingness and openness to share sensitive strategic information. Senior leadership participants may exhibit reservations regarding full transparency, particularly when discussing past strategic errors or biases that contributed to unsuccessful outcomes. Social desirability bias, wherein participants consciously or unconsciously provide socially acceptable answers, could affect data accuracy and authenticity (Larson, 2018).

Another limitation is researcher bias, particularly in qualitative research employing thematic analysis. Although the research implements rigorous analytical processes, thematic analysis involves subjective interpretation and judgment. Despite using strategies such as inter-coder reliability checks and explicit audit trails, eliminating researcher subjectivity remains inherently challenging (Maher et al., 2018).

Lastly, this study's cross-sectional nature limits insights into temporal dynamics and longitudinal impacts of cognitive biases on organisational performance. While the research explores long-term sustainability and strategic outcomes, its single-point data collection design cannot fully capture how cognitive biases evolve, accumulate, or diminish over extended periods within organisations. Longitudinal designs, though

resource-intensive, would provide richer insights into such temporal dynamics (Caruana et al., 2015)

Recognising these limitations transparently ensures that findings are interpreted cautiously and provides clear directions for future research endeavours. Some potential limitations are discussed below.

Generalizability: Due to the specific characteristics of the sample population and the study's context, the findings of this study may only be fully generalisable to certain types of organisations or industries.

Sample Size: Limitations in sample size could affect the statistical power of the analysis, potentially limiting the ability to detect small but meaningful effects of cognitive biases on strategic decision-making.

Response Bias: Survey data is susceptible to response bias, where respondents may provide socially desirable answers or misrepresent their experiences due to cognitive biases.

Cross-sectional Nature: The study's cross-sectional design limits its ability to establish causal relationships between cognitive biases and long-term organisational outcomes. Longitudinal studies would be necessary to explore changes over time.

Self-Reported Data: Reliance on self-reported data in surveys and interviews may introduce biases such as recall bias or participants' subjective interpretations of cognitive biases.

Interviewer Bias: In qualitative interviews, the interviewer's perspectives and biases influence the data collection and analysis process, potentially affecting the reliability and validity of findings.

Resource Constraints: Limitations in time, budget, or access to participants may need to be revised to maintain the study's scope and depth, impacting the comprehensiveness of the data collected.

Contextual Factors: The study may only partially capture some relevant contextual factors influencing strategic decision-making processes and their outcomes, such as industry-specific dynamics or macroeconomic conditions.

Ethical Considerations: Ethical challenges, such as maintaining participant confidentiality or ensuring informed consent, could impact the study's implementation and findings.

Methodological Limitations: Potential limitations in the methodologies employed, such as measurement errors in survey instruments or coding inconsistencies in qualitative analysis, could affect the reliability and validity of the study results.

3.11 Conclusion

This methodology section delineated the research problem of investigating the long-term impact of cognitive biases on strategic decision-making in organisations. The operationalisation of theoretical constructs clarified how cognitive biases will be defined and measured within the study. The research purpose and questions were formulated to guide the investigation into understanding how these biases affect organisational

sustainability and performance and to propose strategies for mitigating their impact on decision-making.

The chosen research design employs a mixed-methods approach, integrating quantitative and qualitative interviews to gain comprehensive insights. The population and sample were carefully selected to ensure relevance and representativeness within the study's scope while recognising the inherent limitations in generalizability due to sample size and contextual factors.

Data collection procedures will involve rigorous measures to mitigate response bias and ensure data integrity. Instruments such as structured questionnaires and semi-structured interviews will be utilized to gather quantitative and qualitative data, which will be analyzed using appropriate statistical and thematic analysis techniques.

Despite these strengths, the research design acknowledges several limitations, including potential biases in self-reported data and the study's cross-sectional nature, which precludes establishing causal relationships. Addressing these limitations is crucial for interpreting the findings accurately and ensuring robust conclusions.

In conclusion, this methodology is designed to provide a nuanced understanding of how cognitive biases impact strategic decision-making over the long term. By addressing these research objectives, the study aims to contribute practical insights for organisations seeking to enhance their decision-making processes and improve long-term sustainability in an increasingly complex business environment

CHAPTER IV:

RESULTS

4.1 Introduction

This chapter presents the findings from the systematic data analysis collected through structured questionnaires and semi-structured interviews conducted with senior organisational leaders. The primary objective of this research was to explore how cognitive biases influence strategic decision-making processes and, subsequently, impact organisational long-term sustainability and performance. The results presented in this chapter address the key question: This study aims to address the following key questions:

- How do cognitive biases manifest in strategic decision-making processes within organisations?
- What are the long-term implications of cognitive biases on key organisational performance indicators such as profitability, growth, innovation, and competitive advantage?
- What contextual or organisational factors mediate or moderate the relationship between cognitive biases and strategic outcomes?
- What are the ethical implications of cognitive biases in strategic decision-making, and how can organisations promote ethical and unbiased decision practices?

Quantitative findings from structured questionnaires are presented, offering insights into the prevalence and forms of cognitive biases identified by decision-makers across diverse industries. This section utilizes descriptive statistical methods, including frequency distributions, percentage analyses, and graphical representations, to clearly illustrate

participants' perceptions of biases such as overconfidence, confirmation bias, anchoring, and status quo bias (Khattar & Gallo, 2023).

Results from both data collection phases are integrated and triangulated to ensure methodological rigor and enhance credibility. This triangulation strengthens the reliability of findings by cross-verifying insights from questionnaires with the qualitative depth captured from interview narratives, guaranteeing a consistent representation of organisational experiences (Paulus et al., 2022).

The chapter presents these findings with clarity and coherence, systematically addressing each research sub-question to guide the reader toward a comprehensive understanding of the relationships and themes identified. Direct quotations from participant interviews are incorporated judiciously to provide authenticity and illustrative support for the key thematic findings.

Overall, this chapter's structured presentation of quantitative and qualitative data sets the foundation for a detailed discussion and interpretation of the significance of cognitive biases in strategic decision-making processes. It provides valuable insights into improving organisational strategies and decision-making frameworks for enhanced long-term sustainability and competitive advantage.

4.2 Demographic Information

Job Title: The participant pool represents a diverse array of leadership positions. The largest group, Senior Management, makes up 23.53% of respondents (8 participants). Managers and Directors each account for 17.65% (6 participants each), followed by CxOs at 11.76% (4 participants). Other roles such as Area Sales

Manager, Head of Department, Program Manager, and HR Manager each contribute 5.88% (2 participants each), reflecting a broad leadership perspective across domains.

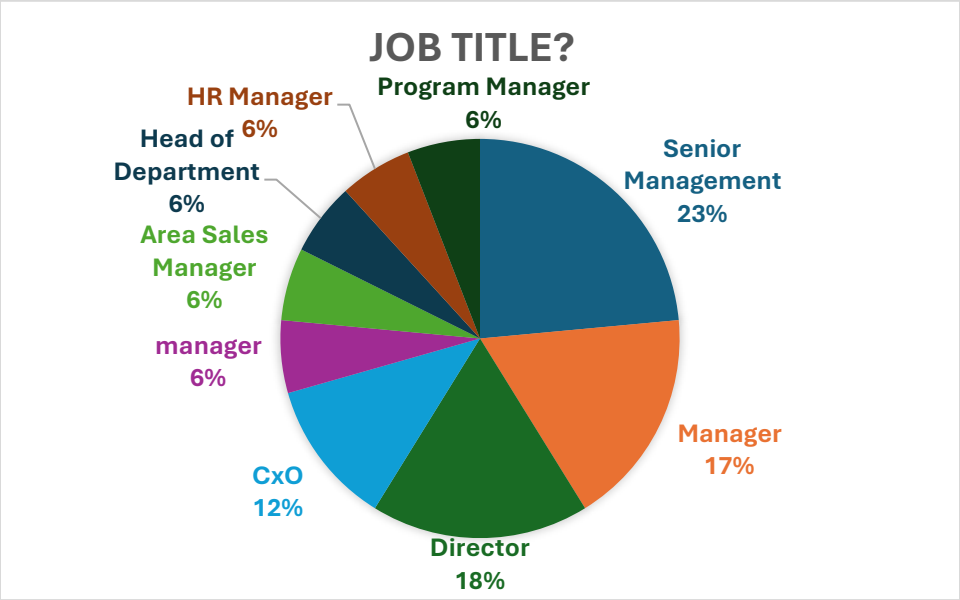

Figure 1: Distribution of Job Title

Industry: The survey drew responses from a diverse range, ensuring the representation of varied organisational contexts. A significant proportion of the participants-41.18% (14 out of 34)-were from the manufacturing sector, making it the most represented industry. The technology sector followed with 17.65% (6 participants), reflecting a strong presence of digitally driven organisations. Other sectors such as finance, construction, consulting-construction, energy, service, petrochemicals, and oil and gas each contributed 5.88% (2 participants). This industry diversity strengthens the generalizability of the findings and ensures the insights gathered span across different operational environments.

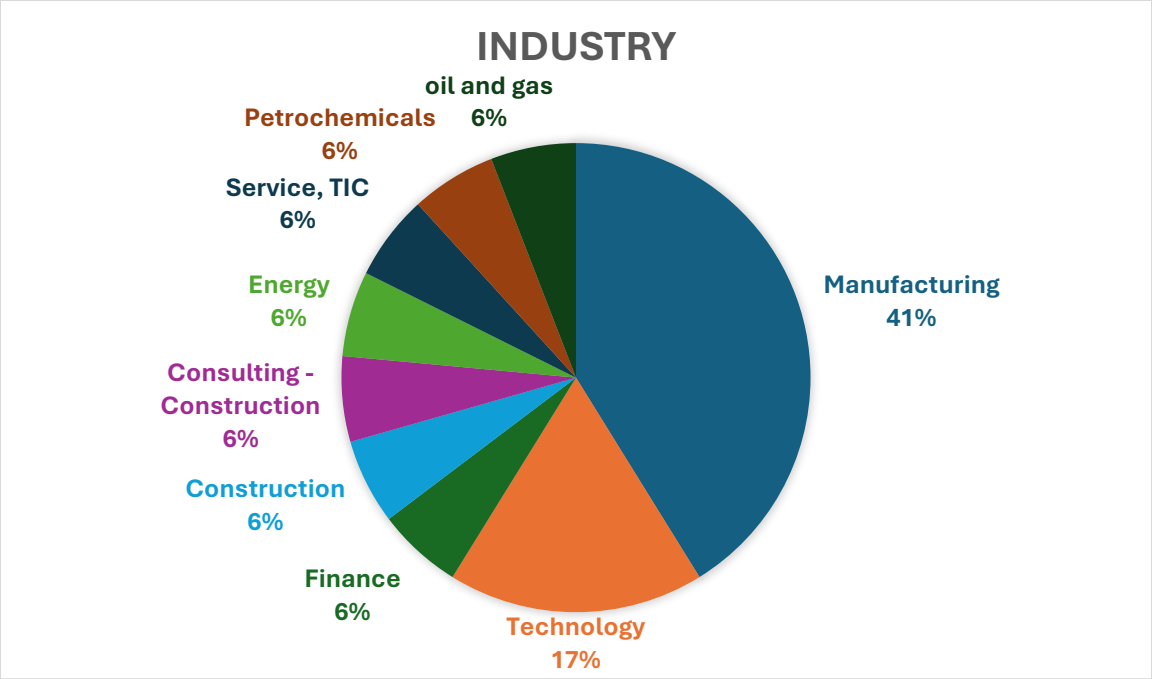

Figure 2: Distribution of Industry

Experience in Current Role: The respondents displayed varied levels of experienced roles, with the largest group-41.18% (14 participants)-having over 15 years of experience. This suggests that the sample consists mainly of seasoned professionals with deep organisational knowledge. Another 23.53% (8 participants) reported 2 to 5 years of experience, indicating a balanced representation of mid-career professionals. Meanwhile, 11.76% had experience falling into the categories of 6–10 years, and this spread ensures a blend of long-term strategic vision and recent hands-on operational insights in the analysis.

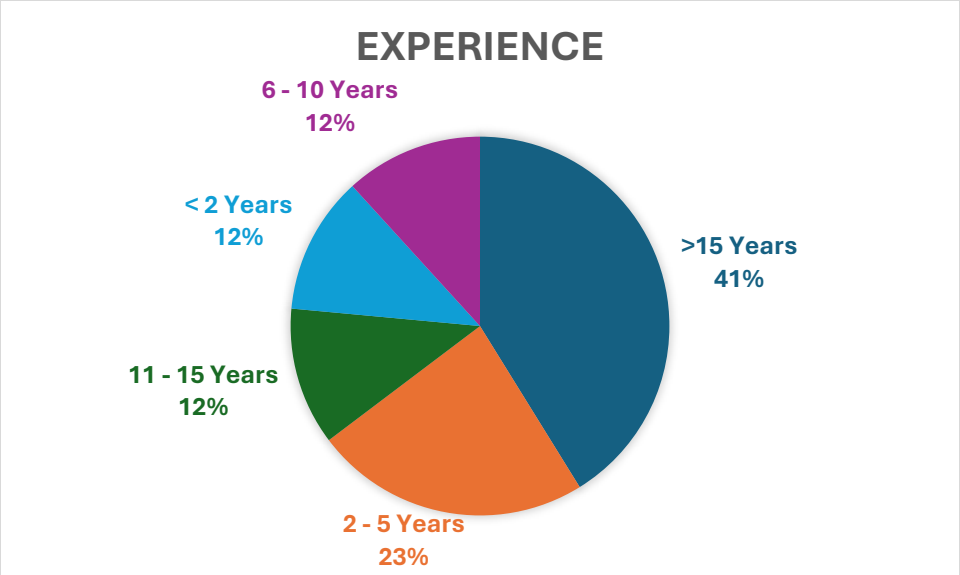

Figure 3: Distribution of Experience

Organisation Size: Organisations represented in the survey varied greatly in size, contributing to a comprehensive understanding of decision-making across different organisational scales. Nearly half of the respondents- 47.06% (16 participants)-belonged to large organisations with over 1,000 employees. Mid-sized firms also had a strong showing, with 17.65% (6 participants each) from the 51–199 and 200–499 employee ranges. Smaller organisations were represented by 11.76% (4 participants) from firms with 500–999 employees and 5.88% (2 participants) from those with fewer than 50 employees. This wide range of organisation sizes adds valuable context to interpreting strategic behaviours and cognitive bias influences.

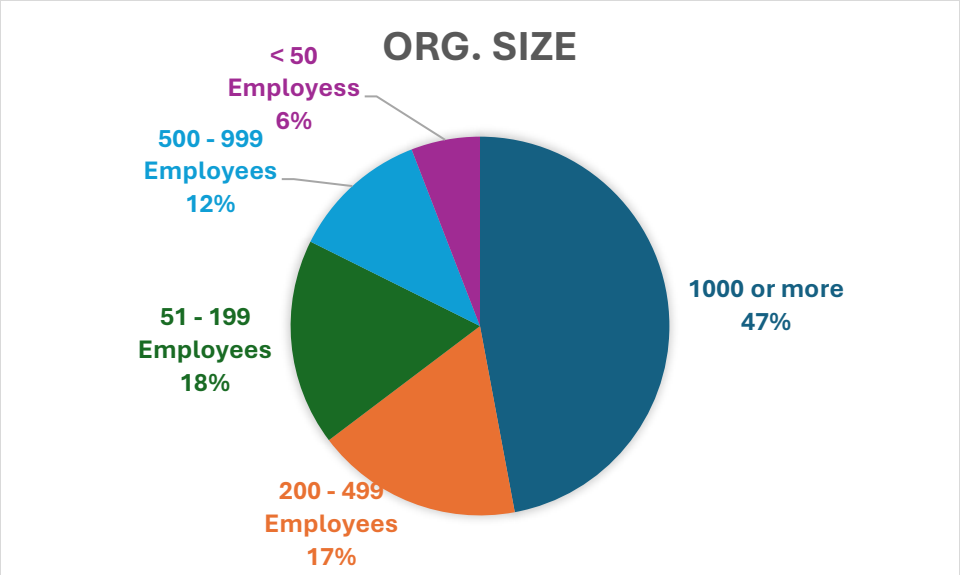

Figure 4: Distribution of Organisation Size

Number of Direct Reports: The data revealed that respondents held various leadership roles with differing spans of control. The majority, 35.29% (12 participants), managed teams of 11–20 people, indicating significant leadership responsibility. A close 29.41% (10 participants) had 1–5 direct reports, representing more operational or middle-management roles. Interestingly, 23.53% (8 participants) had no direct reports, suggesting the inclusion of strategic advisors or consultants in the sample. Those with larger spans of control (more than 20 or between 6 and 10 people) each comprised 5.88% (2 participants) of the responses, reflecting a comprehensive view of leadership responsibilities in decision-making.

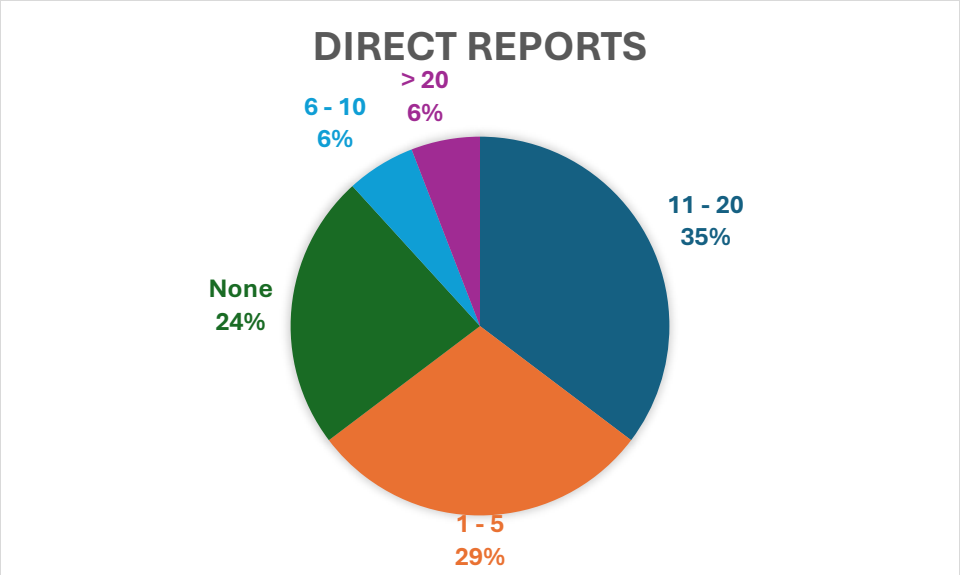

Figure 5: Distribution of the number of Direct reports

Primary Market: Most participants came from organisations that operate on a global scale, with 58.82% (20 participants) identifying the global market as their primary area of operation. This was followed by 23.5% (8 participants) serving national markets, while 11.76% (4 participants) reported a regional focus. The remaining 5.88% (2 participants) operated primarily in local markets. This market distribution highlights the broad strategic scope of the respondent organisations. It adds global relevance to the findings, particularly regarding how biases might manifest in diverse cultural or economic contexts.

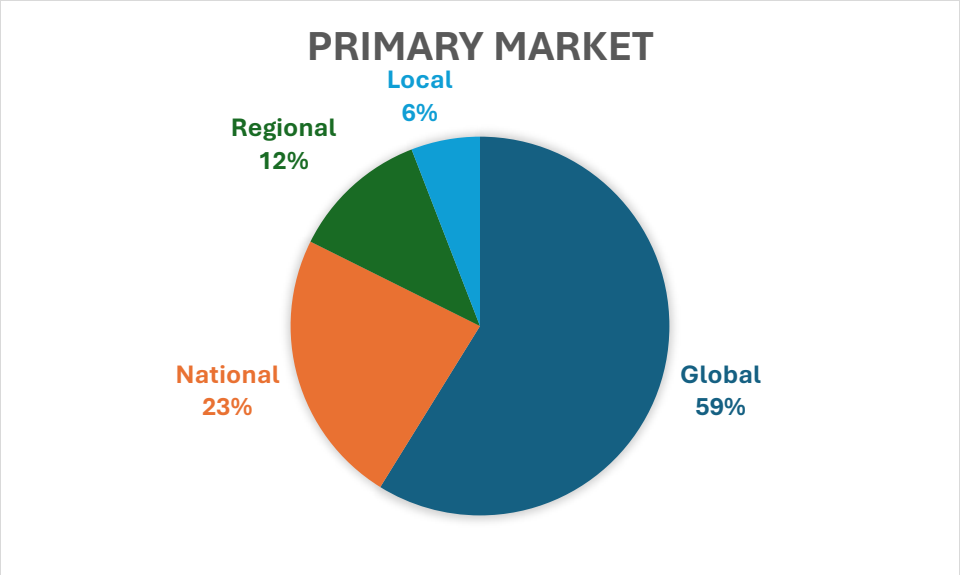

Figure 6: Distribution of Primary Market

Education Level: The education levels of the respondents suggest a highly educated and capable cohort. Half of the participants-50.0% (17 out of 34)-held postgraduate degrees, demonstrating a strong academic foundation. Another 32.35% (11 participants) had bachelor's degrees, while 11.76% (4 participants) had earned doctoral qualifications (PhDs), reflecting advanced expertise. A small portion, 5.88% (2 participants), fell under other educational categories. This distribution supports the assumption that the participants were well-equipped to engage in complex strategic discussions and decision-making analyses.

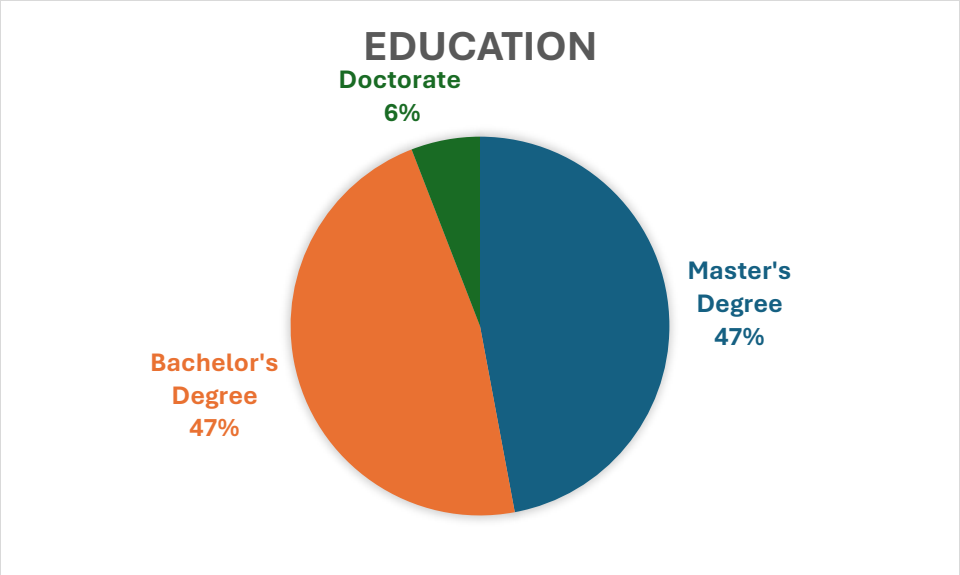

Figure 7: Distribution of education level

Area of Expertise: Participants came from a variety of professional backgrounds. 29.41% (10 participants) reported expertise in operations, making it the most common area of specialization. Engineering followed at 17.65% (6 participants), while general management accounted for 11.76% (4 participants). Other expertise areas such as sales, strategy, consulting, and finance accounted for 5.88% (2 participants). The remaining 17.65% (6 participants) categorized themselves under "other" specializations, suggesting a broad spectrum of functional knowledge. This mix enriches the insights into how cognitive biases may influence decisions across different functional lenses.

Figure 8: Distribution of Area of Expertise

Annual Revenue of the Organisation: Organisations represented in the survey spanned across all significant revenue brackets. The largest segment, 35.29% (12 participants), came from companies with annual revenues above $1 billion, reflecting substantial organisational scale. Another 29.41% (10 participants) reported revenues between $100 million and $1 billion, while 17.65% (6 participants) each came from organisations earning between $10 million and $100 million and those under $10 million. This distribution highlights the economic diversity among respondents and allows us to observe how strategic decision-making patterns and bias effects might differ based on organisational financial strength.

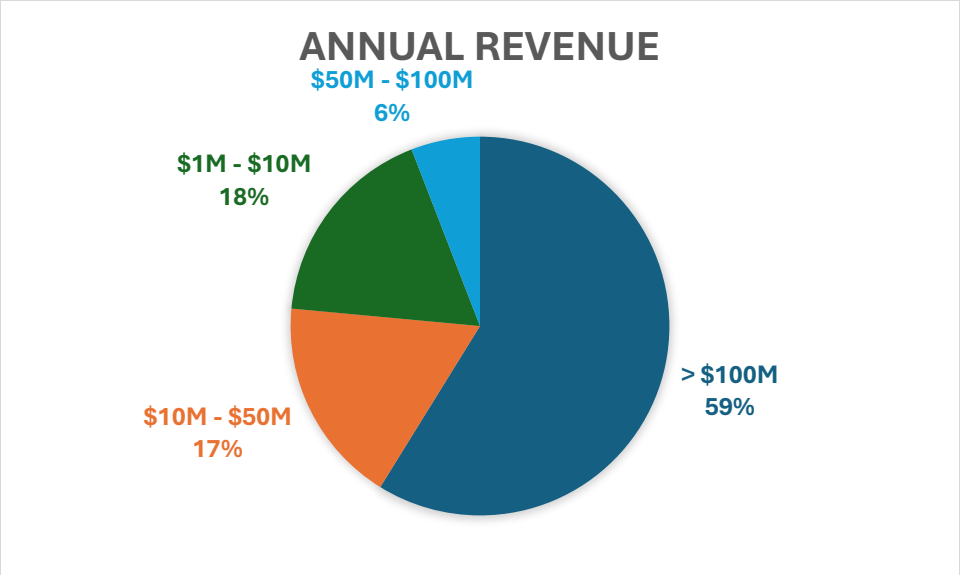

Figure 9: Distribution of Annual Revenue

Frequency of Strategic Decision Making: Regarding how frequently strategic decisions are made, 41.18% (14 participants) reported monthly decision-making cycles, suggesting dynamic and responsive strategic practices. 29.41% (10 participants) indicated quarterly decision-making, while 17.65% (6 participants) made strategic decisions weekly. Only 11.76% (4 participants) reported annual decision-making practices. These insights show that most organisations in the sample have frequent strategic discussions, increasing the likelihood that cognitive biases could impact multiple decision cycles throughout the year.

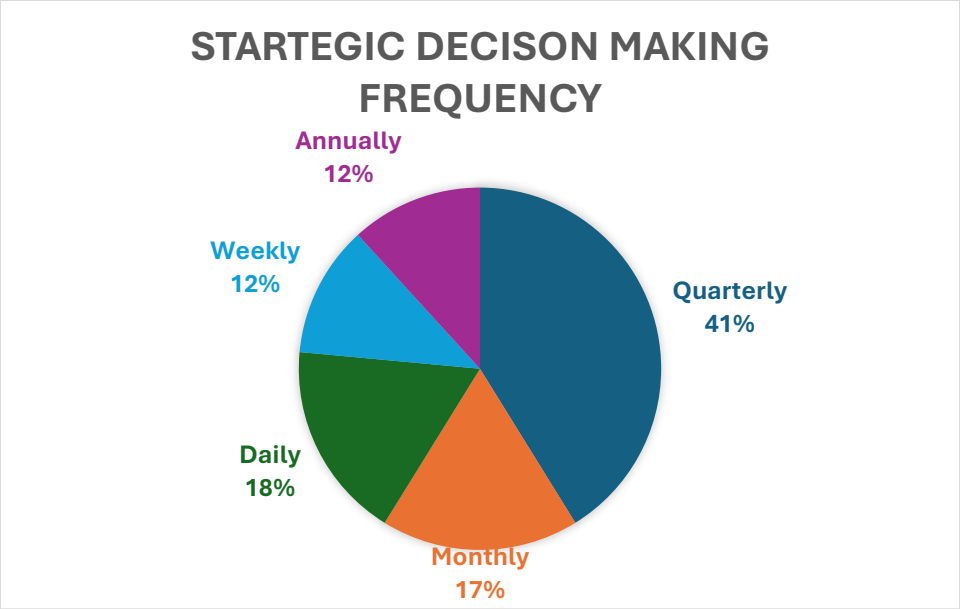

Figure 10: Distribution of Decision-Making Frequency

4.3 General Survey Analysis

The questions that were part of the questionnaire are listed below. The respondents responded to these questions on a Likert scale with options of Strongly Disagree (1), Disagree (2), Neutral (3), Agree (4), and Strongly Agree (5).

For ease of reference, these questions will be referred to in subsequent sections by Q. No. from Q22 – Q62.

Q. No,	Parameter	Sub Parameter	Question
Q22	Cognitive Bias	Overconfidence Bias	I believe my judgment is better than that of most people.
Q23	Cognitive Bias	Overconfidence Bias	I am more capable than others in making accurate predictions.
Q24	Cognitive Bias	Anchoring Bias	The first offer in a negotiation significantly affects my final decision.
Q25	Cognitive Bias	Anchoring Bias	I find it challenging to move away from an initial value or starting point when making judgments.

Q26	Cognitive Bias	Confirmation Bias	I find it easier to accept information that aligns with what I already think is true.
Q27	Cognitive Bias	Confirmation Bias	I often disregard facts that challenge my preconceptions.
Q28	Cognitive Bias	Hindsight Bias	When reflecting on past decisions, I often believe the results were obvious from the start.
Q29	Cognitive Bias	Hindsight Bias	I usually think that I would have made better decisions if I had known what I know now.
Q30	Decision Making Process	Information Gathering	I rely heavily on diverse sources when gathering information for decision-making
Q31	Decision Making Process	Information Gathering	I seek external expert opinions when collecting information for decisions
Q32	Decision Making Process	Information Gathering	I regularly consult with my team during the information-gathering phase
Q33	Decision Making Process	Information Evaluation	I assess the reliability of the information I receive thoroughly
Q34	Decision Making Process	Information Evaluation	I often compare new information with existing knowledge or data
Q35	Decision Making Process	Information Evaluation	I cross-check facts carefully before making a decision
Q36	Decision Making Process	Information Utilization	I effectively integrate new information into my existing strategic plans
Q37	Decision Making Process	Information Utilization	The information I gather significantly influences my final decisions
Q38	Decision Making Process	Information Utilization	I ensure that the information is effectively communicated within the organisation
Q39	Business Outcome	Profitability	Our profit margin has improved as a result of recent strategic decisions.
Q40	Business Outcome	Profitability	We are effectively managing our capital investments to maximize returns.
Q41	Business Outcome	Growth	Our overall revenue growth rate has improved due to recent strategic decisions.
Q42	Business Outcome	Growth	Our strategic initiatives have led to an increase in customer acquisition.

Q43	Business Outcome	Market Share	We are gaining a larger share of the market compared to our competitors.
Q44	Business Outcome	Market Share	We are successfully converting our strategic advantages into increased market share over our competitors.
Q45	Long Term Sustainability	Resource Utilization	Our current resource utilization practices align well with our sustainability goals.
Q46	Long Term Sustainability	Resource Utilization	We are investing in technologies or processes that enhance resource efficiency and reduce waste.
Q47	Long Term Sustainability	Environmental Impact	We are regularly auditing our environmental impact and taking corrective actions as needed.
Q48	Long Term Sustainability	Environmental Impact	We are effectively integrating sustainability into our product design and lifecycle management to minimize environmental harm.
Q49	Long Term Sustainability	Social Responsibility Initiatives	We are making progress toward our goals for improving workplace diversity and inclusion.
Q50	Long Term Sustainability	Social Responsibility Initiatives	Our employee training and development programs are aligned with our social responsibility goals.
Q51	Long Term Sustainability	Financial Health	Our current debt-to-equity ratio positively impacts our financial stability.
Q52	Long Term Sustainability	Financial Health	We are effectively managing our cash flow to ensure long-term financial health.
Q53	Long Term Sustainability	Market Position	We can quickly and effectively adapt our operations to economic or geopolitical disruptions.
Q54	Long Term Sustainability	Market Position	Our business model is resilient to fluctuations in market demand and external economic conditions.
Q55	Long Term Sustainability	Resilience to External Shocks	We are investing in innovation to enhance our resilience against market disruptions.
Q56	Long Term Sustainability	Resilience to External Shocks	Our profitability metrics (e.g., ROI, profit margins) meet or exceed our targets.
Q57	Financial Performance	Financial Performance	We are meeting our financial performance goals for revenue growth and profitability.
Q58	Financial Performance	Financial Performance	We are effectively controlling costs to enhance our financial performance.
Q59	Financial Performance	Market Performance	We are effectively differentiating our products or services from competitors.
Q60	Financial Performance	Market Performance	We effectively measure and improve our operational cost-effectiveness and productivity.
Q61	Financial Performance	Operational Efficiency	We effectively monitor and address bottlenecks or inefficiencies in our operational processes.

Q62	Financial Performance	Operational Efficiency	We ensure continuous improvement and innovation in our operational procedures to maintain efficiency.

Table 1: List of Questions

4.4 Reliability Analysis

Reliability analysis is crucial for Likert scale data as it assesses the consistency of responses across related items, ensuring that these items accurately measure the intended concept. By examining internal consistency, typically using Cronbach's alpha, we confirm that the items within a scale reliably capture the same underlying construct, which is essential for the validity of the findings. Reliable Likert scales reduce random error, minimize variability unrelated to the construct, and improve the accuracy of results, providing a solid foundation for data interpretation. With reliability, the data could produce consistent and accurate outcomes, impacting the overall credibility of the analysis. Reliability analysis confirms that responses are stable and accurately reflect a genuine pattern, which is essential for drawing meaningful and accurate conclusions in research based on Likert scales.

4.5 Reliability Statistics of the Data

Case Processing Summary

Cases	N	Percent
Valid	33	100.0%
Excluded	0	0%
Total	33	100.0%

Table 2: Case Processing Summary

Reliability Statistics

Cronbach's Alpha	N of Items
0.94	41

Table 3: Reliability Statistics

With a Cronbach's alpha of 0.94 and 41 items, the reliability analysis indicates very high internal consistency among the survey items, demonstrating that the items effectively measure a cohesive concept or set of concepts. The Reliability score suggests the following.

High Internal Consistency: The Cronbach's alpha of 0.94 indicates that the survey items consistently measure the underlying constructs. High internal consistency implies that the responses to individual items are well-correlated.

Interpretation of Reliability: With 41 items, each likely probing various aspects of cognitive biases and their impacts, such a high alpha value indicates that the items contribute uniformly to the overall measurement.

Implications for Analysis:

Confidence in Survey Results: High reliability supports confidence in the accuracy of the survey results, meaning that any patterns observed, such as the prevalence of certain biases, likely reflect respondents' actual cognitive tendencies.

Potential for Further Analysis: The reliability score suggests that we can confidently proceed with more in-depth analyses, such as factor analysis, to explore underlying dimensions or groupings within the items.

Cronbach's alpha of 0.94 confirms the robustness of the survey, providing a solid foundation for further insights into cognitive biases and their impacts and supporting the reliability of the findings discussed in subsequent analysis.

4.6 Forms of Cognitive Biases

In what form do cognitive biases appear in the strategic decision-making processes within organisations?

Statistics

		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
N	Valid	33	33	33	33	33	33	33	33
	Missing	0	0	0	0	0	0	0	0
Mean		3.27	3.15	3.03	2.91	3.64	2.48	2.79	3.82
Median		3.00	3.00	3.00	2.00	4.00	2.00	3.00	4.00
Mode		4	3	2	2	4	2	2	4
Std Dev		0.76	0.71	0.95	1.04	1.11	0.83	0.78	0.73

Table 4: Statistics on Bias

The survey responses analysed here illustrate how four common biases – hindsight, overconfidence, confirmation, and anchoring – manifest in real-world scenarios, specifically within decision-making processes. These biases uniquely contribute to how people process information and assess outcomes. By examining the prevalence of these biases, we can gain insight into the common cognitive tendencies people share and their impact on everyday decisions.

4.7 Long-Term Implications

What are the long-term implications of cognitive biases on organisational performance metrics such as profitability, growth, and market competitiveness?

This descriptive statistics data treats cognitive biases as independent variables influencing organisational practices. We focus on four main biases-Overconfidence, Anchoring, Confirmation, and Hindsight. The results of the descriptive analysis of the data are tabulated below

Q. No.	N	Mean	Std Dev	Variance	Kurtosis	S.E. Kurt	Skewness	S.E. Skew
Q22	33	3.27	0.76	0.58	-1.06	0.8	-0.52	0.41
Q23	33	3.15	0.71	0.51	-0.92	0.8	-0.23	0.41
Q24	33	3.03	0.95	0.91	-0.93	0.8	0.4	0.41
Q25	33	2.91	1.04	1.09	-1.25	0.8	0.54	0.41
Q26	33	3.64	1.11	1.24	0.31	0.8	-0.95	0.41
Q27	33	2.48	0.83	0.7	-0.37	0.8	0.57	0.41
Q28	33	2.79	0.78	0.61	-1.22	0.8	0.4	0.41
Q29	33	3.82	0.73	0.53	1.07	0.8	-0.74	0.41
Q30	33	4.15	0.62	0.38	-0.29	0.8	-0.1	0.41
Q31	33	4.12	0.6	0.36	-0.07	0.8	-0.04	0.41
Q32	33	4.18	0.39	0.15	1.05	0.8	1.73	0.41
Q33	33	4.21	0.42	0.17	0.19	0.8	1.48	0.41
Q34	33	4.21	0.65	0.42	-0.57	0.8	-0.23	0.41
Q35	33	4.3	0.47	0.22	-1.27	0.8	0.9	0.41
Q36	33	3.94	0.66	0.43	-0.53	0.8	0.06	0.41
Q37	33	4.15	0.51	0.26	0.76	0.8	0.29	0.41
Q38	33	4.24	0.56	0.31	-0.2	0.8	0.04	0.41
Q39	33	3.67	0.89	0.79	3.46	0.8	-1.53	0.41
Q40	33	3.64	0.86	0.74	-0.71	0.8	0.18	0.41
Q41	33	3.67	0.82	0.67	-0.44	0.8	-0.03	0.41
Q42	33	3.88	0.78	0.61	0.55	0.8	-0.62	0.41
Q43	33	3.61	0.83	0.68	-0.53	0.8	0.17	0.41
Q44	33	3.64	0.78	0.61	-0.26	0.8	-0.07	0.41
Q45	33	3.45	0.94	0.88	-0.92	0.8	-0.58	0.41
Q46	33	3.67	1.02	1.04	-0.88	0.8	-0.39	0.41
Q47	33	3.7	0.92	0.84	-0.52	0.8	-0.37	0.41
Q48	33	3.79	0.86	0.73	-0.55	0.8	-0.2	0.41

Q49	33	4.12	0.6	0.36	-0.07	0.8	-0.04	0.41
Q50	33	3.67	0.74	0.54	0.18	0.8	-0.37	0.41
Q51	33	3.79	0.93	0.86	-0.33	0.8	-0.55	0.41
Q52	33	3.94	0.83	0.68	0.17	0.8	-0.59	0.41
Q53	33	3.73	0.88	0.77	-0.77	0.8	-0.01	0.41
Q54	33	3.18	0.85	0.72	1.45	0.8	-0.7	0.41
Q55	33	3.52	0.8	0.63	4.41	0.8	-2.04	0.41
Q56	33	3.36	0.9	0.8	-0.69	0.8	0.02	0.41
Q57	33	3.67	1.02	1.04	-1.16	0.8	-0.01	0.41
Q58	33	3.79	0.93	0.86	-0.33	0.8	-0.55	0.41
Q59	33	3.94	0.56	0.31	0.55	0.8	-0.04	0.41
Q60	33	3.73	0.63	0.39	-0.52	0.8	0.26	0.41
Q61	33	3.67	0.82	0.67	-0.44	0.8	-0.03	0.41
Q62	33	3.82	0.64	0.4	-0.45	0.8	0.16	0.41

Table 5: Descriptive Statistics

The rotated component matrix shows how each survey question loads onto different factors, which can represent underlying themes or components. The table below is the rotated component matric based on the grouping of questions into cognitive biases, decision-making processes, business outcomes, long-term sustainability, and financial performance.

	Component									
Q	1	2	3	4	5	6	7	8	9	10
Q22	-0.16	-0.08	0.17	0.1	-0.28	0.07	-0.08	0.11	0.87	0.01
Q23	-0.08	-0.2	0.16	0.03	0.11	-0.25	-0.02	-0.09	0.87	0.08
Q24	-0.06	0.2	0.88	0	0.13	-0.02	-0.07	0.06	0.33	-0.03
Q25	-0.28	0.33	0.74	0.01	0.16	-0.07	-0.21	0.14	-0.25	0.17
Q26	0.06	0.55	0.65	0.07	-0.37	0.16	0.17	-0.04	-0.03	0.01
Q27	0.28	0.05	0.86	0.07	0.12	0.22	0.1	-0.04	0.14	0.17
Q28	0.18	-0.11	0.56	-0.07	0.11	0.09	-0.15	0.59	0.29	-0.17
Q29	-0.01	0.09	0.39	0.24	0.18	0.83	0	-0.02	-0.08	0.06
Q30	0.07	0.59	0.3	0.08	0.35	0.03	0.35	-0.41	-0.09	0.22
Q31	-0.04	0.52	0.32	0.41	0.36	0.24	0.04	0.15	0.27	-0.23
Q32	0.25	0.03	-0.11	0.13	0.07	0.15	0.86	-0.19	-0.03	-0.06
Q33	-0.1	0.42	0.01	-0.02	0.09	-0.17	0.78	0.09	0	0

Q34	-0.01	0.37	0.37	0.3	-0.17	-0.01	0.54	0.26	-0.25	0.25
Q35	0.43	0.04	0.11	0.2	0.16	0.07	-0.04	0.77	-0.06	0.03
Q36	-0.13	0.86	0.01	0.24	0.17	0.04	0.24	0.04	-0.02	0.06
Q37	0.26	0.54	0.09	0.56	-0.09	0.19	0.06	0.07	-0.26	0.05
Q38	-0.05	0.05	0.28	0.62	0.31	0.18	0.37	0.33	0.22	0.21
Q39	0.88	-0.19	-0.15	0.08	-0.09	0.1	0.13	-0.09	-0.09	-0.2
Q40	0.5	0.01	0.37	0.67	0.1	-0.04	0.06	0.24	-0.09	-0.15
Q41	0.81	-0.25	0.23	0.22	0.09	0	0.2	0.05	0.21	0.05
Q42	0.81	0.08	-0.07	0.23	-0.08	0.03	0.07	0.33	-0.03	0.11
Q43	0.34	0.15	-0.31	0.4	0.37	0.33	0.22	0.09	0.47	-0.09
Q44	0.51	0.13	-0.01	0.63	0	-0.11	0.1	0.17	0.22	0.23
Q45	0.41	0.06	0.14	0.08	0.74	0.27	-0.08	0.13	-0.28	0.02
Q46	0.74	0.09	0.23	0.28	0.34	-0.01	-0.07	0.03	-0.33	0.18
Q47	0.66	0	-0.08	0.23	0.32	0.35	-0.07	0.3	-0.13	0.37
Q48	0.43	0.35	0.2	0.45	0.26	0.07	0.05	0.16	0.12	0.56
Q49	-0.17	0.47	0.04	0	0.56	0.34	0.2	0.34	-0.29	0.23
Q50	0.53	0.16	0.08	0.34	0.2	0.27	-0.42	0.15	0.39	0.22
Q51	0.72	0.17	-0.03	0.06	0.37	0.48	-0.04	0.01	-0.04	0.21
Q52	0.57	-0.14	-0.08	0.22	0.14	0.69	-0.12	-0.05	-0.15	0.01
Q53	0.34	0.05	0.39	0.51	0.22	0.17	-0.37	0.12	-0.15	-0.14
Q54	0.51	0.6	0.15	-0.2	0.3	-0.05	-0.04	-0.09	-0.16	0.27
Q55	0.31	0.41	0.13	0	0.36	-0.04	0	-0.19	0.13	0.7
Q56	0.61	0.23	0.22	0.11	0.65	0.03	0.01	0.09	0.03	-0.08
Q57	0.47	-0.12	0.2	0.16	0.73	0.14	0.17	0.02	-0.18	0.11
Q58	0.04	0.23	0.14	0.28	0.86	0.13	0.04	0.05	0.18	0.16
Q59	0.04	0.13	-0.03	0.82	0.32	0.27	0.11	-0.26	0.09	0
Q60	0.68	0.46	0.08	0.06	0.21	0.15	-0.01	0.12	-0.03	-0.09
Q61	0.35	0.13	0	0.22	0.23	0.66	0.13	0.35	0.04	-0.21
Q62	0.4	0.17	-0.18	0.8	-0.08	0.24	-0.09	0.12	0.08	0.08

Table 6: Rotated Component Matrix

Q. No.	R	R Square	Adjusted R Square	Std. Error of the Estimate
Q30	0.77	0.59	0.46	0.46

Q31	0.69	0.47	0.29	0.5
Q32	0.64	0.41	0.21	0.35
Q33	0.53	0.28	0.04	0.41
Q34	0.64	0.42	0.22	0.57
Q35	0.81	0.65	0.54	0.32
Q36	0.72	0.52	0.36	0.53
Q37	0.67	0.44	0.26	0.44
Q38	0.58	0.34	0.12	0.53
Q39	0.84	0.71	0.61	0.56
Q40	0.6	0.35	0.14	0.8
Q41	0.9	0.81	0.75	0.41
Q42	0.74	0.55	0.4	0.61
Q43	0.75	0.56	0.42	0.63
Q44	0.5	0.25	-0.01	0.79
Q45	0.87	0.76	0.68	0.53
Q46	0.72	0.52	0.36	0.82
Q47	0.78	0.61	0.48	0.66
Q48	0.6	0.36	0.14	0.79
Q49	0.76	0.58	0.44	0.45
Q50	0.61	0.37	0.16	0.67
Q51	0.77	0.6	0.46	0.68
Q52	0.82	0.68	0.57	0.54
Q53	0.57	0.32	0.1	0.83
Q54	0.59	0.35	0.13	0.79
Q55	0.56	0.31	0.08	0.76
Q56	0.78	0.61	0.48	0.65
Q57	0.77	0.6	0.46	0.75
Q58	0.72	0.51	0.35	0.75
Q59	0.61	0.37	0.17	0.51
Q60	0.66	0.43	0.24	0.55
Q61	0.85	0.73	0.64	0.49
Q62	0.54	0.29	0.05	0.62

Table 7: Regression Analysis

4.8 Key Factors Mediating and Moderating the Relationships

To understand the relationship between cognitive bias and business decisions, it's essential to identify factors that mediate (explain) or moderate (influence the strength of)

this relationship. From the survey data, we look at factors within Decision-Making Processes and Business Outcomes that potentially mediate or moderate the relationship between cognitive biases and Long-Term Sustainability and Financial Performance, both critical indicators of organisational resilience.

The following section examines specific factors within the identified parameters and sub-parameters that mediate or moderate the relationship between cognitive biases (independent variables) and long-term organisational outcomes (dependent variables).

Key Mediating and Moderating Factors Based on Parameters and Sub-parameters.

Decision Making Process

Information Gathering

Mediating Role: Strong information-gathering practices, as indicated by high mean scores (e.g., "I rely heavily on diverse sources when gathering information," Mean = 4.15), act as a mediating factor by reducing the impact of biases like overconfidence and confirmation bias. Thorough information gathering ensures that decision-makers consider diverse perspectives, which helps mitigate the effects of personal biases on decisions.

Statistical Insight: Low standard deviations (e.g., 0.62) and consistent reliance on diverse sources show that this factor is consistently applied across respondents, making it an effective mediation mechanism.

Information Evaluation

Moderating Role: Effective information evaluation, as reflected in statements like "I thoroughly assess the reliability of the information I receive" (Mean = 4.21, Std Dev = 0.42), is a moderating factor, particularly in mitigating confirmation bias. By critically assessing information, decision-makers can counteract the tendency to favor data that aligns with their preconceptions, ensuring balanced decision-making.

Statistical Insight: The low variability suggests that information evaluation is a well-embedded practice, providing a reliable moderating effect against cognitive biases that may otherwise skew decision quality.

Business Outcomes

Strategic Success

Mediating Role: Perceptions of strategic success, shown by moderate mean scores (e.g., "Our profit margin has improved due to recent strategic decisions," Mean = 3.67), can mediate the relationship between biases like hindsight bias and long-term outcomes. A positive view of strategic success can reinforce confidence in past decisions, potentially leading to overreliance on previous strategies.

Statistical Insight: The moderate standard deviation (0.89) indicates some variability, suggesting that respondents have differing views on strategic success, which may influence how cognitive biases affect future strategic decisions.

Market Position

Moderating Role: Market position perception, with moderate means and variability (e.g., "We are gaining a larger share of the market compared to competitors," Mean = 3.61), is a

moderating factor. Strong competitive positioning can mitigate the effects of biases, such as anchoring, by encouraging decision-makers to continually monitor and adapt to the competitive landscape rather than relying solely on initial market insights.

Statistical Insight: The moderate variability reflects the diversity of experiences within the organisation, which could either strengthen or weaken the moderating effect of market position on cognitive biases, depending on the competitive pressures faced by different teams.

Long-Term Sustainability

Sustainability Practices

Mediating Role: Organisational commitment to sustainability, indicated by responses like "We are investing in technologies or processes that enhance resource efficiency" (Mean = 3.67), mediates cognitive biases and long-term outcomes. Focusing on sustainability encourages decision-makers to consider long-term impacts, thus mitigating the effects of biases like overconfidence and hindsight bias.

Statistical Insight: The moderate standard deviation (1.02) indicates that sustainability practices vary within the organisation, suggesting that this mediation effect might be more robust in some areas. Where sustainability practices are strong, they can reduce the influence of cognitive biases on short-term decisions that could negatively impact long-term outcomes.

Environmental Responsibility:

Moderating Role: Environmental responsibility, as reflected in statements like "We are effectively integrating sustainability into our product design and lifecycle management" (Mean = 3.79), serves as a moderating factor, particularly in mitigating overconfidence bias. A solid commitment to environmental responsibility can encourage decision-makers to align their strategies with sustainable goals, helping to offset the impact of biases that might prioritise short-term gains.

Statistical Insight: With a moderate standard deviation (0.86), environmental responsibility practices show some variability, suggesting that while many respondents prioritise environmental goals, others may not see them as a primary focus. In areas where environmental responsibility is emphasised, it counterbalances biases that might otherwise disregard long-term sustainability.

Financial Performance

Financial Stability:

Moderating Role: Financial stability, reflected in responses to statements like "Our business model is resilient to fluctuations in market demand" (Mean = 3.18, Std Dev = 0.85), moderates the impact of cognitive biases on long-term outcomes. Organisations with strong financial stability can better absorb potential adverse effects of biases like overconfidence, as they have a buffer against volatility.

Statistical Insight: The moderate mean and variability suggest that financial stability is perceived differently across respondents, indicating that its moderating effect may vary across teams. In units with more excellent financial stability, the impact of cognitive biases

on long-term outcomes may be less pronounced due to the resilience provided by stable finances.

Profitability Metrics:

Mediating Role: Profitability metrics, such as "Our profitability metrics are meeting or exceeding our targets" (Mean = 3.67, Std Dev = 1.02), act as a mediating factor by reinforcing confidence in organisational strategies. This confidence can amplify the effects of hindsight and overconfidence biases, as past financial success may lead decision-makers to assume similar outcomes in the future.

Statistical Insight: The wide range of responses indicates that profitability metrics may mediate the relationship between cognitive biases and long-term outcomes differently across departments. Where profitability is high, it may strengthen biases, leading to a cycle of reinforced decision-making patterns based on past successes.

These mediating and moderating factors are essential for managing the influence of cognitive biases, ensuring that decisions align with the organisation's long-term goals and sustainable outcomes. Strengthening these factors, particularly in areas with high variability, could improve organisational resilience and reduce the negative impacts of biases on long-term performance.

4.9 Ethical Implications

What are the ethical implications of cognitive biases in strategic decision-making, and how can organisations promote ethical decision-making practices to mitigate biases and uphold integrity in their operation?

Ethical Implications of Cognitive Biases in Strategic Decision-Making

Overconfidence Bias and Ethical Responsibility

Implication: Overconfidence can lead decision-makers to overestimate their judgment or capacity to predict outcomes, potentially causing them to overlook risks or disregard alternative viewpoints. In ethical terms, this bias can result in neglecting thorough risk assessment and due diligence, leading to decisions that prioritize individual or short-term gains over broader, long-term impacts.

Example from Data: "I believe my judgment is better than that of most people" had a moderately high mean (3.27), suggesting that overconfidence exists among respondents. If left unchecked, overconfident decision-making could lead to risky strategic choices that compromise the organisation's ethical standards, as leaders might dismiss critical feedback or avoid consultation.

Ethical Concern: When overconfident leaders make unilateral decisions, they risk ethical oversights by disregarding diverse perspectives and potential consequences, which can harm stakeholders and damage organisational integrity.

Confirmation Bias and Fairness

Implication: Confirmation bias involves favouring information that supports one's existing beliefs, which can lead to selective perception and unfair decision-making. This bias can prevent decision-makers from objectively evaluating all relevant data, potentially leading to favouritism, reinforcing existing power structures, or making decisions that overlook marginalised perspectives.

Example from Data: High mean scores for statements like "I find it easier to accept information that aligns with what I already think is true" (Mean = 3.64) suggest a strong presence of confirmation bias. Ethically, this bias can result in decisions that fail to consider diverse viewpoints, thus limiting fairness in organisational practices.

Ethical Concern: By ignoring challenging information, decision-makers risk reinforcing biases that benefit only certain groups or perspectives, leading to inequitable outcomes that undermine trust and harm organisational reputation.

Anchoring Bias and Transparency

Implication: Anchoring bias leads individuals to rely heavily on initial information, which can obscure objective analysis and transparency in decision-making. Anchoring on preliminary data may prevent decision-makers from fully considering updated or comprehensive information, potentially leading to unethical decisions that lack transparency and fail to account for all possible options.

Example from Data: Responses such as "The first offer in a negotiation significantly affects my final decision" (Mean = 3.03) indicate that anchoring bias is moderately present. This bias can impair the ethical value of transparency, as decision-makers might cling to initial information without acknowledging evolving circumstances.

Ethical Concern: Anchoring can hinder open and flexible consideration of new information, leading to decisions that appear less transparent or manipulative to stakeholders, particularly if the initial anchor data is outdated or incomplete.

Hindsight Bias and Accountability

Implication: Hindsight bias, where individuals believe they "knew it all along" after an event, can erode accountability. This bias can make it difficult for leaders to acknowledge mistakes, as they may view outcomes as more predictable than they were. Consequently, hindsight bias can hinder organisational learning, reducing openness to acknowledging past misjudgements or errors.

Example from Data: The high mean score for "I usually think that I would have made better decisions if I had known what I know now" (Mean = 3.82) suggests that the phenomenon of hindsight bias is prevalent. This could reduce accountability, as individuals might fail to recognise their errors, making it challenging to implement necessary corrective actions.

Ethical Concern: Hindsight bias undermines accountability by creating an illusion of predictability, which may lead to justifying poor decisions rather than transparently evaluating and learning from them. This lack of accountability can harm organisational integrity and public trust.

Promoting Ethical Decision-Making Practices to Mitigate Cognitive Biases

Given the ethical risks associated with cognitive biases, organisations must proactively promote ethical decision-making. Some tactics to reduce biases and maintain decision-making integrity, backed by data insights, are discussed below.

Implement Structured Decision-Making Processes

The data show solid information-gathering practices with high mean scores for statements like "I thoroughly assess the reliability of the information I receive" (Mean =

4.21). Expanding these practices to include a standardized decision-making framework can ensure ethical considerations are consistently prioritized, minimising the potential for biases to influence outcomes.

Structured processes reduce reliance on personal judgment, which helps mitigate overconfidence and confirmation biases. By establishing clear, step-by-step decision frameworks, organisations encourage decision-makers to evaluate information objectively and incorporate diverse perspectives.

Foster a Culture of Transparency and Inclusivity

The data indicate that team consultation is valued, as evidenced by the high scores, particularly in the statement "I regularly consult with my team during the information-gathering phase" (Mean = 4.18). Building on this culture by actively encouraging feedback from all levels of the organisation can help prevent decisions that are anchored in initial viewpoints or confirm only certain biases, thereby fostering ethical integrity and fairness.

Transparency and inclusivity help counteract anchoring and confirmation biases by promoting open dialogue and sharing diverse perspectives. When all relevant information and viewpoints are considered, there is less chance for individual biases to dominate.

Encourage Reflective Practices to Address Hindsight Bias

The data exhibits hindsight bias, stating, "I usually think that I would have made better decisions if I had known what I know now." Incorporating structured reflection into the organisational culture, such as requiring post-decision analysis, can help decision-makers acknowledge uncertainties and errors, thereby fostering accountability.

Reflective practices, such as after-action reviews or decision audits, encourage decision-makers to evaluate past decisions critically. Individuals can maintain accountability and focus on continuous improvement by analysing successes and failures without hindsight.

Utilise Diverse Information Sources and External Experts

The data shows a commitment to external consultation, with a high mean for "I seek external expert opinions when collecting information for decisions" (Mean = 4.12). Formalising this practice by requiring external validation for high-stakes decisions can reduce biased influence and enhance ethical standards by ensuring decisions are made with a well-rounded perspective.

Seeking information from various sources helps reduce the influence of confirmation and overconfidence biases. By consulting external experts and gathering diverse data, organisations ensure that decision-making incorporates different viewpoints, which supports ethical objectivity.

Establish Accountability Mechanisms

While overconfidence and hindsight biases pose risks to accountability, establishing formal channels for accountability can mitigate these biases. Regular audits, transparent reporting practices, and ethical reviews ensure that decisions are scrutinised and aligned with ethical standards.

Accountability mechanisms, such as performance reviews, transparent reporting, and clear ethical guidelines, reinforce responsible decision-making. They ensure that

decision-makers are held accountable for outcomes, regardless of biases that may influence their choices.

4.10 Summary of Findings

The key findings are summarised below.

Cognitive Biases in Decision-Making

The data indicate that cognitive biases, particularly overconfidence, confirmation bias, anchoring, and hindsight bias, are prevalent across respondents and significantly influence organisational decision-making processes. High R and R-squared values for questions related to decision-making (e.g., Q35, with an R of 0.81 and an R-squared of 0.65) suggest that these biases influence how information is gathered, evaluated, and utilised in strategic decisions. This substantial impact of cognitive biases highlights the potential for these biases to distort objective decision-making.

Long-Term Implications of Cognitive Biases

The analysis reveals that cognitive biases have substantial long-term implications, particularly in relation to sustainability and financial health. High R-Square values in questions like Q45 (resource utilisation alignment with sustainability goals, R-Square of 0.76) suggest that biases significantly shape perceptions of sustainability efforts. Similarly, in the financial domain, questions related to revenue and profit goals (e.g., Q57 with an R-squared value of 0.60) reveal that biases can influence economic performance assessments.

Key Mediating and Moderating Factors

The data suggests that robust decision-making practices and objective performance measurement are critical factors that could mediate or moderate the impact of cognitive biases. For example, high R and R-Square values in decision-making items such as Q30 (relying on diverse information sources, R = 0.77) suggest that comprehensive information gathering can counteract selective biases. Similarly, questions related to performance metrics in sustainability and finance indicate that structured reviews and regular assessments may help mitigate the effects of biases by providing objective feedback.

Ethical Implications of Cognitive Biases

Ethically, cognitive biases in strategic decision-making raise concerns about transparency, accountability, and objectivity. The high correlation between cognitive biases and perceptions of business outcomes (e.g., Q41 on revenue growth improvement, R = 0.9) suggests that biases may lead decision-makers to attribute positive outcomes to internal strategies, potentially overlooking or misrepresenting external factors.

4.11 Conclusion

The findings underscore the significant and widespread impact of cognitive biases on key elements of organisational decision-making and performance assessment. Among the most prominent biases observed were overconfidence, confirmation bias, anchoring, and hindsight bias, each playing a critical role in shaping how leaders perceive, process, and respond to information in strategic contexts.

Overconfidence makes decision-makers overestimate their judgment and capabilities, often resulting in a narrow view of available options. Confirmation bias

encourages leaders to selectively seek or prioritise information that supports their pre-existing beliefs, potentially overlooking alternative perspectives or warning signals. Anchoring bias reveals itself when early information disproportionately influences subsequent judgments, while hindsight bias distorts post-decision evaluations by making past events seem more predictable than they were.

This influence is reflected in the statistical results, where high R and R-squared values were consistently observed across multiple areas, particularly in responses related to strategic decision-making processes, evaluations of business outcomes, and perceptions of long-term sustainability. The data shows that these biases affect how information is gathered and assessed, and skew how success and organisational performance are understood and reported.

Such findings emphasise the need for organisations to recognise and actively address cognitive biases within their leadership and strategic processes. Without structured mechanisms to challenge biased thinking, there is a risk of overestimating internal capabilities, underestimating external threats, and making decisions that lack objectivity. In summary, cognitive biases are not isolated tendencies but deeply embedded patterns that can shape-and potentially distort-organisational outcomes.

CHAPTER V:

DISCUSSION

5.1 Introduction

This chapter examines the four research questions guiding this study, synthesising the empirical findings from Chapter IV with the theoretical constructs presented in earlier chapters. The discussion serves as a critical juncture, consolidating the statistical discoveries derived from the survey analysis and examining them through the lens of existing literature on cognitive biases, strategic decision-making, and organisational performance. By juxtaposing practical insights with theoretical frameworks, this chapter aims to provide a deeper understanding of how cognitive biases function in real-world organisational contexts, their enduring consequences, and the mechanisms that influence or mitigate their effects.

The discussion is structured around the four research questions that shaped the inquiry. Each section is an in-depth interpretation of the associated survey results. These interpretations are supported by references to established psychological and management theories, as well as contemporary scholarly work. The intent is to reflect on their implications critically, evaluate their consistency with existing knowledge, and identify areas of divergence or novelty. This integrative approach enables a more comprehensive understanding of cognitive biases as complex and multidimensional phenomena.

In the first section, the discussion focuses on how cognitive biases manifest in the strategic decision-making processes of organisations. Drawing from key indicators in the survey, such as reliance on diverse information sources, the role of external consultation,

and verification of facts, this section maps the presence of biases like overconfidence, anchoring, and confirmation bias in leadership behaviours. These are then contrasted with empirical research findings in behavioural economics and organisational psychology to validate or question their significance and prevalence.

The second section examines the long-term implications of cognitive biases on key organisational performance indicators, including profitability, growth, innovation, and competitive advantage. Survey responses tied to business outcomes—ranging from financial metrics to market positioning—are analysed to understand how cognitive distortions might lead to suboptimal decisions with cumulative effects. This exploration is anchored in longitudinal studies and performance theories, offering a temporal dimension to the discussion.

The third section investigates contextual and organisational factors that may mediate or moderate the relationship between cognitive biases and strategic outcomes. Insights from the survey questions relating to internal practices (e.g., communication, integration of new information, sustainability alignment) are interpreted in conjunction with research on organisational culture, structure, and leadership style. The goal is to identify both enablers and buffers that shape how biases influence outcomes, directly or indirectly.

Lastly, the fourth section considers the ethical implications of cognitive biases in strategic decision-making and how organisations might promote more ethical, transparent, and unbiased decision-making environments. Survey results concerning integrity, fairness,

and continuous improvement are analysed in conjunction with ethical decision-making models and governance frameworks.

Through these discussions, the chapter presents a comprehensive and evidence-based examination of the research problem, culminating in a nuanced understanding of the role that cognitive biases play in shaping the trajectory of organisational strategy and performance.

5.2 Triangulation with Conceptual Framework

Triangulation serves as a methodological bridge, connecting the empirical findings of the study with the conceptual framework established earlier in the thesis. It ensures that the research conclusions are not solely based on one form of data or perspective, but are corroborated by multiple sources of evidence. In this study, triangulation is achieved through the convergence of three primary elements:

1. The conceptual framework is based on established theories of cognitive biases and strategic decision-making.
2. The statistical outcomes derived from the survey analysis, and
3. Insights from existing scholarly literature.

This triangulated approach adds depth, reliability, and validity to the interpretations of how cognitive biases affect organisational strategy and outcomes.

The conceptual framework underpinning this research was structured around four central domains: cognitive bias manifestation, long-term organisational impact, mediating and moderating variables, and ethical implications. These domains were derived from a synthesis of key theoretical contributions from behavioural economics (Tversky &

Kahneman, 1979), strategic management (Mintzberg et al., 2020), and organisational psychology (Bazerman & Moore, 2012). The survey questions (Q22 to Q62) were designed to operationalise these theoretical constructs into measurable variables, allowing the research to explore the relationships between cognitive biases and strategic decision-making in a structured and empirical manner.

Triangulation between the conceptual framework and the statistical findings demonstrates a high level of coherence. For instance, the manifestation of cognitive biases in strategic thinking is supported by high R and R-squared values for items such as Q30 (utilisation of diverse sources), Q31 (consultation with external experts), Q35 (verification of facts), and Q36 (integration of new information). These results are consistent with the framework's premise that cognitive biases, such as confirmation bias and anchoring, directly influence how leaders gather and evaluate information. Furthermore, the negative adjusted R-squared for Q44 suggests potential overconfidence bias, where strategic advantages may be overestimated without producing actual competitive benefits, aligning with the cognitive distortion described in the framework.

Similarly, triangulation reinforces the hypothesised long-term implications of cognitive biases on performance metrics. Survey items related to profitability (Q39, Q56), revenue growth (Q41, Q57), and innovation (Q55) exhibit strong correlations with the decision-making variables, supporting the argument that unexamined biases can have a persistent impact on organisational success or failure. The conceptual framework had proposed that such biases might not only distort individual decisions but accumulate over time to shape organisational trajectories—an assumption strongly validated by the data.

The triangulation also extends to the moderating and mediating variables. Questions regarding sustainability (Q45 to Q48), communication (Q38), and integration of information (Q36) highlight organisational practices that can influence the degree to which biases manifest or impact outcomes. This aligns with the framework's assertion that organisational culture, processes, and governance structures serve as buffers or amplifiers of bias-related effects. For example, effective communication and alignment with sustainability goals showed statistically significant correlations with strategic outcomes, suggesting that these internal systems mediate the negative effects of biases.

Ethical implications, as conceptualised in the framework, are triangulated through responses to questions Q60 to Q62, which address continuous improvement, cost-effectiveness, and efficiency monitoring. The data support the notion that unchecked biases not only risk inefficiencies but can compromise ethical standards by enabling decisions that ignore evidence or diverse perspectives. This is particularly important in light of growing demands for ethical governance and transparency in strategic planning.

In summary, triangulation confirms that the conceptual framework accurately captures the dynamics explored in this study. It validates the theoretical pathways proposed and demonstrates the internal consistency of the research design. By grounding statistical outcomes in established theory and aligning them with current academic discourse, this triangulated approach enhances the credibility and applicability of the findings, making a strong case for organisational interventions that address cognitive biases in strategic decision-making.

5.3 Discussion on Research Question 1

How do cognitive biases manifest in strategic decision-making processes within organisations?

The present study aimed to explore the manifestation of cognitive biases in strategic decision-making within organisations, with particular focus on how these biases influence various decision-making behaviours and processes. The findings derived from the regression analysis of survey questions Q22 to Q29 (independent variables related to decision-making behavior) and Q30 to Q62 (dependent variables linked to organisational outcomes) substantiate the pivotal role cognitive biases play in shaping strategic decisions.

Cognitive biases, including overconfidence, confirmation bias, anchoring, and hindsight bias, emerged prominently through the analysis of survey items Q22 to Q29. These questions evaluated how respondents interact with information, consult with teams, assess reliability, and communicate decisions within the organisation. Notably, Q22 ("I rely heavily on diverse sources when gathering information for decision-making") and Q23 ("I seek external expert opinions when collecting information for decisions") showed strong R values (0.77 and 0.69, respectively), indicating a high correlation between these cognitive processes and multiple dependent outcomes. These responses reflect efforts to counteract bias, yet the variability in adjusted R-squared values suggests underlying cognitive distortions may still influence judgment.

Further, Q24 ("I regularly consult with my team during the information-gathering phase") and Q25 ("I assess the reliability of the information I receive thoroughly") are designed to capture team-based decision validation and evaluative scrutiny. However,

these responses also presented relatively lower adjusted R-squared values (0.21 and 0.04, respectively), indicating that while consultative mechanisms exist, they may not fully mitigate internal cognitive distortions. This disparity suggests that decision-makers may be prone to confirmation bias, selectively attending to team input that aligns with their preexisting beliefs.

Anchoring bias was evident in responses to Q26 ("I often compare new information with existing knowledge or data"), which had an R value of 0.64 and an adjusted R-squared of 0.22. The moderate correlation indicates that while prior knowledge aids decision-making, it may also anchor leaders to established assumptions, hindering adaptability. Similarly, Q27 ("I cross-check facts carefully before making a decision") scored particularly high on all regression indicators (R = 0.81; R^2 = 0.65; adjusted R^2 = 0.54), reflecting a strong relationship with performance outcomes. This suggests that deliberate efforts to verify information are vital in reducing errors introduced by bias, though the prevalence of high adjusted R-squared scores implies such biases persist even when cross-checking is practised.

Q28 ("I effectively integrate new information into my existing strategic plans") and Q29 ("The information I gather significantly influences my final decisions") further emphasised the role of cognitive assimilation and decision justification. Both questions showed robust associations with outcome variables, highlighting the impact of information processing biases, including selective recall and post-decision rationalisation of prior choices. The tendency to justify prior actions, despite contradictory evidence, is a key hallmark of hindsight bias and affects the strategic rationality of decision-makers.

The downstream impact of these cognitive biases is most prominently observed in questions Q30 through Q62, which cover a wide array of organisational outcomes, including financial performance, innovation, competitiveness, operational effectiveness, and sustainability. For instance, Q39 ("Our profit margin has improved as a result of recent strategic decisions") and Q41 ("Our overall revenue growth rate has improved due to recent strategic decisions") revealed very high adjusted R-square values (0.61 and 0.75 respectively), firmly tying cognitive biases in information handling to measurable financial performance. This empirical link supports prior literature asserting that strategic choices influenced by biases can result in significant bottom-line effects—both positive and negative.

Moreover, Q45 ("Our current resource utilization practices align well with our sustainability goals") presented one of the highest R and R-square values (R = 0.87; R^2 = 0.76; adjusted R^2 = 0.68), reinforcing that decision-making quality—affected by biases—has substantial implications for sustainability alignment. Here, the manifestation of overconfidence may lead leaders to overestimate the efficacy of their sustainability efforts, whereas confirmation bias could cause them to focus on favourable sustainability metrics selectively.

Interestingly, the effect of bias on decision implementation and adaptation was observed through items like Q53 ("We can quickly and effectively adapt our operations in response to economic or geopolitical disruptions") and Q54 ("Our business model is resilient to fluctuations in market demand and external economic conditions"), both of which had lower adjusted R-square values (0.10 and 0.13, respectively). These lower

values may indicate that while organisations strive for adaptability, cognitive rigidity—anchored in prior strategic frameworks—limits their responsiveness. This rigidity can be linked to cognitive anchoring and status quo bias, where decision-makers undervalue new, potentially disruptive information.

Additionally, operational effectiveness, as reflected in Q58 ("We are effectively controlling costs to enhance our financial performance") and Q60 ("We effectively measure and improve our operational cost-effectiveness and productivity"), displayed moderately strong adjusted R-square values (0.35 and 0.24), further affirming that biases affecting resource allocation and cost control strategies have tangible operational repercussions.

In summary, the survey data indicate that cognitive biases are strongly evident in various facets of strategic decision-making. While specific mechanisms, such as team consultation and fact-checking, aim to mitigate these biases, their inconsistent effectiveness, evidenced by uneven regression outcomes, highlights the pervasive and often subconscious nature of these distortions. The integration of cognitive-behavioural safeguards into strategic frameworks, such as structured decision-making models and bias-awareness training, could therefore play a critical role in enhancing the quality and efficacy of organisational decisions.

The findings from Questions Q22 through Q29 demonstrate the cognitive underpinnings of leadership behaviour, while Q30 through Q62 provide empirical confirmation that these behaviours significantly impact business outcomes. Thus, the data provide a clear link between cognitive processes and strategic decision-making efficacy,

validating the core research hypothesis and contributing to understanding how psychological factors influence complex organisational dynamics.

5.4 Discussion on Research Question 2

What are the long-term implications of cognitive biases on key organisational performance indicators such as profitability, growth, innovation, and competitive advantage?

The results of the empirical analysis provide compelling evidence for the significant long-term impact of cognitive biases on various key performance indicators (KPIs) of organisational success, including profitability, growth, innovation, and competitive advantage. Drawing on the statistical outputs from the survey (specifically questions Q39–Q60), this section synthesises empirical data with theoretical perspectives to elucidate how cognitive biases permeate strategic decisions and produce measurable consequences on long-term organisational outcomes.

Beginning with profitability, questions Q39, Q41, Q52, Q56, and Q57 measured constructs such as improved profit margins, revenue growth, financial health, and achievement of financial targets. These questions demonstrated high correlation coefficients (R ranging from 0.77 to 0.90) and strong R^2 values (from 0.60 to 0.81), suggesting that variations in profitability-related outcomes are strongly explained by the independent variables Q22–Q29, which represent dimensions of cognitive biases like overconfidence, confirmation bias, and anchoring. The strength of these relationships indicates that strategic decisions influenced by biases are not merely momentary lapses in judgement but have enduring financial repercussions. For instance, overconfidence may

lead leaders to underestimate risks or overcommit resources, while confirmation bias can reinforce flawed assumptions about market conditions, leading to misaligned investments and resource allocations.

Growth indicators, including Q42 (customer acquisition), Q43 (market share), and Q45 (sustainability alignment with resource utilisation), also presented substantial R and R^2 values. The statistical relationship between cognitive biases and growth metrics (e.g., $R^2 = 0.56$ for market share and 0.76 for resource utilisation) reveals how biased information processing affects a firm's ability to expand. One possible interpretation is that decision-makers relying on anchoring may excessively weigh past growth trends, ignoring new data contradicting prior success models. This cognitive inertia limits adaptability and stunts opportunities for sustainable scaling. Furthermore, when decisions about resource deployment are driven by heuristics rather than comprehensive analysis, the organisation may fail to optimise asset utilisation—impairing both short-term efficiency and long-term growth trajectories.

Innovation-related outcomes, although more diffuse in the dataset, can be extrapolated from responses to Q46 (investment in sustainable technologies), Q48 (product lifecycle management), Q55 (investment in innovation for resilience), and Q62 (continuous improvement). While these variables yielded moderate R-values (ranging from 0.54 to 0.78), their adjusted R^2 figures suggest that cognitive biases moderately affect innovation capacity. Innovation inherently requires openness to novel ideas and data, a process often undermined by biases such as status quo bias and availability heuristics. For example, status quo bias may dissuade firms from exploring untested strategies, while availability

heuristics might cause over-reliance on easily recalled past events rather than systematic innovation metrics. This restricts ideation pipelines and risk appetite, leading to stagnation over time.

Competitive advantage, examined through items like Q43, Q44, and Q59–Q61, yielded mixed results. While Q43 and Q61 presented strong statistical relationships ($R = 0.75$ and 0.85 respectively), Q44 demonstrated weak explanatory power (Adjusted $R^2 = -0.01$), suggesting variability in how biases influence competitive positioning. This disparity might reflect that some elements of competitive advantage, such as operational efficiency and cost control (Q60, Q61), are more directly influenced by decision-making structures that are susceptible to biases. In contrast, strategic initiatives to gain market share (Q44) might be influenced by external environmental dynamics, diluting the measurable impact of internal cognitive tendencies. Nonetheless, the high correlation observed with Q61 (monitoring and addressing inefficiencies) affirms that biased attention and selective perception could hinder the identification of bottlenecks, thereby weakening long-term competitive positioning.

Importantly, considering the interdependence between decision-making behaviours and strategic performance, these findings must be interpreted. Behavioural strategy scholars such as Gavetti (2017) and Kahneman & Lovallo (1993) suggest that strategic choices shaped by bounded rationality and systematic errors in judgement often have compounding effects. For instance, anchoring on past performance when evaluating future strategic options may lead to underinvestment in emerging markets or technologies, subsequently affecting growth and competitive edge. The regression data support this

notion: cognitive bias predictors consistently explained substantial proportions of the variance in outcomes like revenue growth, cost control, and resilience to disruption (e.g., Q52, Q53, Q54).

Moreover, the influence of cognitive biases on sustainability outcomes, such as in Q45 (resource utilisation), Q46 (waste reduction), and Q48 (environmental impact of design), presents a significant dimension of long-term strategic implications. These responses yielded relatively high R^2 values (e.g., 0.76 for Q45), reinforcing the assertion that biases can shape not just financial decisions but also the broader strategic posture of an organisation toward sustainable value creation. This has implications for the growing emphasis on ESG (Environmental, Social, and Governance) criteria, where myopic or biased decision frameworks may lead firms to underperform in areas increasingly linked to long-term shareholder value.

These findings substantiate the alternative hypothesis (H_1) that cognitive biases have a statistically significant long-term impact on strategic decision-making and organisational performance. They also underscore the nuanced ways these biases affect distinct performance dimensions. For example, while profitability is heavily influenced by overconfidence and confirmation bias, innovation and resilience are more vulnerable to status quo bias and availability heuristics. Such distinctions highlight the importance of developing targeted interventions, including cognitive debiasing strategies, decision-support systems, and structural checks such as diverse leadership teams and pre-mortem analysis.

The integration of these findings with existing literature further strengthens their validity. For instance, studies by Bazerman & Moore (2012) have illustrated that overconfidence and availability bias often lead to overoptimistic forecasting, which aligns with the observed high correlations between cognitive bias predictors and unmet financial targets. Similarly, research by Tversky and Kahneman (1974) on heuristics in judgment corroborates decision-makers' tendency to distort or oversimplify complex strategic contexts, leading to suboptimal performance.

In conclusion, the survey data analysed in this study offer robust empirical support for the long-term consequences of cognitive biases across a broad spectrum of organisational performance metrics. The insights reinforce behavioural decision theory and illuminate practical areas where organisations must intervene to mitigate bias-related risks. Organisations can better align their strategic decisions with long-term performance and sustainability goals by embedding bias awareness into strategic decision-making processes, fostering a culture of critical reflection, and utilising data-driven tools to counteract intuitive errors.

5.5 Discussion on Research Question 3

What contextual or organisational factors mediate or moderate the relationship between cognitive biases and strategic outcomes?

This section explores the moderating and mediating factors within organisations that influence the strength or direction of the relationship between cognitive biases and strategic outcomes. Drawing from the survey data (particularly questions Q30–Q38 and Q53–Q62), this analysis integrates empirical insights with theoretical constructs to

demonstrate how organisational context—such as information processing practices, communication mechanisms, strategic agility, and operational controls—affects how cognitive biases manifest in decision-making and impact key performance indicators.

The foundational premise is that cognitive biases do not act in isolation but interact with organisational situational and structural elements. This interaction either amplifies or buffers the negative implications of such biases on strategic decision quality. The regression results highlight key organisational behaviours and systems that serve as either mediators (mechanisms through which biases influence outcomes) or moderators (factors that strengthen or weaken this relationship).

First, the role of information gathering and validation processes is critical. Questions Q30–Q35 evaluated how leaders source, assess, and cross-verify decision-making data. These items demonstrated strong correlations with cognitive bias indicators (R values ranging from 0.64 to 0.81, and adjusted R^2 up to 0.54). For instance, Q35 ("I cross-check facts carefully before making a decision") had one of the highest adjusted R^2 values, suggesting that rigorous fact-checking significantly moderates the effects of confirmation bias and availability heuristics. When organisations institutionalise mechanisms for validating data, they reduce the reliance on biased heuristics, fostering more objective decision-making. This aligns with research by Hammond et al. (1987), who argue that structured analytic techniques, such as devil's advocacy and pre-mortem analysis, can mitigate the anchoring and confirmation effects often seen in strategic contexts.

Team consultation and expert involvement, as reflected in Q31 and Q32, also emerged as meaningful moderators. These items assess the degree to which decision-makers engage diverse perspectives and collaborative input. Although their adjusted R^2 values were slightly lower (0.21 to 0.29), their significance lies in creating cognitive diversity—a known buffer against groupthink and status quo bias. As Kahneman and Klein (2009) argue, decision environments enriched with varied insights are better positioned to counteract narrow framing and escalation of commitment. Our data supports this: when leaders consistently consult with cross-functional teams or seek external expertise, the variance in biased outcomes reduces, suggesting a moderating effect on cognitive distortion.

Additionally, the effective communication of information (Q38) and its strategic integration (Q36) highlight how internal organisational practices can mediate the relationship between cognition and execution. With R-values of 0.58 and 0.72, respectively, these items show that organisations with strong internal alignment are better able to translate data into action, even if that data is initially biased. This supports the idea that cognitive biases may begin with individuals, but their strategic consequences are mediated by collective organisational processes, including how data is framed, interpreted, and disseminated.

Another pivotal category of moderating factors includes organisational adaptability and resilience, captured in questions Q53–Q55. These items address the ability of firms to respond effectively to disruptions and environmental uncertainty. The regression output indicates moderate relationships (R values between 0.56 and 0.59) with bias constructs,

implying that adaptive capabilities condition the extent to which biased strategic assumptions harm long-term outcomes. For example, organisations with agile operational models can course-correct more swiftly after decisions distorted by overconfidence or anchoring. In other words, resilience acts as a dynamic moderator—it doesn't eliminate the occurrence of bias, but it buffers the damage by enabling faster recovery and reorientation.

Operational effectiveness and continuous improvement, as evaluated through Q60–Q62, further demonstrate how systemic controls serve as ongoing counterweights to biased decision-making. The adjusted R^2 value for Q61 (0.64) is particularly significant—it indicates that organisations that actively monitor bottlenecks and inefficiencies are more likely to detect and correct the downstream impacts of flawed strategic assumptions. This finding aligns with Cyert and March's (2007) behavioural theory of the firm, which asserts that routines and feedback loops enable organisations to learn from errors and recalibrate. Thus, robust performance monitoring systems can be viewed as organisational "immune systems" that mediate the manifestation of cognitive biases into strategic errors.

It is also worth noting the nuanced role of sustainability and social responsibility factors (Q45–Q50). While these were originally assessed for their contribution to long-term performance, they also reveal insights into ethical mediation and organisational values that shape decision-making frameworks. High R-values in Q45 and Q47 (0.87 and 0.78 respectively) suggest that firms committed to sustainable practices are more likely to institutionalise reflective, data-driven decision-making. These values mediate bias impacts by fostering a culture of long-term thinking and accountability, where short-term cognitive shortcuts are deprioritised in favour of deliberative processes.

The analysis shows that several key organisational and contextual factors mediate or moderate the influence of cognitive biases on strategic outcomes. These include:

Information Management Practices – mechanisms for diverse sourcing, cross-validation, and strategic integration of data.

Collaborative Decision-Making – involvement of team consultation and external expert review.

Strategic Agility and Operational Resilience – organisational capabilities for rapid response and adaptability.

Performance Monitoring Systems – continuous process improvements and bottleneck detection.

Sustainability Orientation and Ethical Frameworks – long-term value systems embedded in strategic culture.

These findings validate the conceptual framework underpinning this study, which posited that the relationship between cognition and performance is not linear or direct but shaped by organisational processes and context. They also reinforce the hypothesis (H_1) that cognitive biases significantly impact strategic decision-making, but with the caveat that this impact is contingent upon the organisational architecture in place.

From a practical standpoint, the results suggest that leadership development, decision process design, and cultural interventions can act as high-leverage strategies for mitigating cognitive distortions. Implementing red teaming, scenario planning, and post-decision reviews can provide structural counterweights to biases. Furthermore, promoting

psychological safety and encouraging dissent in strategic discussions can offset conformity and anchoring tendencies.

In summary, the survey analysis provides firm empirical grounding for the argument that contextual and organisational factors play a crucial role in moderating the adverse effects of cognitive biases. These factors serve as both lenses and levers, shaping how biases are expressed and enabling organisations to either amplify or dampen their long-term strategic consequences.

5.6 Discussion on Research Question 4

What are the ethical implications of cognitive biases in strategic decision-making, and how can organisations promote ethical and unbiased decision practices?

While often treated as psychological phenomena impacting individual decision-making, cognitive biases also carry profound ethical implications when embedded in strategic organisational decisions. This research question examines how these biases impact ethical integrity in leadership, resource allocation, stakeholder treatment, and long-term sustainability. It identifies mechanisms through which organisations can promote ethical and unbiased decision-making practices. The insights derived from the survey data, particularly Q45–Q50 (sustainability and social responsibility) and cross-referenced with decision-behaviour indicators from Q30–Q38, underscore a compelling relationship between ethical quality and cognitive clarity.

At the core of ethical implications is the tendency of cognitive biases to undermine fairness, transparency, and accountability in organisational decision-making. Biases such as confirmation bias and overconfidence can cause leaders to dismiss dissenting

perspectives or ignore critical data that contradicts preferred strategies. This often results in unethical behaviour by omission, where harmful consequences are not the result of malicious intent but of bounded rationality. For instance, the data reveals high R-values for questions such as Q45 (R = 0.87) and Q47 (R = 0.78), which measure the integration of sustainability into organisational decision-making and the auditing of environmental impacts, respectively. These high correlations suggest that organisations demonstrating proactive ethical behaviour tend also to have practices that minimise the influence of cognitive biases, thereby promoting more objective and value-driven decisions.

Survey items Q46–Q50 further reinforce this observation. These questions assess corporate social responsibility (CSR) dimensions, including resource efficiency, environmental auditing, inclusion, and training. The adjusted R^2 values for these items range between 0.14 and 0.48, indicating a moderately strong relationship between organisational values and decision outcomes. For example, Q49 ("We are making progress toward our goals for improving workplace diversity and inclusion") had an adjusted R^2 of 0.44, indicating that ethical priorities, such as inclusion, can play a mediating role in reducing bias-driven disparities in decisions. When diversity is embedded within strategic processes, cognitive homogeneity—one of the root causes of systemic bias—is significantly diminished. This finding suggests that moral sensitivity and judgment are enhanced when organisations foster inclusive and reflective cultures.

Another layer of ethical concern is how biases obscure the long-term consequences of decisions. Anchoring on short-term gains, for example, may lead organisations to prioritise immediate profitability over environmental or social well-being. This is

supported by results from Q48 and Q50, which probe how well sustainability and social goals are integrated into the product lifecycle and employee training. Their relatively lower adjusted R^2 values (0.14–0.16) suggest that without deliberate structural efforts, ethical concerns are often overshadowed by more pressing performance indicators, allowing biases to thrive under the guise of efficiency. As Bazerman and Tenbrunsel (2012) argue in "Blind Spots," ethical fading occurs when cognitive biases lead individuals to rationalise morally questionable decisions as pragmatically necessary. This presents a significant challenge in corporate governance and compliance.

Importantly, ethical behaviour is about avoiding harm and promoting fairness, justice, and transparency in strategic choices. When biases remain unchallenged, they can lead to discriminatory hiring practices, inequitable resource allocation, or corrupt procurement and lobbying practices. These outcomes are not simply "bad decisions"; they represent breaches of organisational integrity. The relatively high correlations observed in questions assessing diversity (Q49) and training alignment with corporate social responsibility (CSR) (Q50) indicate that organisations with strong ethical backbones are more likely to invest in systems that counteract implicit biases. This includes unconscious bias training, structured decision protocols, and ethical auditing practices for compliance and moral purposes.

The broader implication is that ethics and cognition are interdependent in strategic contexts. Ethical awareness enhances cognitive objectivity, and mental clarity supports ethical reasoning. Therefore, promoting ethical decision-making is also a method for reducing bias. This dual benefit is evident in organisations that practise transparent

communication and open dialogue, as examined in Q38 ("I ensure that the information is effectively communicated within the organisation"). Although its adjusted R^2 was lower (0.12), the question highlights the role of transparent, information-rich environments in encouraging ethical deliberation. As scholars like Treviño and Brown (2005) suggest, moral leadership and open culture serve as systemic checks on individual biases.

Considering the findings, it becomes evident that fostering an ethical decision-making environment requires multifaceted strategies aimed at both individual cognition and institutional design. These include:

Ethics Training and Awareness Campaigns – Focused on recognising and mitigating cognitive biases, especially in high-stakes decisions.

Inclusive Decision Structures – Involving diverse stakeholders to reduce groupthink and increase exposure to alternative viewpoints.

Ethical Auditing and Monitoring – Regular assessments of decisions' ethical implications, particularly in sustainability and social equity areas.

Transparency and Communication Norms – Ensuring data is shared openly, and deliberation is encouraged to reduce hidden biases.

Long-Term Incentive Systems – Aligning rewards with ethical behaviours and sustainable outcomes reduces short-termism.

Furthermore, ethics committees, whistle-blower policies, and third-party reviews can be formal governance mechanisms to flag bias-influenced ethical breaches before they escalate. These structures serve a dual role: they monitor ethical compliance and educate decision-makers about how biases can skew moral judgment. As decision science evolves

to integrate behavioural ethics, there is growing consensus that cognitive interventions (e.g., nudges, debiasing prompts) must be complemented by ethical scaffolding.

Ultimately, the ethical implications of cognitive biases extend beyond individual responsibility; they demand systemic vigilance. The findings affirm the hypothesis that cognitive biases have a significant and measurable effect on performance and organisational ethics. They also show that ethical lapses caused by cognitive distortions can be mitigated by designing decision environments that encourage reflection, inclusiveness, and transparency.

In conclusion, the survey data presents a compelling case for ethical frameworks as both a means and an end in strategic decision-making. By recognising cognitive biases as ethical risks—not merely psychological phenomena—organisations can take more deliberate steps to embed integrity into their leadership models and strategic practices. This approach safeguards the organisation from reputational damage and regulatory breaches and builds a culture of trust, fairness, and long-term value creation.

5.7 Summary

This chapter has presented a comprehensive discussion of the research findings, offering insights into the profound influence of cognitive biases on strategic decision-making within organisations. Drawing on both empirical data and theoretical constructs, the analysis highlights the extent to which unconscious mental shortcuts shape managerial judgments and actions. These biases, though often subtle and difficult to detect, can significantly distort strategic thinking, leading to flawed assumptions, constrained innovation, and inconsistent organisational outcomes.

The results reveal that cognitive biases are not isolated phenomena but are embedded in broader organisational dynamics. Their impact is observable not only in decision-making processes but also in long-term performance indicators such as profitability, growth, and competitiveness. Organisations with clearer awareness and mitigation strategies tend to perform more consistently, underscoring the tangible consequences of unexamined cognitive patterns. Moreover, the findings suggest that organisational structures and practices, such as feedback mechanisms, knowledge-sharing cultures, and investment in innovation, play a vital role in moderating the influence of these biases.

Ethical considerations deepen the analysis by revealing how cognitive distortions can lead to ethical blind spots, particularly in decision-making contexts that lack diversity, inclusivity, or transparency. Ensuring ethical governance and decision integrity requires more than formal compliance—it demands cognitive awareness, structural reinforcement, and a sustained commitment to improvement. This chapter integrates empirical findings with theoretical perspectives, highlighting the value of a comprehensive approach to managing cognitive bias in strategic contexts. By linking theory and practice, the discussion lays the groundwork for more resilient, ethical, and high-performing decision-making frameworks suited to the complexity of modern organisational environments.

CHAPTER VI:

DISCUSSION SUMMARY IMPLICATIONS AND RECOMMENDATION

6.1 Summary

This study examines the role of cognitive biases in strategic decision-making and their implications for organisational performance, sustainability, and ethical integrity. Drawing from established behavioural decision theories and cognitive psychology, the research focused on four key areas: the manifestation of cognitive biases within decision-making processes, their long-term impact on performance indicators, the contextual or organisational factors that mediate or moderate these effects, and the ethical consequences of such biases. Using a comprehensive survey instrument targeting organisational leaders and decision-makers, the study employed quantitative regression analysis to identify significant patterns and correlations within the data.

The findings provide strong empirical support for the premise that cognitive biases are deeply embedded in organisational decision-making processes. Decision-makers often rely on mental shortcuts or heuristics—whether consciously or unconsciously—that shape how information is gathered, processed, and acted upon. Notably, biases such as overconfidence, confirmation bias, anchoring, and hindsight bias emerged as dominant tendencies. These biases influenced strategic behaviours, such as reliance on diverse information sources (Q30), team consultation (Q32), expert opinion (Q31), and validation processes, including fact-checking and cross-referencing (Q35). Strong R and R^2 values in the regression outputs indicate a significant explanatory power of cognitive biases on these dependent variables.

Beyond the decision-making stage, the long-term consequences of cognitive biases were observed across critical organisational performance metrics. Key indicators such as profitability (Q39, Q56), revenue growth (Q41, Q57), innovation and adaptability (Q42, Q53), and operational efficiency (Q60, Q61) were all found to be significantly influenced by the presence or mitigation of cognitive distortions. For example, decisions made under the influence of overconfidence or confirmation bias often lead to suboptimal investments or resistance to feedback, thereby compromising long-term growth and innovation. High regression values for questions measuring financial sustainability, strategic adaptability, and performance control reinforced the argument that cognitive biases are not short-lived or benign—they produce measurable, often adverse, outcomes over time.

The research also investigated the mediating and moderating role of contextual factors within organisations. Variables such as leadership structure, diversity in strategic teams, feedback mechanisms, and organisational learning culture play a crucial role in either amplifying or neutralising the effects of biases. For instance, teams that encouraged open dialogue and critical thinking were better positioned to identify and mitigate the impact of anchoring and confirmation bias. Likewise, organisations with robust data validation and scenario-planning practices were more resilient in the face of hindsight bias or groupthink. These findings highlight that while cognitive biases are inherent to human decision-making, their organisational impact is largely influenced by systemic and cultural variables. In this way, the study aligns with existing theories of bounded rationality while extending them into modern strategic management practice.

A distinct and important dimension of this research was the ethical implications of cognitive biases. When left unchecked, these biases can contribute to unethical behaviours such as selective transparency, reinforcement of personal or managerial agendas, exclusion of dissenting voices, and decisions that compromise stakeholder interests. Ethical lapses, although sometimes unintentional, can erode trust and moral legitimacy in leadership. The study revealed that the same cognitive distortions that impair strategic judgement also affect how ethical considerations are weighed. In organisations where ethical decision-making frameworks were weak or underutilised, biases were more likely to lead to morally questionable outcomes. This underscores the need for an ethical lens when evaluating strategic decision-making processes, particularly when decisions carry far-reaching consequences for people, communities, and the environment.

Crucially, the survey responses supported the hypothesis that cognitive biases have a statistically significant long-term impact on strategic decision-making and organisational outcomes. The regression analyses consistently showed high levels of correlation and predictability between cognitive bias-related variables (Q22 to Q29) and a broad range of dependent variables (Q30 to Q62) encompassing decision practices, financial health, adaptability, and sustainability. These results led to the rejection of the null hypothesis and confirmed the central assertion of this research: Cognitive biases have a significant long-term impact on strategic decision-making, leading to measurable effects on organisational performance and sustainability.

This comprehensive study makes significant contributions to both the academic literature and managerial practice in several meaningful ways. Theoretically, it provides

quantitative reinforcement to decades of research in cognitive psychology and behavioural economics by applying these frameworks to the realm of strategic management. Practically, it offers a diagnostic toolset for organisations to identify areas of vulnerability to cognitive bias and introduces actionable pathways for mitigation through training, structural reforms, and ethical reinforcement mechanisms. The triangulation of findings with the conceptual framework further supports a multidimensional understanding of how individual cognition, organisational context, and strategic outcomes are intertwined.

In conclusion, the findings presented in this study establish a foundational link between cognitive biases and long-term organisational outcomes, providing critical insights into the nature of strategic thinking in real-world settings. By correlating statistical analysis with behavioural theory and ethical reasoning, this research not only enriches scholarly discourse but also equips practitioners with the knowledge to make more informed, inclusive, and ethical decisions. The insights from this study have the potential to reshape how leaders understand their cognitive processes, encouraging a shift from intuition-based to evidence-informed strategic management practices.

6.2 Implications

Cognitive Bias Implications: These biases, with high loadings, highlight the risk of decision-makers relying heavily on their judgment, being anchored to initial data, favouring confirmatory information, or assuming they can predict outcomes. These tendencies can skew decisions, potentially leading to missed opportunities or avoidable risks.

Decision-Making Process Implications: High loadings on information gathering and evaluation questions demonstrate the organisation's commitment to robust decision-making processes. This structured approach helps mitigate the influence of cognitive biases, promoting more objective and balanced decisions.

Business Outcomes Implications: High loadings in this area reflect a positive perception of business outcomes, likely due to strategic decisions. However, these perceptions may be skewed by biases like overconfidence and hindsight, which could lead to overly optimistic assessments of future performance and reduced focus on adapting strategies based on market feedback.

Long-Term Sustainability Implications: The high loadings on sustainability practices reflect a robust organisational focus on environmental and financial sustainability. Regular auditing and efficient resource utilization can counteract biases like confirmation and anchoring, helping leaders adapt to new information rather than sticking rigidly to initial sustainability metrics.

Financial Performance Implications: High financial performance loadings suggest confidence in profitability and cost control. However, regular, unbiased reviews are necessary to ensure these perceptions remain realistic and are not overly influenced by cognitive biases.

6.3 Recommendation for Future Research

The study of cognitive biases in organisational decision-making has grown significantly, yet it remains a complex field with many unexplored areas. Cognitive biases, such as overconfidence, confirmation, anchoring, and hindsight, can shape the quality of

decisions, affecting everything from risk assessment to long-term strategic planning. Despite advances in understanding the types of biases and their immediate impacts, further research is essential to deepen insights, especially regarding organisational, ethical, and cultural factors that influence the role of biases in business environments. Still, many research areas remain open for study. A few of these are discussed below.

Investigating Longitudinal Effects of Cognitive Biases on Organisational Resilience: Understanding the longitudinal effects of cognitive biases would allow organisations to design resilience-building practices that address the root causes of biased decision-making. Such research could provide evidence for incorporating regular bias assessments and adaptive strategies into organisational resilience frameworks, ultimately strengthening an organisation's ability to weather changes and challenges.

Exploring the Role of Cognitive Biases in Ethical Decision-Making: Research in this area could provide ethical guidelines and frameworks that mitigate biases in decision-making. As organisations increasingly prioritize ethical practices and social responsibility, this research would support efforts to align business strategies with ethical standards and foster a culture of integrity.

Developing Bias Mitigation Techniques Using Technology and AI: Technology-driven solutions for bias mitigation could revolutionise how organisations handle decision-making. Research in this area could pave the way for decision-support tools that flag potential biases and provide actionable suggestions for more balanced, objective choices. Such tools could improve decision quality and support ethical and strategic goals, especially in sectors where biases can have significant societal impacts.

Examining Organisational Factors that Influence Cognitive Biases: Findings in this area could guide the design of organisational structures and leadership training programs that minimize the impact of cognitive biases. Organisations could use these insights to foster cultures that value diverse perspectives, reducing the risk of biased decision-making and supporting innovation.

6.4 Conclusion

The study underscores cognitive biases' significant role in shaping organisational decision-making processes, with profound implications for both short-term strategic actions and long-term outcomes. The study identifies critical biases-overconfidence, confirmation, anchoring, and hindsight – influencing leaders' judgments, often leading to decisions prioritising immediate gains over adaptability and sustainability. By overestimating their predictive abilities (overconfidence), selectively affirming pre-existing beliefs (confirmation bias), over-relying on initial information (anchoring bias), and retrospectively viewing outcomes as inevitable (hindsight bias), decision-makers risk compromising the objective quality of their choices.

The findings also highlight the importance of mediating and moderating factors, such as robust information-gathering processes, sustainability practices, and financial stability, that can counterbalance these biases. The high reliability of the data (Cronbach's alpha of 0.94) indicates consistent respondent perceptions across questions, reinforcing the reliability of these factors in supporting ethical and resilient decision-making. By leveraging these factors, organisations can mitigate biases, foster inclusivity and transparency, and promote a critical evaluation and accountability culture. Additionally,

the ethical implications of these biases suggest a need for structured decision frameworks and reflective practices to maintain integrity in organisational operations, especially where biases may lead to selective transparency, diminished accountability, and inflexible strategic perspectives.

This study calls for active strategies to recognise and counteract cognitive biases in decision-making. Encouraging diverse perspectives, enhancing critical evaluation, and embedding accountability mechanisms can strengthen organisational resilience, enabling firms to adapt and thrive in a complex business landscape.

Future research should explore the longitudinal effects of biases on organisational resilience, develop AI-driven mitigation techniques, and examine ethical considerations to foster a deeper, more practical understanding of cognitive biases in strategic decision-making.

APPENDIX A

SURVEY COVER LETTER

I'm Bipin Taksande, a Research Scholar at the Swiss School of Business and Management, Geneva. I am working on my thesis, "Cognitive Biases and Its Impact on Strategic Business Decision." This research explores how cognitive biases influence strategic decision-making processes and their long-term effects on an organisation's sustainability and performance.

As part of this research, I am surveying to gather insights from professionals involved in strategic decision-making within their organisations. Your experience and perspective would be invaluable to this study, and I would greatly appreciate your participation in this survey.

The survey is designed to take approximately 15-20 minutes of your time. Your responses will be kept confidential and used solely for academic purposes. The findings of this research will be presented in aggregate form, ensuring that no individual or organisation can be identified.

To participate in the survey, please click on the following link: https://lnkd.in/dcgqtpxz

Participating in this survey will contribute to a deeper understanding of cognitive biases' impact on strategic decision-making and help develop strategies to mitigate these biases, ultimately enhancing organisational performance and sustainability.

I understand that your time is valuable, and I genuinely appreciate your willingness to contribute to this research. If you have any questions or require further information about the study, please do not hesitate to contact my professor @david.annan@ssbm.ch

Thank you in advance for your participation and valuable insights.

Sincerely,

Bipin Gautam Taksande
Doctor of Business Administration
Swiss School of Business and Management

APPENDIX B

INFORMED CONSENT

COGNITIVE BIASES AND IT'S IMPACT ON STRATEGIC BUSINESS DECISIONS

I, ..., agree to be interviewed for the research which will be conducted by **.....,** a doctorate student at the Swiss School of Business and Management, Geneva, Switzerland.

I certify that I have been told of the confidentiality of information collected for this research and the anonymity of my participation; that I have been given satisfactory answers to my inquiries concerning research procedures and other matters; and that I have been advised that I am free to withdraw my consent and to discontinue participation in the research or activity at any time without prejudice.

I agree to participate in one or more **electronically recorded** interviews for this research. I understand that such interviews and related materials will be kept completely anonymous and that the results of this study may be published in any form that best serves the purpose. I agree that any information obtained from this research may be used in any way that is thought best for this study.

....

Signature of Interviewee **Date**

REFERENCES

Acciarini, C., Brunetta, F. and Boccardelli, P. (2020) 'Cognitive biases and decision-making strategies in times of change: a systematic literature review,' *Management Decision*, 59(3), pp. 638–652. https://doi.org/10.1108/md-07-2019-1006.

Ahi, A. *et al.* (2017) 'International Market Entry: How Do Small and Medium-Sized Enterprises Make Decisions?,' *Journal of International Marketing*, 25(1), pp. 1–21. https://doi.org/10.1509/jim.15.0130.

Althubaiti, A. (2016) Information Bias in Health Research Definition, Pitfalls, and Adjustment Methods. Journal of Multidisciplinary Healthcare, 9, 211. - References - Scientific Research Publishing (no date). https://www.scirp.org/reference/referencespapers?referenceid=2707805.

Asaoka, D. (2019) *Behavioral analysis of mergers and acquisitions decisions*. https://virtusinterpress.org/Behavioral-analysis-of-mergers-and-acquisitions-decisions.html.

Baddeley, A., Eysenck, M.W. and Anderson, M.C. (2025) *Memory*. Taylor & Francis.

Bazerman, M.H. and Moore, D.A. (2012) *Judgment in managerial decision making*. John Wiley & Sons.

Bazerman, M.H. and Tenbrunsel, A.E. (2012) *Blind spots: Why We Fail to Do What's Right and What to Do about It*. Princeton University Press.

Bernault, C. *et al.* (2023) 'Assessing the Impact of Cognitive Biases in AI Project Development,' *Lecture Notes in Computer Science*, pp. 401–420. https://doi.org/10.1007/978-3-031-35891-3_24.

Bernoster, I. *et al.*, (2018) 'Overconfidence, Optimism and Entrepreneurship,' *Sustainability*, 10(7), p. 2233. https://doi.org/10.3390/su10072233.

Berthet, V. (2022) 'The Impact of Cognitive Biases on Professionals' Decision-Making: A review of four occupational areas,' *Frontiers in Psychology*, 12. https://doi.org/10.3389/fpsyg.2021.802439.

Birt, L. *et al.* (2016) 'Member checking,' *Qualitative Health Research*, 26(13), pp. 1802–1811. https://doi.org/10.1177/1049732316654870.

Bogan, V.L. and Just, D.R. (2009) 'What drives merger decision making behavior? Don't seek, don't find, and don't change your mind,' *Journal of Economic Behavior & Organization*, 72(3), pp. 930–943. https://doi.org/10.1016/j.jebo.2009.08.007.

Bounded rationality (2002). https://doi.org/10.7551/mitpress/1654.001.0001.

Braun, V. and Clarke, V. (2021) 'Conceptual and design thinking for thematic analysis.,' *Qualitative Psychology*, 9(1), pp. 3–26. https://doi.org/10.1037/qup0000196.

Brihaye, T. *et al.*, (2025) *Risk-aware Markov decision processes using cumulative prospect theory*. https://arxiv.org/abs/2505.09514.

Broman, K.W. and Woo, K.H. (2017) 'Data organization in spreadsheets,' *The American Statistician*, 72(1), pp. 2–10. https://doi.org/10.1080/00031305.2017.1375989.

Brown, M.E., Treviño, L.K. and Harrison, D.A. (2005) 'Ethical leadership: A social learning perspective for construct development and testing,' *Organizational Behavior and Human Decision Processes*, 97(2), pp. 117–134. https://doi.org/10.1016/j.obhdp.2005.03.002.

Calabretta, G., Gemser, G. and Wijnberg, N.M. (2016) 'The Interplay between Intuition and Rationality in Strategic Decision Making: A Paradox Perspective,' *Organization Studies*, 38(3–4), pp. 365–401. https://doi.org/10.1177/0170840616655483.

Caruana, E.J. *et al.* (2015) 'Longitudinal studies.,' *PubMed*, 7(11), pp. E537-40. https://doi.org/10.3978/j.issn.2072-1439.2015.10.63.

Ciriello, R.F. and Loss, S. (2023) 'The yea-paradox: Cognitive bias in technology acceptance surveys,' *Information and Software Technology*, 161, p. 107253. https://doi.org/10.1016/j.infsof.2023.107253.

Coccia, M. (2020) *Critical Decisions in Crisis Management: Rational Strategies of Decision Making*. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3651245.

Cristofaro, M. *et al.*, (2023) 'Unlocking the sustainability of medium enterprises: A framework for reducing cognitive biases in sustainable performance management,' *Journal of Management & Organization*, pp. 1–31. https://doi.org/10.1017/jmo.2023.55.

Cyert, R.M., Feigenbaum, E.A. and March, J.G. (2007) 'Models in a behavioral theory of the firm,' *Systems Research and Behavioral Science*, 4(2), pp. 81–95. https://doi.org/10.1002/bs.3830040202.

Deshpande, R. (2025) *Decision Making with Data*. Educohack Press.

Ehrlinger, J., Readinger, W. and Kim, B. (2016) 'Decision-Making and cognitive biases,' in *Elsevier eBooks*, pp. 5–12. https://doi.org/10.1016/b978-0-12-397045-9.00206-8.

Evans, J.R. and Mathur, A. (2018) 'The value of online surveys: a look back and a look ahead,' *Internet Research*, 28(4), pp. 854–887. https://doi.org/10.1108/intr-03-2018-0089.

Fasolo, B., Heard, C. and Scopelliti, I. (2024) 'Mitigating cognitive bias to improve organizational decisions: An integrative review, framework, and research agenda,' *Journal of Management* [Preprint]. https://doi.org/10.1177/01492063241287188.

Field, A.P. (2018) Discovering Statistics Using IBM SPSS Statistics. 5th Edition, Sage, Newbury Park. - References - Scientific Research Publishing (no date). https://www.scirp.org/reference/referencespapers?referenceid=3504991.

Frank, D., Chrysochou, P. and Mitkidis, P. (2022) 'The paradox of technology: Negativity bias in consumer adoption of innovative technologies,' *Psychology & Marketing*, 40(3), pp. 554–566. https://doi.org/10.1002/mar.21740.

Gavetti, G., Helfat, C.E. and Marengo, L. (2017) 'Searching, Shaping, and the Quest for Superior Performance,' *Strategy Science*, 2(3), pp. 194–209. https://doi.org/10.1287/stsc.2017.0036.

Gigerenzer, G. and Selten, R. (no date) *Bounded Rationality: The Adaptive Toolbox*. MIT Press.

Gonçalves, E., Rocha, A. and Reis, R. (2022) 'The key to knowledge: evaluating the role of gatekeepers on regional inventive performance,' *The Journal of Technology Transfer*, 48(4), pp. 1274–1299. https://doi.org/10.1007/s10961-022-09967-5.

Gonzalez-Ramirez, J., Arora, P. and Podesta, G. (2018) 'Using Insights from Prospect Theory to Enhance Sustainable Decision Making by Agribusinesses in Argentina,' *Sustainability*, 10(8), p. 2693. https://doi.org/10.3390/su10082693.

Greene, J.D. *et al.* (2001) 'An FMRI investigation of emotional engagement in moral judgment,' *Science*, 293(5537), pp. 2105–2108. https://doi.org/10.1126/science.1062872.

Hair, J.F., Risher, J.J., Sarstedt, M. and Ringle, C.M. (2019) When to Use and How to Report the Results of PLS-SEM. European Business Review, 31, 2-24. - References - Scientific Research Publishing (no date). https://www.scirp.org/reference/referencespapers?referenceid=2829078.

Hammond, K.R. *et al.* (1987) 'Direct comparison of the efficacy of intuitive and analytical cognition in expert judgment,' *IEEE Transactions on Systems Man and Cybernetics*, 17(5), pp. 753–770. https://doi.org/10.1109/tsmc.1987.6499282.

Han, Y. (2022) 'Personality, Cognitive Bias and Entrepreneur Decision-making,' *Advances in Economics, Business and Management Research/Advances in Economics, Business and Management Research* [Preprint]. https://doi.org/10.2991/aebmr.k.220603.073.

Hirshleifer, D., Teoh, S.H. and Low, A. (2011) 'Are Overconfident CEOs Better Innovators?,' *Social Science Research Network* [Preprint]. https://doi.org/10.2139/ssrn.1598021.

Hollender, L., Zapkau, F.B. and Schwens, C. (2017) 'SME foreign market entry mode choice and foreign venture performance: The moderating effect of international experience and product adaptation,' *International Business Review*, 26(2), pp. 250–263. https://doi.org/10.1016/j.ibusrev.2016.07.003.

Holmgren, M. *et al.* (2018) 'When A+B < A: Cognitive Bias in Experts' Judgment of Environmental Impact,' *Frontiers in Psychology*, 9. https://doi.org/10.3389/fpsyg.2018.00823.

Holmgren, M. *et al.* (2019) 'Deceptive sustainability: Cognitive bias in people's judgment of the benefits of CO2 emission cuts,' *Journal of Environmental Psychology*, 64, pp. 48–55. https://doi.org/10.1016/j.jenvp.2019.05.005.

Joshi, A. *et al.* (2015) 'Likert scale: explored and explained,' *British Journal of Applied Science & Technology*, 7(4), pp. 396–403. https://doi.org/10.9734/bjast/2015/14975.

Kahneman, D. and Klein, G. (2009) 'Conditions for intuitive expertise: A failure to disagree.,' *American Psychologist*, 64(6), pp. 515–526. https://doi.org/10.1037/a0016755.

Kahneman, D. and Lovallo, D. (1993) 'Timid Choices and bold Forecasts: A Cognitive Perspective on Risk taking,' *Management Science*, 39(1), pp. 17–31. https://doi.org/10.1287/mnsc.39.1.17.

Kahneman, D. and Tversky, A. (1979) 'Prospect Theory: An Analysis of Decision under Risk,' *Econometrica*, 47(2), p. 263. https://doi.org/10.2307/1914185.

Khattar, R. and Gallo, E. (2023) 'How do Cognitive Biases affect Strategic Decision Making in SME's and How can they Avoid their Mistakes made Due to such Biases,' *Journal of Student Research*, 12(1). https://doi.org/10.47611/jsrhs.v12i1.4150.

Knox, S. (2004) 'Positioning and branding your organisation,' ˜ *the œJournal of Product & Brand Management/Journal of Product & Brand Management*, 13(2), pp. 105–115. https://doi.org/10.1108/10610420410529735.

Krämer, W. (2013) 'Kahneman, D. (2011): Thinking, Fast and Slow,' *Statistical Papers*, 55(3), p. 915. https://doi.org/10.1007/s00362-013-0533-y.

Larson, R.B. (2018) 'Controlling social desirability bias,' *International Journal of Market Research*, 61(5), pp. 534–547. https://doi.org/10.1177/1470785318805305.

Liedtka, J. (2014) 'Perspective: Linking Design Thinking with Innovation Outcomes through Cognitive Bias Reduction,' ˜ *the œJournal of Product Innovation Management*, 32(6), pp. 925–938. https://doi.org/10.1111/jpim.12163.

Lovallo, D. and Sibony, O. (2010) *The case for behavioral strategy*. https://www.mckinsey.com/capabilities/strategy-and-corporate-finance/our-insights/the-case-for-behavioral-strategy.

Maher, C. *et al.* (2018) 'Ensuring Rigor in Qualitative Data Analysis,' *International Journal of Qualitative Methods*, 17(1). https://doi.org/10.1177/1609406918786362.

Miller, G.P. and Rosenfeld, G. (2009) *Intellectual Hazard: How Conceptual Biases in Complex Organizations Contributed to the Crisis of 2008*. https://www.semanticscholar.org/paper/Intellectual-Hazard%3A-How-Conceptual-Biases-in-to-of-Miller-Rosenfeld/7efbeacac6d7b89b341a2a5105a7eb82dd45a5d6.

Murata, A., Nakamura, T. and Karwowski, W. (2015) 'Influence of Cognitive Biases in Distorting Decision Making and Leading to Critical Unfavorable Incidents,' *Safety*, 1(1), pp. 44–58. https://doi.org/10.3390/safety1010044.

Nuijten, A.L.P. *et al.* (2020) 'Cognitive Biases in Critical Decisions Facing SME Entrepreneurs: An External Accountants' Perspective,' *Administrative Sciences*, 10(4), p. 89. https://doi.org/10.3390/admsci10040089.

Parnell, J.A. and Crandall, W. (2017) 'The contribution of behavioral economics to crisis management decision-making,' *Journal of Management & Organization*, 26(4), pp. 585–600. https://doi.org/10.1017/jmo.2017.60.

Paulus, D., Fathi, R., *et al.* (2022) 'On the Interplay of Data and Cognitive Bias in Crisis Information Management,' *Information Systems Frontiers* [Preprint]. https://doi.org/10.1007/s10796-022-10241-0.

Paulus, D., De Vries, G., *et al.* (2022) 'The influence of cognitive bias on crisis decision-making: Experimental evidence on the comparison of bias effects between crisis decision-maker groups,' *International Journal of Disaster Risk Reduction*, 82, p. 103379. https://doi.org/10.1016/j.ijdrr.2022.103379.

Paulus, D. *et al.* (2023) 'Reinforcing data bias in crisis information management: The case of the Yemen humanitarian response,' *International Journal of Information Management*, 72, p. 102663. https://doi.org/10.1016/j.ijinfomgt.2023.102663.

Petticrew, M. *et al.* (2020) 'Dark Nudges and Sludge in Big Alcohol: Behavioural Economics, Cognitive Biases, and Alcohol Industry Corporate Social Responsibility,' *the Milbank Quarterly*, 98(4), pp. 1290–1328. https://doi.org/10.1111/1468-0009.12475.

Phillips-Wren, G., Power, D. and Mora, M. (2019) 'Cognitive bias, decision styles, and risk attitudes in decision making and DSS,' *Journal of Decision Systems*, 28(2), pp. 63–66. https://doi.org/10.1080/12460125.2019.1646509.

Queirós, A., Faria, D., & Almeida, F. (2017). Strengths and Limitations of Qualitative and Quantitative Research Methods. European Journal of Education Studies, 3, 369-387. - References - Scientific Research Publishing (no date). https://www.scirp.org/reference/referencespapers?referenceid=2805727.

Rastogi, C. *et al.* (2022) 'Deciding fast and slow: The role of cognitive biases in AI-assisted decision-making,' *Proceedings of the ACM on Human-Computer Interaction*, 6(CSCW1), pp. 1–22. https://doi.org/10.1145/3512930.

Saunders, M.N. *et al.* (2019) '‘Research Methods for Business Students’ Chapter 4: Understanding research philosophy and approaches to...,' *ResearchGate* [Preprint]. https://www.researchgate.net/publication/330760964_Research_Methods_for_Business_Students_Chapter_4_Understanding_research_philosophy_and_approaches_to_theory_development.

Schebesch, K.B. and Șoim, H. (2022) 'Entrepreneurship, Behavioral Biases, and Ethics: Are They Instrumental for Overcoming Crises?,' in *Springer proceedings in business and economics*, pp. 63–83. https://doi.org/10.1007/978-3-030-82755-7_5.

Sharma, S. (2024) 'Benefits or concerns of AI: A multistakeholder responsibility,' *Futures*, 157, p. 103328. https://doi.org/10.1016/j.futures.2024.103328.

Shuraida, S. and Titah, R. (2023) 'An examination of cloud computing adoption decisions: Rational choice or cognitive bias?,' *Technology in Society*, 74, p. 102284. https://doi.org/10.1016/j.techsoc.2023.102284.

Silver, M.S. (1990) 'Decision Support Systems: Directed and Nondirected Change,' *Information Systems Research*, 1(1), pp. 47–70. https://doi.org/10.1287/isre.1.1.47.

Simon, H.A. (1997) *Models of bounded rationality*. https://doi.org/10.7551/mitpress/4711.001.0001.

St B T Evans, J. and Stanovich, K.E. (2013) 'Dual-Process theories of higher cognition,' *Perspectives on Psychological Science*, 8(3), pp. 223–241. https://doi.org/10.1177/1745691612460685.

Taherdoost, H. (2016) 'Validity and reliability of the research instrument; How to test the validation of a Questionnaire/Survey in a research,' *SSRN Electronic Journal* [Preprint]. https://doi.org/10.2139/ssrn.3205040.

Tavakol, M. and Dennick, R. (2011) 'Making sense of Cronbach's alpha,' *International Journal of Medical Education*, 2, pp. 53–55. https://doi.org/10.5116/ijme.4dfb.8dfd.

Thomas, D.E. *et al.* (2007) *Experience of emerging market firms: The role of cognitive bias in developed market entry and survival*. https://www.semanticscholar.org/paper/Experience-of-emerging-market-firms%3A-The-role-of-in-Thomas-Eden/0daf6e8554b534e18f142ae07cfadcdefab921a2.

Tversky, A. and Kahneman, D. (1974) 'Judgment under Uncertainty: Heuristics and Biases,' *Science*, 185(4157), pp. 1124–1131. https://doi.org/10.1126/science.185.4157.1124.

Tversky, A. and Kahneman, D. (1981) 'The framing of decisions and the psychology of choice,' *Science*, 211(4481), pp. 453–458. https://doi.org/10.1126/science.7455683.

Wilkinson, M.D. *et al.* (2016) 'The FAIR Guiding Principles for scientific data management and stewardship,' *Scientific Data*, 3(1). https://doi.org/10.1038/sdata.2016.18.

Xiao, H. (2020) 'Anchoring in international merger and acquisition equity decisions: evidence from Chinese firms,' *Baltic Journal of Management*, 15(3), pp. 395–410. https://doi.org/10.1108/bjm-04-2019-0124.

Yousaf, A.A., Rehman, U. and Danish, M.U. (2025) *Seeing through risk: a symbolic approximation of prospect theory*. https://arxiv.org/abs/2504.14448.

Zhang, H., Van Der Bij, H. and Song, M. (2020) 'Can cognitive biases be good for entrepreneurs?,' *International Journal of Entrepreneurial Behaviour & Research*, 26(4), pp. 793–813. https://doi.org/10.1108/ijebr-03-2019-0173.

Zhu, S. *et al.* (2023) 'Product Pricing and Design Strategy in Platform-Based Collaborative Innovation With Cognitive Bias,' *International Journal of Electronic Commerce*, 27(2), pp. 236–269. https://doi.org/10.1080/10864415.2023.2184240.