

**Supply Chain Transformation – Enhancing the supply  
chain sustainability performance through the S&OP  
process**

By

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## DECLARATION

I certify that, unless explicitly acknowledged, the entirety of the work is solely attributable to the author. The material has not been previously presented, either in its entirety or partially, for consideration for any other academic recognition. The thesis content is the outcome of research conducted since the official commencement of the approved research program. Any third-party editorial contributions, whether compensated or voluntary, are duly recognised. Additionally, ethical procedures and guidelines have been adhered to throughout the process.

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# TABLE OF CONTENTS

<b>DECLARATION .....</b>	<b>II</b>
<b>ACKNOWLEDGEMENTS.....</b>	<b>III</b>
<b>TABLE OF CONTENTS .....</b>	<b>V</b>
<b>LIST OF FIGURES .....</b>	<b>XV</b>
<b>LIST OF TABLES .....</b>	<b>XVIII</b>
<b>PUBLICATIONS.....</b>	<b>XX</b>
<b>ABSTRACT .....</b>	<b>XXI</b>
<b>CHAPTER 1 INTRODUCTION .....</b>	<b>1</b>
1.1 OBJECTIVE .....	1
1.2 INTRODUCTION .....	1
1.3 RESEARCH RATIONALE.....	2
1.4 RESEARCH OBJECTIVE.....	3
1.5 RESEARCH QUESTIONS .....	4
1.6 RESEARCH METHODOLOGY .....	5
1.7 STRUCTURE OF THE THESIS .....	6
1.8 THEORETICAL FRAMEWORK.....	7
1.9 LIMITATION OF SCOPE .....	9
1.10 THESIS CONTRIBUTION TO LITERATURE AND PRACTICE.....	9
1.11 TERMS AND DEFINITIONS.....	10
1.12 SUMMARY .....	10
<b>CHAPTER 2 RESEARCH CONTEXT .....</b>	<b>12</b>

2.1 OBJECTIVE .....	12
2.2 THE PRESENCE OF A SUSTAINABILITY AGENDA IN THE INDUSTRY .....	12
2.2.1 <i>Industrialisation and Environment</i> .....	12
2.2.2 <i>The Sustainability Agenda</i> .....	14
2.2.3 <i>Embedding the Sustainability Agenda</i> .....	15
2.2.4 <i>The Australian Government and the Sustainability Agenda in the Industry</i> .....	16
2.3 THE SALES AND OPERATIONS PLANNING ROLE IN INDUSTRY .....	17
2.4 THE CASE OF THE BEAUTY AND PERSONAL CARE SECTOR.....	18
2.4.1 <i>Scope and Significance of the Sector</i> .....	19
2.4.2 <i>The Australian Beauty and Personal Care Industry</i> .....	22
2.5 SUMMARY .....	24
<b>CHAPTER 3 THEORETICAL BACKGROUND .....</b>	<b>27</b>
3.1 OBJECTIVE .....	27
3.2 SUPPLY CHAIN MANAGEMENT .....	27
3.2.1 <i>Definitions of Supply Chain and Supply Chain Management</i> .....	27
3.2.2 <i>Supply Chain Framework</i> .....	29
3.2.3 <i>Supply Chain Framework Challenges</i> .....	31
3.2.3.1 <i>Internal Factors</i> .....	33
3.2.3.2 <i>External Factors</i> .....	35
3.2.4 <i>Evolution of Supply Chain Management</i> .....	39
3.2.4.1 <i>Systems Theory</i> .....	42
3.2.4.2 <i>Transaction Cost Economics Theory</i> .....	43

3.2.4.3 Resource-Based View Theory .....	44
3.2.4.4 Balanced Scorecard Approach .....	44
3.3 SUPPLY CHAIN AND SUSTAINABILITY MANAGEMENT .....	45
3.3.1 <i>How the Supply Chain Activities Impact Sustainability Strategies and Goals</i> .....	45
3.3.2 <i>The Evolution of Sustainability Management Across the Supply Chain Framework</i> .....	48
3.3.3 <i>The United Nations 17 Sustainable Development Goals and their Interaction with Supply Chain Management Practices</i> .....	49
3.3.4 <i>The Key Initiatives that Industries are Engaged with to Thrive in Supply Chain Sustainability Management</i> .....	52
3.3.4.1 Triple Bottom Line Approach.....	53
3.3.4.2 Green Supply Chain Management Practice .....	54
3.3.4.3 Lean Supply Chain Practice .....	55
3.3.4.4 Life Cycle Assessment Practice .....	55
3.3.4.5 Circular Economy Practice .....	56
3.3.4.6 Stakeholder Theory.....	57
3.3.4.7 Risk Management Theory .....	58
3.3.4.8 Integrative Analysis of Stakeholder and Risk Management Theories.....	59
3.4 SALES AND OPERATIONS PLANNING (S&OP) PROCESS .....	60
3.4.1 <i>Existent S&amp;OP Model and Principles</i> .....	60
3.4.2 <i>The S&amp;OP Cycle</i> .....	63
3.4.3 <i>The Stakeholders Engaged in S&amp;OP</i> .....	68
3.4.4 <i>Risk and Opportunity Management Through S&amp;OP</i> .....	70
3.4.5 <i>Tools for Governance in S&amp;OP</i> .....	72

3.5 RESEARCH FRAMEWORK .....	74
3.6 SUMMARY .....	78
<b>CHAPTER 4 RESEARCH METHODOLOGY .....</b>	<b>81</b>
4.1 OBJECTIVE .....	81
4.2 RESEARCH PHILOSOPHY .....	81
4.3 RESEARCH APPROACH .....	82
4.4 RESEARCH DESIGN.....	84
4.5 SAMPLING STRATEGY .....	86
4.6 DATA COLLECTION METHOD .....	91
<i>4.6.1 Data Collection Technique.....</i>	<i>91</i>
<i>4.6.2 Interview Process.....</i>	<i>93</i>
4.6.2.1 Preparation .....	93
4.6.2.2 Senior Leadership Participant Recruitment .....	94
4.6.2.3 Interview Guide Development and Execution .....	95
4.6.2.4 Interview Recording.....	97
<i>4.6.3 Data Saturation .....</i>	<i>97</i>
4.7 DATA ANALYSIS AND INTERPRETATION .....	100
<i>4.7.1 Transcription of Data.....</i>	<i>102</i>
<i>4.7.2 Coding of Data.....</i>	<i>103</i>
<i>4.7.3 Data Analysis Method .....</i>	<i>103</i>
4.7.3.1 Thematic Analysis .....	103
4.7.3.2 Content Analysis .....	105

4.8 RESEARCH TRUSTWORTHINESS.....	106
4.8.1 Credibility .....	108
4.8.2 Transferability .....	109
4.8.3 Dependability .....	109
4.8.4 Confirmability.....	109
4.9 SUMMARY .....	110
<b>CHAPTER 5 ANALYSIS - RQ1 .....</b>	<b>111</b>
5.1 OBJECTIVE .....	111
5.2 ANALYSIS.....	111
5.3 OVERVIEW OF THE PARTICIPANTS .....	112
5.4 KEY FACTORS INFLUENCING EFFECTIVE MANAGEMENT PRACTICES IN ORGANISATIONS’ SUPPLY CHAIN AND SUSTAINABILITY PROCESSES .....	114
5.4.1 Principles .....	117
5.4.1.1 Business Management Foundations.....	118
5.4.1.2 Process Governance .....	121
5.4.2 Integrated Decisions.....	125
5.4.2.1 Collaboration .....	126
5.4.2.2 Decision-Making Process .....	129
5.4.3 Flow of Information.....	131
5.4.3.1 Teams’ Structure Strategy .....	132
5.4.3.2 Meetings .....	134
5.4.3.3 Tools for Governance.....	142
5.4.4 Stakeholders.....	144

5.5 SUMMARY .....	146
<b>CHAPTER 6 ANALYSIS - RQ2 .....</b>	<b>148</b>
6.1 OBJECTIVE .....	148
6.2 KEY CHALLENGING FACTORS IMPACTING ORGANISATIONS SUPPLY CHAIN AND SUSTAINABILITY PERFORMANCE .....	148
<i>6.2.1 Internal Challenging Factors .....</i>	<i>149</i>
<i>6.2.2 External Challenging Factors.....</i>	<i>158</i>
<i>6.2.3 Stakeholders Engagement.....</i>	<i>162</i>
6.3 SUMMARY .....	165
<b>CHAPTER 7 ANALYSIS - RQ3 .....</b>	<b>167</b>
7.1 OBJECTIVE .....	167
7.2 HOW THE SALES AND OPERATIONS PLANNING PROCESS CAN CONTRIBUTE TO MITIGATING THE CHALLENGING FACTORS IMPACTING THE SUPPLY CHAIN SUSTAINABILITY PERFORMANCE .....	167
<i>7.2.1 Key S&amp;OP Contributors to Supply Chain Sustainability Performance Management .....</i>	<i>167</i>
7.2.1.1 Performance Metrics Management.....	167
7.2.1.2 Stakeholders Engagement .....	173
7.2.1.3 Risk Management Strategy.....	176
7.2.1.4 Integration .....	179
<i>7.2.2 Key Success Criteria and Enablers .....</i>	<i>181</i>
7.2.2.1 In S&OP .....	181
7.2.2.2 In Sustainability.....	184
7.3 THE S&OP CONTRIBUTORS INFLUENCING THE SUSTAINABILITY SUCCESS CRITERIA .....	190
7.4 SUMMARY .....	192
<b>CHAPTER 8 FINDINGS AND DISCUSSION.....</b>	<b>194</b>

8.1 OBJECTIVE .....	194
8.2 RESEARCH QUESTION 1: FACTORS INFLUENCING EFFECTIVE MANAGEMENT PRACTICES IN ORGANISATIONS’ SUPPLY CHAIN AND SUSTAINABILITY PROCESSES .....	194
8.2.1 Principles .....	194
8.2.1.1 Building Baselines for Effective Management Using Business Management Foundations .....	195
8.2.1.2 The Nuances of Process Governance for Effective Management.....	197
8.2.2 Integrated Decisions.....	199
8.2.2.1 Strategic Collaboration with a Focus on Integrating Sustainability and Customer-centric Views .....	199
8.2.2.2 Integrating the Decision-making Processes with Business Principles and Values .....	200
8.2.3 Flow of Information.....	201
8.2.3.1 Integrated Teams and Cross-Functional Champions for Optimal Information Flow .....	202
8.2.3.2 Structured Meetings for Enhancing Effective Decision-Making in Information Management.....	203
8.2.3.3 Robust Conversations Underpin the Value of Tools for Governance .....	206
8.2.4 The Power of Collaborative Stakeholder Commitment .....	206
8.3 RESEARCH QUESTION 2: HOW DO CURRENT KEY CHALLENGING FACTORS IMPACT ORGANISATIONS SUPPLY CHAIN AND SUSTAINABILITY PERFORMANCE? .....	207
8.3.1 Internal Challenging Factors .....	207
8.3.1.1 The Crucial Link Between Collaboration and Communication.....	207
8.3.1.2 The Roadmap to Effectively Overcome Challenges Imposed by Rapid Business Growth.....	209
8.3.1.3 Clarity on Roles and Responsibilities as a Pathway to Break Down Siloed Functions .....	210
8.3.1.4 Advanced Tools and Their Limits in Information Agility and Decision Accuracy .....	211
8.3.1.5 Unravelling Complexities Among Challenging Factors in Successful Business Network Dynamics .....	212
8.3.2 External Challenging Factors.....	213

8.3.2.1 Rethinking Management Strategies for Success in the Face of Unprecedented Global Crises .....	213
8.3.2.2 Managing Supplier Dependence: Strategies for Enhancing Supply Chain Sustainability Performance .....	214
8.3.2.3 Addressing Globalisation: Aligning Strategies with Legal Requirements.....	215
<i>8.3.3 Stakeholder Engagement .....</i>	<i>216</i>
8.3.3.1 The Impact of Passive Stakeholder Involvement on Business Performance .....	216
8.3.3.2 Decentralised Decision-making: Empowering Stakeholders and Enhancing Autonomy .....	217
<b>8.4 RESEARCH QUESTION 3: HOW CAN THE SALES AND OPERATIONS PLANNING PROCESS CONTRIBUTE TO MITIGATING THE CHALLENGING FACTORS IMPACTING SUPPLY CHAIN SUSTAINABILITY PERFORMANCE? .....</b>	<b>218</b>
<i>8.4.1 S&amp;OP Process Towards Contributing to Mitigating Challenging Factors Impacting Supply Chain Sustainability Performance .....</i>	<i>218</i>
8.4.1.1 Strategic Impact of S&OP Performance Metrics on Sustainability Performance Outcomes .....	218
8.4.1.2 Unifying Business Visions: The Power of Stakeholder Engagement .....	220
8.4.1.3 Risk Management Strategy: Enhancing Awareness and Adaptability in an Ever-changing Sustainability Landscape .....	221
8.4.1.4 Strategic Contributions of S&OP: Resource Optimisation and Integrated Planning.....	222
<i>8.4.2 Relationship Between the Key S&amp;OP Contributors and Key Factors Influencing Sustainability Management Practices .....</i>	<i>223</i>
8.4.2.1 S&OP Contributors to Sustainability Management Principles.....	224
8.4.2.2 S&OP Contributors to Sustainability Management Integrated Decisions .....	226
8.4.2.3 S&OP Contributors to Sustainability Management Flow of Information .....	227
8.4.2.4 S&OP Contributors to Sustainability Management Stakeholders.....	228
<i>8.4.3 Relationship Between the Key S&amp;OP Contributors to Supply Chain Sustainability Performance Management and the Key Challenging Factors Impacting Supply Chain Sustainability Performance.....</i>	<i>229</i>
8.4.3.1 S&OP Contributors to Mitigating Internal Challenging Factors Impacting Supply Chain Sustainability Performance .....	230

8.4.3.2 S&OP Contributors to Mitigating External Challenging Factors Impacting Supply Chain Sustainability Performance .....	232
8.4.3.3 S&OP Contributors to Mitigating Stakeholder Engagement Challenging Factors Impacting Supply Chain Sustainability Performance.....	234
<i>8.4.4 Relationship Between the Key S&amp;OP Enablers of Success and the Key Criteria to Enable Success in Sustainability Performance Management.....</i>	<i>236</i>
8.4.4.1 Success Criteria Reflected on Business Values .....	236
8.4.4.2 Success Criteria Building Collaboration .....	237
8.4.4.3 Success Criteria Targets Embedded into Employee Performance Management Review .....	238
8.4.4.4 Success Criteria Endorsement and Ownership .....	239
8.4.4.5 Success Criteria Performance Indicator Management .....	240
8.4.4.6 Success Criteria Tools for Governance.....	241
8.4.4.7 Success Criteria Risks and Opportunities Management .....	242
8.4.4.8 Success Criteria Current State Mapping .....	243
8.5 REVISED CONCEPTUAL FRAMEWORK .....	244
<i>8.5.1 The SS&amp;OP Process.....</i>	<i>250</i>
8.5.1.1 Purpose .....	253
8.5.1.2 Principles.....	253
8.5.1.3 Foundations .....	254
8.5.1.4 Inputs .....	255
8.5.1.5 Monthly Review Cycle .....	256
8.5.1.6 Outputs .....	256
8.6 SUMMARY .....	256
<b>CHAPTER 9 CONCLUSION.....</b>	<b>257</b>

9.1 OBJECTIVE .....	257
9.2 SIGNIFICANT FINDINGS .....	257
9.3 CONTRIBUTION TO THE BODY OF KNOWLEDGE .....	258
<i>9.3.1 Contribution 1 – Framework of SS&amp;OP Process for Enhancing Supply Chain Sustainability Performance Management.....</i>	<i>259</i>
<i>9.3.2 Contribution 2 – S&amp;OP Factors Extending on Existing Theories and Practices of Supply Chain and Sustainability Management .....</i>	<i>260</i>
<i>9.3.3 Contribution 3 – Beauty and Personal Care Industry-Specific Insights .....</i>	<i>261</i>
<i>9.3.4 Contribution 4 – United Nations Policy Implications .....</i>	<i>261</i>
<i>9.3.5 Contribution 5 – Bridging Theory and Practice.....</i>	<i>262</i>
9.4 IMPLICATIONS.....	263
9.5 LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH .....	263
9.6 SUMMARY .....	265
<b>REFERENCE .....</b>	<b>267</b>

## LIST OF FIGURES

Figure 1.1 Research Methodology Framework ( <i>Author</i> ).....	6
Figure 1.2 Research Rationale ( <i>Author</i> ) .....	9
Figure 2.1 Development of Sales and Operations Planning ( <i>Wandesleben, 2022</i> ) .....	18
Figure 2.2 Beauty and Personal Care Market Value Worldwide by Category in Billion U.S. Dollars   Actual Growth 2013 to 2022 and Projected Growth 2023-2027 ( <i>Statista, 2022b</i> )...21	
Figure 2.3 Global Market Value for Natural Cosmetics ( <i>Reilly Roberts, 2022</i> ) .....	22
Figure 3.1 Organisation's Supply Chain Materials Flow ( <i>Chen &amp; Paulraj, 2004</i> ) .....	29
Figure 3.2 A Representative Supply Chain Structure ( <i>George &amp; Pillai, 2019</i> ) .....	29
Figure 3.3 The Supply Chain Framework ( <i>Closs &amp; Mollenkopf, 2004</i> ).....	30
Figure 3.4 Factors affecting Supply Chain Performance. <i>Informed from George and Pillai (2019), Blanchard (2021), Hai et al. (2021), Tae-Woo Lee et al. (2024), Sarah Schiffling &amp; Nikolaos Valantasis Kanellos (2022), Furlan Matos Alves et al. (2017), Sharma et al. (2020) and S Schiffling &amp; N Valantasis Kanellos (2022).</i> .....	33
Figure 3.5 Connection Between the Internal and External Factors that Affect Global Supply Chain Performance. <i>Informed from George and Pillai (2019), Blanchard (2021), Hai et al. (2021), Tae-Woo Lee et al. (2024), Sarah Schiffling &amp; Nikolaos Valantasis Kanellos (2022), Furlan Matos Alves et al. (2017), Sharma et al. (2020) and S Schiffling &amp; N Valantasis Kanellos (2022).</i> .....	38
Figure 3.6 Supply Chain Management Network Integrated Through the IoT ( <i>Tsang et al., 2022</i> ). <i>Reproduced under a CC-BY-NC-ND license.</i> .....	41
Figure 3.7 Evolution of Supply Chain Management ( <i>Langley Jr, 2020</i> ) .....	47

Figure 3.8 The 17 Sustainable Development Goals Categories ( <i>Fu et al., 2019</i> ) .....	50
Figure 3.9 Sustainable Supply Chain Management Practices aligned with the 17 SDGs ( <i>Zimon et al., 2020</i> ). <i>Reproduced under a CC-BY-NC license.</i> .....	52
Figure 3.10 Globalization challenges: Time, location and complexity ( <i>E2open, 2014</i> ) .....	60
Figure 3.11 S&OP Framework ( <i>Thomé et al., 2012</i> ).....	61
Figure 3.12 4 S&OP Dimensions Source ( <i>Toledo, 2021</i> ).....	62
Figure 3.13 Monthly S&OP Process ( <i>Bedford Consulting, 2024</i> ) .....	63
Figure 3.14 Sample Agenda for Executive S&OP Meeting ( <i>Plex DemandCaster, 2024</i> ) .....	67
Figure 3.15 Sample of S&OP Stakeholders RACI Matrix ( <i>Messias, 2018</i> ).....	69
Figure 3.16 Assessing Risks and Opportunities Through S&OP ( <i>Gartner, 2021</i> ).....	72
Figure 3.17 Theoretical Framework ( <i>Author</i> ).....	78
Figure 4.1 Research Design Framework <i>proposed by Kallio et al. (2016)</i> .....	85
Figure 4.2 Data Saturation Framework ( <i>Guest et al., 2020</i> ). <i>Reproduced under a CC-BY license.</i> .....	99
Figure 4.3 Data Saturation Results ( <i>Author</i> ).....	100
Figure 4.4 Data Analysis following the Creswell Model ( <i>Creswell &amp; Creswell, 2017</i> ) .....	102
Figure 5.1 NVivo Coding Tree—Key Factors Influencing Implementation of Management Practices in Organizations’ Supply Chain and Sustainability Processes ( <i>NVivo</i> ) .....	115
Figure 5.2 NVivo Coding Tree—Attributes of Principles Influencing Implementation of Management Practices ( <i>NVivo</i> ).....	118
Figure 5.3 NVivo Coding Tree—Attributes of Integrated Decisions Influencing Implementation of Management Practices ( <i>NVivo</i> ).....	126

Figure 5.4 NVivo Coding Tree—Attributes of Flow of Information Influencing Implementation of Management Practices ( <i>NVivo</i> ) .....	132
Figure 5.5 NVivo Coding Tree—Attributes of the Stakeholders Influencing Implementation of Management Practices ( <i>NVivo</i> ).....	144
Figure 8.1 Low-Level vs High-Level Process Maturity ( <i>Eby, 2022</i> ) .....	204
Figure 8.2 Initial Theoretical Framework ( <i>Author</i> ) .....	245
Figure 8.3 Revised Conceptual Framework ( <i>Author</i> ) .....	249
Figure 8.4 SS&OP Process <i>adapted from Guerovich (2020)</i> .....	251
Figure 8.5 SS&OP Terms of Reference ( <i>Author</i> ) .....	253

## LIST OF TABLES

Table 3.1 Summary of Literature-Based Framework .....	75
Table 3.2 Overview of the Relationship Between Supply Chain and Sustainability Theories with S&OP Principles and Fundamentals.....	76
Table 4.1 NVivo Coding—Organisations Demographics (Sorted by Size) .....	90
Table 5.1 NVivo Coding—Participants Demographics (Sorted by Years of Experience Followed by Field of Expertise) .....	112
Table 5.2 NVivo Coding—Summary of Participants Demographic Category.....	113
Table 5.3 NVivo Coding—Attributes Influencing Implementation of Management Practices .....	116
Table 5.4 NVivo Coding—Attributes Influencing Meetings in the Flow of Information Factor .....	135
Table 5.5 NVivo Coding—Attributes Influencing Meetings Frequency.....	141
Table 5.6 NVivo Coding—The Stakeholders Engaged.....	144
Table 6.1 NVivo Coding—Key Internal and External Challenging Factors Impacting Supply Chain and Sustainability Performance.....	148
Table 6.2 NVivo Coding—Subsequent Key Internal Challenging Factors Converging Between Supply Chain/ S&OP and Sustainability Management .....	155
Table 6.3 NVivo Coding—Why Stakeholders Are Engaged .....	162
Table 7.1 NVivo Coding—Performance Metrics Management KPIs in the S&OP Process and Sustainability Management.....	169

Table 7.2 NVivo Coding—Performance Metrics Management Frequency in the S&OP Process and Sustainability Management .....	171
Table 7.3 NVivo Coding—Performance Metrics Management Through Employee Performance Management Criteria in the S&OP Process and Sustainability Management..	172
Table 7.4 NVivo Coding—Engaging Stakeholders Through the S&OP.....	173
Table 7.5 NVivo Coding—Risk Management Strategy Through the S&OP .....	177
Table 7.6 NVivo Coding—Integration Through the S&OP .....	180
Table 7.7 NVivo Coding—Key Success Enablers in S&OP .....	182
Table 7.8 NVivo Coding—Key Enablers of Success in Sustainability .....	185
Table 7.9 NVivo—Summary of Key Factors and Their Founding Attributes Influencing Management Practices .....	190
Table 7.10 NVivo—The Key S&OP Contributors to Contribute to Supply Chain Sustainability Performance, and Criteria and Enablers to Achieve Success in S&OP and Sustainability Management.....	191
Table 8.1 NVivo—Attributes of Factors Identified in the Initial Conceptual Framework....	246

# PUBLICATIONS

## Peer-reviewed Conference Papers

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## **ABSTRACT**

This thesis investigates the key factors as to why Sales and Operations Planning (S&OP) besides transforming business performance contributes to the improvement of the supply chain sustainability performance. It builds a conceptual framework identifying the essential resources for successful S&OP implementation while incorporating sustainability management.

Over the past two decades, both academia and industry have increasingly focused on supply chain operations and sustainability management. Despite sharing common operational processes, supply chains face unique challenges due to varying goals and constraints. They oversee the conversion of raw materials into finished products, ensuring timely delivery to end customers while balancing the interactions among diverse processes and stakeholders to maximise value and profit. Furthermore, internal and external factors create challenges for managing supply chain sustainability. Effective integration of cross-functional business plans, which align sales and financial targets with environmental objectives, is crucial. This integration facilitates a robust decision-making process, establishing a unified source of truth and shared goals across functions, thereby elevating businesses to a new level of sustainability performance.

Embracing constructivism, this thesis employed a qualitative research approach. Firstly, through the literature review, it described a comprehensive concept of the evolution of definitions, theories and practices involved in supply chain management models and existent challenges faced in the back-end process. Secondly, this thesis streamlined the sustainability performance aspects supply chains, exploring how these elements have evolved and addressed over time.

To translate the theory into practice, empirical data was gathered through conducting 20 semi-structured qualitative interviews with senior leadership participants in supply chain/S&OP and sustainability from organisations in the beauty and personal care industry located in diverse global geographic regions. This approach systematically captured the real-world applications and challenges of managing supply chains and sustainability. The selected organisations ranged

from those with well-established S&OP process to those planning to implement it. To ensure the research trustworthiness, the collected data was coded manually and subsequently analysed in the NVivo R1 (2020) platform.

The findings reveal that the integration of supply chain sustainability management into the S&OP decision-making process is underexplored in existing literature. Consequently, this thesis extends to the extant literature across several key areas of business management theory, specifically on the concept of supply chain sustainability performance management within the S&OP process investigating three aspects: 1) key factors influencing management practices in organisations' supply chain and sustainability processes, 2) key current challenging factors impacting supply chain and sustainability processes performance, and 3) how the S&OP process model could contribute to mitigating the challenging factors impacting on the success of supply chain sustainability performance.

This thesis elucidates a clear pathway for integrating Sales and Operations Planning (S&OP) with supply chain sustainability performance, offering substantial contributions to both literature and industry. The key findings reveal the significant roles of Principles, Integrated Decisions, Flow of Information, and Stakeholders in enhancing management practices, thus offering a holistic comprehension of S&OP's impact on sustainability. Drawing on management theories and practices from literature, including Stakeholder theory, Risk Management theory, and Green Supply Chain practice, complemented by empirical data from senior leadership participants, a Sustainable Sales and Operations Planning (SS&OP) framework is created. This framework not only stimulates academic discourse but also acts as a functional guide for practitioners, urging a broader adoption of sustainability through the cyclically reinforcing S&OP process.

The SS&OP framework paves the way for the industry to navigate towards more sustainable practices, especially within the beauty and personal care sector, as exemplified by the Asia-Pacific market's experience. It is a comprehensive model that informs and guides corporate alignment with the United Nations' sustainability goals, depicting S&OP as both reactive and preventive in addressing the demands of sustainability within global supply chains. This

contribution is poised to reshape how businesses incorporate sustainability into strategic planning, offering a forward-thinking tool for operational and environmental success.

Essentially, the findings reveal that success is underpinned by comprehensive understanding of current performance metrics, trends, and targets, where key decision-makers are clear on their roles and responsibilities, fostering accountability for inputs, discussions, decisions, and actions. Proactive risk management is essential to address uncertainties and potential risks from various environments that could affect strategic business plans. Moreover, the integration of people, processes, and tools into a unified decision-making framework is critical, always ensuring adherence to business principles. Lastly, Sales and Operations Planning (S&OP) process significantly contributes to successful business process performance, aligning cost and profit management with enhanced customer service and overall business efficiency.

Finally, the thesis bridges the gap between theoretical frameworks and real-world applications. It proves that S&OP, when underpinned by principles of sustainability, risk awareness, and stakeholder inclusivity, can lead to operational excellence and a sustainable future. These findings represent a valuable addition to the literature and a practical asset for the industry, projecting a new course for businesses to achieve economic success while upholding their environmental and social responsibilities.

# CHAPTER 1 INTRODUCTION

## 1.1 Objective

This chapter provides the thesis overview. It introduces the background of this thesis, its objective, and the research questions. Finally, this chapter includes an overview of the research framework explaining the thesis theoretical scope and structure.

## 1.2 Introduction

In 2022, despite the beauty and personal care industry being valued at USD 500 billion (Reilly Roberts, 2022), organisations faced a critical challenge: balancing profitability with environmental responsibility. As consumers and stakeholders increasingly demanded sustainable practices, companies struggled to integrate sustainability goals into their operational and financial strategies (Newman, 2020). This thesis addresses this challenge by examining how Sales and Operations Planning (S&OP) can be utilised to embed sustainability into core business processes.

Sustainability within supply chain management has been broadly studied in numerous application domains for decades. By and large, this is primarily attributed to the growing impacts of supply chains on environmental degradation (Rajeev et al. (2017), raising awareness about the necessity for responsible business practices (Negri et al., 2021). The evolution of sustainable impacts and solutions in different industries has driven research in this area, leading to further understanding of sustainable supply chain management (Shekarian et al., 2022).

Studies delve into the conceptual background, trends and gaps in this research topic (Centobelli et al., 2021) emphasising the importance of integrating sustainability into supply chain practices (Seuring et al., 2022). That is, this integration, as a single source of truth, maximises connections between cross-functional processes and internal and external stakeholders contributing to the development of a more agile and resilient business structure. In turn, this is crucial for navigating the continuous evolution of sustainable factors, and ultimately, achieving

business supply chain sustainability goals aligned with the 17 Sustainable Development Goals (Rademacher, 2022), as proposed by the United Nations and further discussed in Section 3.3.3.

Building upon the previously outlined concepts of sustainable supply chain management and stakeholder collaboration, it is crucial to pursue in-depth research within these distinct frameworks. This endeavour aims to refine understanding of the influence that management practices from integrated business models exert. Specifically, the examination focuses on how the Sales and Operations Planning (S&OP) process impacts cross-functional collaboration, the efficacy of risk management in volatile contexts, and the implementation of current systems and tools (Centobelli et al., 2021). This, in turn, contributes to the growth of business profitability and interventions impacting both people and environmental aspects of business sustainability management.

Considering the above, this thesis contributes to literature and industry by expanding supply chain sustainability performance management through integrative models, specifically focusing on the Sales and Operations Planning process.

### **1.3 Research Rationale**

Supply chain is a complex business function, influenced by various factors attributed to its engagement with diverse and cross-functional global stakeholders (Govindan et al., 2020). These factors have evolved throughout the decades, driven by internal business growth strategies and the influence of external factors. Moreover, disruptions due to a range of internal and external factors have precipitated new risks to business performance, requiring the reassessment of current modelling processes (Perera et al., 2015).

While industries and organisations have used supply chain management practice as a tool to enhance supply chain activities and increase business profitability (Njoku & Kalu, 2015), sustainability management is now a comprehensive requirement to balance the aspects associated with people, planet and profit within the supply chain operations (Rahardjo et al., 2013). Although various initiatives to drive sustainability management performance within the realm of business processes (Ahi & Searcy, 2013); (Azevedo et al., 2012); (Yun et al., 2023) have been established over the decades, research has indicated further need for organisations

to define and implement pragmatic strategies to achieve sustainable goals successfully (Oertwig et al., 2017). Moreover, the integration of the sustainability agenda extends beyond the current strategic plans of many businesses (Nguyen & Kanbach, 2023), and demands enhanced practices in stakeholder engagement and cooperation (Rahardjo et al., 2013) to address organisational challenges and ensure its effective implementation (Seuring & Gold, 2013).

Given the imperative for a comprehensive management approach that effectively integrates the sustainability agenda into business strategies, Sales and Operations Planning emerges as “an intensely collaborative, cross-functional processes” (Stahl & Wallace, 2012, p. 3) and it has been pointed out for decades as a powerful management practice to develop consistent plans across the entire supply chain, as well as improve business operational and finance efficiency (Kumar & Srivastava, 2014) by managing people and behaviours, processes and tools into a single decision-making process (Stahl & Wallace, 2012).

Despite awareness of the benefits that existing theories and practices bring to supply chain and sustainability management, these areas are persistently managed in isolation, lacking effective integration (Shamout, 2020). Academic research and guidance in this domain are notably insufficient, hindering the continuous incorporation of sustainability strategies and goals into supply chain plans, especially those generated and approved through the Sales and Operations Planning (S&OP) process (Duarte Azevedo et al., 2021b). Thus, this thesis addresses this gap by developing a framework that integrates sustainability strategies into the S&OP process, providing an innovative solution to align business performance with sustainability goals. Such a framework integrates supply chain sustainability strategies and goals into the S&OP providing organisations’ decision-makers with: 1) insights explaining the complex but fundamental factors influencing the improvement of their supply chain sustainability management, 2) a set of key S&OP contributors and criteria to enable success performance across business supply chain sustainability processes, and 3) a guideline to escalate the maturity level of the conventional S&OP and transform business management beyond financial drivers.

## **1.4 Research Objective**

Aiming to achieve an in-depth analysis and contribution to the literature and industry, this thesis investigates the key factors influencing effective management practices, the challenges that organisations have faced across their supply chain processes, how these challenging factors affect supply chain sustainability performance, and how the S&OP process can contribute to the enhancement of sustainability performance and therefore, achievement of its goals.

## **1.5 Research Questions**

To date, there is a multitude of literature addressing organisational sustainability management through the lens of integrative management models. Most provide content and discussions about technological practices that contribute to a greener supply chain development (Yu et al., 2022), incorporation of sustainability principles in the product innovation process (Pinkse & Bohnsack, 2021), and isolated management approaches to implement metrics and reporting management that comprehends sustainability performance (Hermundsdottir & Aspelund, 2021). However, the effectiveness of managing risks associated with internal and external factors through existing management practices is questionable. Practices such as the Triple Bottom Line approach (Abdel-Basset et al., 2020), Green Supply Chain Management (Ahi & Searcy, 2013), and Circular Economy (Hazen et al., 2021), as discussed in Section 3.3.4, may not be sufficiently aligned with the financial forecasting model, which includes demand and supply aspects (Eggert & Hartmann, 2023).

This thesis aims to make a meaningful contribution to theory and practice by understanding the challenges that organisations have faced to manage their sustainability performance, and how Sales and Operations Planning process practice can practically contribute to improvements. Therefore, this thesis answers the following three questions:

**RQ1** - What are the key factors influencing effective management practices in organisations' supply chain and sustainability processes?

**RQ2** - How do current key challenging factors impact organisations supply chain and sustainability processes performance?

**RQ3** - How can the Sales and Operations Planning process contribute to mitigating the challenging factors impacting the supply chain sustainability performance?

## **1.6 Research Methodology**

This thesis employs constructivism as the baseline of the philosophical dimension, aiming to build knowledge upon interaction with the experiences of individuals of a specific topic (Creswell & Creswell, 1994, 2017).

To ensure the connection between the theory found in the literature with real practice a qualitative research methodology is employed (Fossey et al., 2002). Specifically, 20 semi-structured interviews with participants in supply and sustainability senior leadership roles were conducted to capture insights and explore the research questions in-depth. This thesis focused on senior leadership participants to gain valuable insights into the topic studied. These participants, holding influential positions as decision-makers in organisations, possess substantial and privileged knowledge, empowering them to independently or collaboratively influence significant business outcomes. (Solarino & Aguinis, 2021).

The research design of this thesis consists of five sequential phases with the objective to detail a plan with a clear explanation of the structure, guidelines and method to collect the data as well as analyse and report the outcomes (Creswell & Creswell, 2017). The design is demonstrated in Figure 1.1 and summarised below:

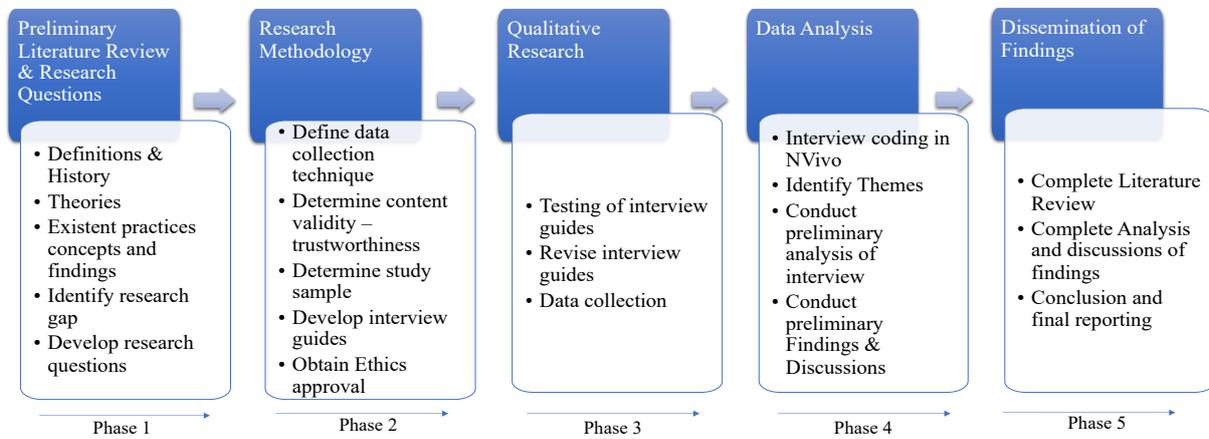
**Phase 1:** This involves an in-depth literature review providing definitions, theory, history, and specific concepts pertinent to existent practices of supply chain management as well as sustainability management.

**Phase 2:** Selection of appropriate research approach, including data collection and analysis interpretation method.

**Phase 3:** Data collection through semi-structured interviews with 20 senior leadership participants in supply chain/S&OP and sustainability; data transcribed using Microsoft Teams.

**Phase 4:** Data coding and analysis using NVivo R1 (2020) descriptive statistics: identification of themes for preliminary findings of analysis and discussions.

**Phase 5:** Detailed and final reporting and discussion of findings.



**Figure 1.1 Research Methodology Framework (Author)**

## 1.7 Structure of the Thesis

Following the first introductory chapter, chapter two delves into the beauty and personal Care industry sector, which serves as the case study for this research. It provides an overview of the research context by reviewing and analysing the literature on sustainability and Sales and Operations Planning (S&OP) within this industry globally and specifically within the Australian market. After evaluating the existing readiness studies within the framework of this thesis, the research objective and questions for this thesis are formulated.

Chapter three provides an in-depth review of the literature addressing supply chain management and readiness concepts relevant to explaining organisational readiness for supply chain sustainability management as well as an overview of the Sales and Operations Planning process, including its principles, cycle, stakeholders involved, risks and opportunities management, and tools for governance. Building upon extant readiness research, a theoretical research framework is developed.

Chapter four details the methodological approach of this thesis. After explaining the research approach and design, the research methods are clarified and justified, and the data collection and analysis processes are outlined in detail. Finally, this chapter outlines the measures taken

to ensure research trustworthiness, referring to research credibility, transferability, dependability, and confirmability.

Chapter five presents the first part of the qualitative data analysis, commencing with an overview of the organisations and senior leadership participant interviews. It offers perspectives on the informants involved in the empirical study. Subsequently, aligned with the first research question, the detailed analysis results identify the pivotal factors influencing management practices in organisations' supply chain and sustainability processes.

Chapter six presents the qualitative data analysis addressing the second research question. It details the insights gathered from the senior leadership participants on the current internal and external challenging factors and how they impact their organisations supply chains sustainability processes.

Chapter seven presents the qualitative data analysis addressing the third research question, the insights on how S&OP principles and fundamentals can contribute to managing supply chain sustainability performance. It follows the same structure as in chapters 5 and 6 and brings together an empirical framework.

Chapter eight discusses the major findings under the three research questions. Then, the initial theoretical framework developed in chapter 3 is compared with the empirical framework developed from the findings uncovered in chapters 5, 6 and 7, leading to the revision of the proposed theoretical framework.

Finally, chapter nine presents the thesis conclusion. After briefly outlining the significance of the findings of this thesis, it details the contributions to theory and implications for practice, as well as the limitations and avenues for future research.

## **1.8 Theoretical Framework**

Considering the multi and cross-disciplinary nature of this thesis, the theoretical background is underpinned by literature on supply chain management, supply chain and sustainability management, and Sales and Operations Planning. The combination of existing literature of

these groups with data collected through this thesis informs the contribution that S&OP has on improving sustainability performance.

Literature on supply chain management and supply chain sustainability management is utilised to explore the definitions, evolution of theories and practices, frameworks, as well as complexities surrounding existing challenging factors in managing both the supply chain and sustainability management. The Sales and Operations Planning literature uncovers principles and fundamentals underlying this management practice. It supports the development of the initial theoretical framework, which acts as the baseline for subsequent empirical investigation.

Figure 1.2 illustrates the rational background employed to develop this thesis.

The theoretical framework of the thesis delineates the relationships between the theories and practices used to influence effective management of supply chains and sustainability. Subsequently, the framework undergoes assessment through literature on the presence of the sustainability agenda as well as the role of S&OP within the specific context of the beauty and personal care industry. It explicitly provides an overview of the global presence with a greater emphasis on Australian organisations.

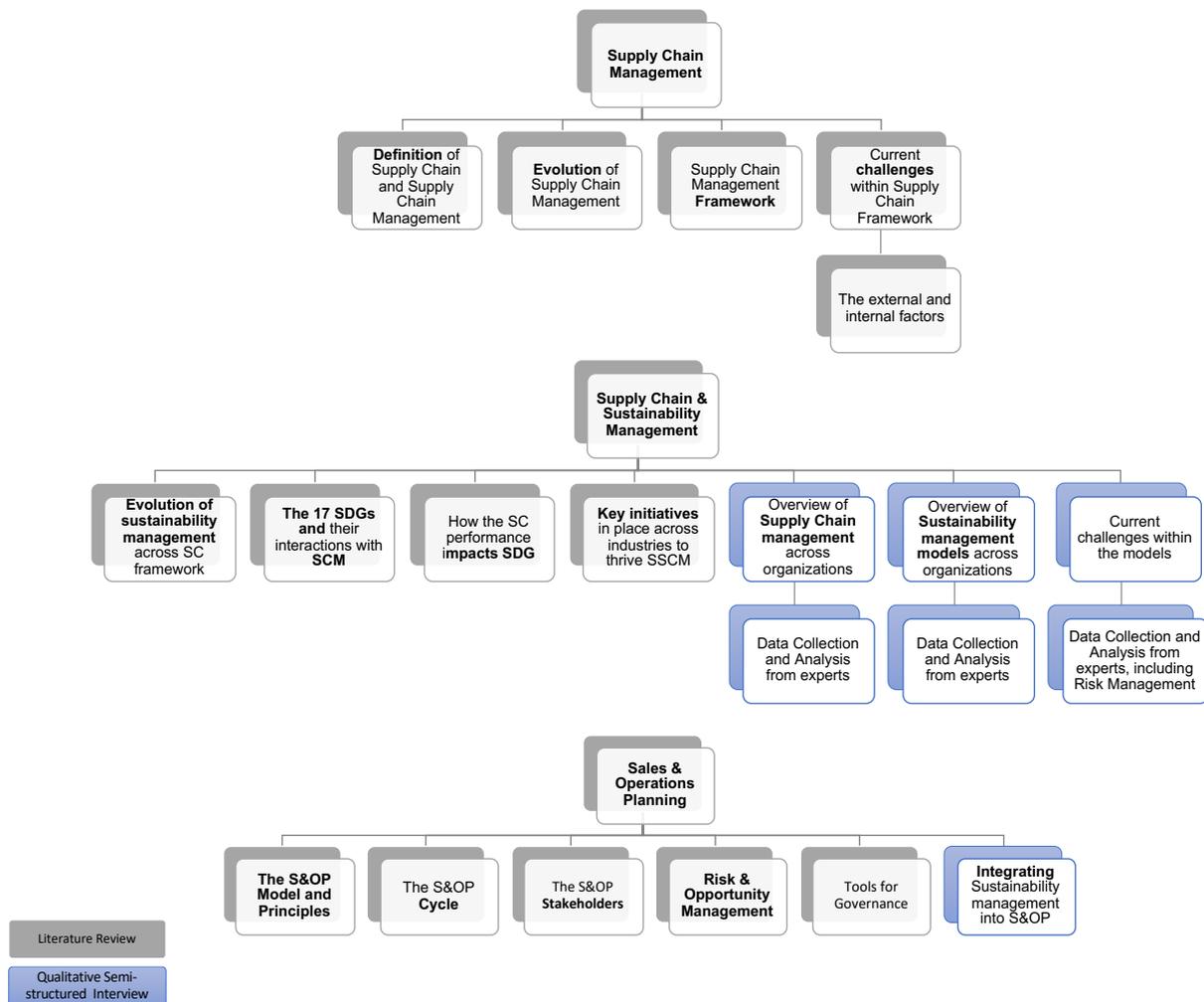


Figure 1.2 Research Rationale (Author)

## 1.9 Limitation of Scope

The scope of this thesis is delineated by its focus on research conducted exclusively with participants who hold senior leadership positions within the beauty and personal care industry sector. Additionally, the explanatory scope of this thesis is confined to the domains of supply chain and sustainability functions. Such specificity constrains the extent to which the findings of this thesis can be generalised to other contexts or industries.

## 1.10 Thesis Contribution to Literature and Practice

Addressing the three research questions, this thesis makes the following three contributions to the existing knowledge:

- 1) It produces a contribution to the literature covering existent gaps not yet broadly discussed in this domain. That is the lack of a comprehensive and structured management approach explaining the relationship and results between the practical integration of supply chain sustainability strategies and goals into the S&OP process.
- 2) It builds on extant theories by combining theories such as stakeholder theory and risk management theory with management practices, such as Green Supply Chain Management and Balanced Scorecard, to explain how organisations can transition to a Sustainable Sales and Operations Planning (SS&OP) model.
- 3) It contributes to the achievement of the 17 Sustainable Development Goals by incorporating and managing the proposed goals into a single cross-functional decision-making process.
- 4) It benefits the industry by providing access to an improved framework and the option to determine the applicability of the research outcomes, thereby escalating the maturity level of the current S&OP and transforming industry business management performance beyond financial drivers.

### **1.11 Terms and Definitions**

This thesis deals with key concepts which include innovation, evolution, growth, readiness for supply chain, sustainability, external and internal challenging factors, stakeholder management, integrated decision, principles, information sharing, Key Performance Indicators (KPIs) and metrics, tools for governance, flow of information, and cycle. These key concepts are defined and explained in the respective section of the literature review in Chapter 3.

### **1.12 Summary**

This introductory chapter has provided an overview of this thesis, set out the research objective and questions, and outlined the research methodology and the theoretical space in which the

research is situated. It has detailed the motivation for this thesis, its scope, the significant findings, and contributions to both theory and practice.

The next chapter introduces and explains in detail the research context by which this thesis is delimited.

## **CHAPTER 2 RESEARCH CONTEXT**

### **2.1 Objective**

This chapter introduces the thesis context. It provides an overview of the beauty and personal care industry sector, as the case study addressed in this research, investigating its scope and presence in the Global and Australian markets. It reviews and analyses the literature of sustainability and S&OP presence in the industry as well as specifically in the Australian market context. Finally, the extant literature that is introduced in the next chapter is evaluated considering the research context, unveiling research opportunities, from which the objective and research questions of this thesis are derived.

### **2.2 The Presence of a Sustainability Agenda in the Industry**

#### **2.2.1 Industrialisation and Environment**

Since the First Industrial Revolution, a historical period dating from the late 18<sup>th</sup> century, organisations based in various industry sectors have accelerated production incentivised by demand-consumers and supported by the advances of technology and engineering. This era marked the beginning of industrialisation, a transformative phase characterised by the transition from manual labour to machine-based manufacturing (De Vries, 1994).

The Second Industrial Revolution, from the late 19<sup>th</sup> to early 20<sup>th</sup> centuries, brought in mass production and the expansion of industries due to new energy sources, including electricity and oil. Innovations such as the assembly line and advancements in metalworking facilitated the production of goods at an unprecedented scale (Lucas, 2002).

The Third Industrial Revolution, the Digital Revolution, starting in the latter half of the 20<sup>th</sup> century, saw the adoption of computers and digital technology. Automation became more prevalent, and information technology transformed traditional production and business methods (Liu & Grusky, 2013).

The industrialisation stage is notable for its contribution to improved living standards and economic growth. Nonetheless, it also laid the groundwork for increased global pollution levels (Turok & McGranahan, 2013). According to Elheddad et al. (2021), environmental quality levels decline when natural resources are required in greater amount to satisfy the rapid and exponential economic growth. Elheddad et al. (2021) outlines that the initial phase of economic development, known as industrialisation, necessitates a significant energy demand, resulting in increased CO<sub>2</sub> emissions and consequently a rapid rise in pollution.

Increasingly over the last couple of centuries, industrialisation has resulted in increased populations and exacerbated problems with pollution around the world. It has catalysed a substantial migration from rural to urban centres, driven by the prospect of employment in industrial sectors, leading to significant urban population growth (Wolfe & Mitra, 2024). This demographic shift has employed pressure on urban infrastructures, giving rise to issues such as overcrowding, the depletion of resources, and escalating levels of waste—consequently amplifying pollution levels (Hayes, 2022). The resulting environmental problems transcend local boundaries, representing a global crisis which has increased widespread concern due to the consequent extensive implications for public health, the loss of biodiversity, and climatic alterations (The World Bank, 2023). The urgency to implement sustainable measures is ever-growing, as society contends with the detrimental repercussions of industrial activity, including diminished air quality and water contamination. There is a collective realisation that the sustainability of our environment, and the legacy we leave for subsequent generations, is contingent upon our commitment to resolve these anthropogenic challenges (Rafferty, 2019).

With the emergence of the Fourth Industrial Revolution, currently underway, there has been a worldwide development of environmental solutions aimed at enhancing various aspects of environmental conservation and sustainable development (Cheng et al., 2021). Through this new era, data produced by advanced technology can be used to improve the manufacturing of commodities, economic growth, and social networking, which can then possibly strike a balance between the supply and demand through technical advancement. A considerable contribution to the decrease in the production of gases such as carbon dioxide comes from high technology, energy-efficient companies in this new era (Choi et al., 2019). Furthermore, Choi et al. (2019) outline that the likelihood of further complexity rising from the Fourth Industrial

Revolution is inevitable, as high dependence and interactions among various constituent components and functions are characteristics of very complex systems. In the new wave of technological progress, considering creative approaches to manage certain new risks and counteract developing unknown hazards should be taken into consideration.

### **2.2.2 The Sustainability Agenda**

In response to the growing imperative of sustainable impacts, “sustainability has become increasingly critical for organisations to remain relevant and competitive in today’s world” (World Economic Forum, 2022b, p. 1). The sustainability agenda is one of the core building blocks of organisations, considering that organisations are the main focal attention in the source of sustainability impacts resulting from their end-to-end operations (Koberg & Longoni, 2019). It encompasses the strategic integration of environmental, social, and economic considerations into business decision-making. This integration is crucial for addressing the complex challenges posed by climate change, resource scarcity, and social inequity (de Souza Barbosa et al., 2023).

Furthermore, the sustainability agenda is pivotal for meeting increasing regulatory requirements, consumer expectations, and investor criteria focused on Environmental, Social, and Governance (ESG) performance (de Souza Barbosa et al., 2023). It supports businesses to anticipate and mitigate risks, innovate, and maintain their social license to operate. The agenda also aligns with the United Nations' Sustainable Development Goals (SDGs), providing a framework for businesses to contribute to global priorities such as poverty alleviation, education, and clean energy (Fallah Shayan et al., 2022).

Particularly in the industrial sector, which is a predominant energy consumer and source of more than one quarter of the global CO<sub>2</sub> emissions (Chen et al., 2020), the impetus to optimise processes for emissions reduction is critical. The deployment of digital technologies is increasingly seen as an instrumental component in streamlining these processes to achieve greater sustainability outcomes. The focus on sustainability not only responds to regulatory pressures and environmental imperatives but also aligns with a growing consumer demand for responsible business practices (McKinsey Quarterly, 2020).

In essence, interest in sustainable topics from investors, customers and governments has been increasing, encouraging organisations to become more aware of the environmental impacts resulting from their operational processes (Newman, 2020).

Thus, embedding the sustainability agenda into the core framework of organisations is not just an ethical imperative but a strategic necessity, considering a forward-thinking approach that ensures the resilience and adaptability of businesses in a rapidly changing world (Trollman & Colwill, 2021).

### **2.2.3 Embedding the Sustainability Agenda**

Integrating sustainable initiatives into the core business strategy is a pivotal element of the sustainability agenda (World Economic Forum, 2022b). Not only does it proactively reduce business and external stakeholder's ecological footprint, but additionally produces a win-win situation where a business may maximise profits, while taking steps towards implementing sustainable business practises (Fallah Shayan et al., 2022; Fowler & Hope, 2007). To respond to such an agenda, evidence shows that when incorporating sustainability initiatives into the strategic plans the core input is to ensure the committed theoretical plans are turned into execution (World Economic Forum, 2022b).

In addition to developing a practical strategic plan, organisations need to increase the focus towards sustainable investment, which can then act as an agent of product decarbonisation (Zhenwe Qiang et al., 2021).

Assessing the upstream structural factors driving the sustainability impacts is the first lever to be embedded into the decarbonisation strategy. This refers to the understanding of resources complexity and structure, and how they affect the overall emissions (Gargett et al., 2019). The second lever is associated with sustainable design of the business processes, in which the need of investing in new technologies to promote decarbonisations while increasing process efficiency is assessed (Kumar et al., 2023). Finally, the third lever is related arranging a balanced portfolio, providing the organisation with the ability to anticipate multiple scenario-risks coming from external factors. For instance, reasonable situations indicate that shareholders decrease their investments in high-emission resources, thus excluding operators

who possess the most environmentally impactful assets. Gargett et al. (2019) suggested that projections indicated that a combination of policy interventions and market shifts may result in a peak in oil demand by 2025. Such a scenario is likely to increase capital expenditure and decrease the investment appeal of the oil and gas sectors for growth opportunities.

A further approach discussed, encouraging business to take greater responsibility for the environment, is about finding connections and balance between sustainability and commercial viability (Zhenwe Qiang et al., 2021). That is, integrating the financial benefit, environmental protection, and social responsibility into business operations and management (Lo, 2010). It suggests considering the integration of a risk-management system into the business model, which can provide a comprehensive focus on managing current and potential future variations in cash flow and profitability, while measuring and reducing risks to the sustainability aspects (Brillinger et al., 2020). Thus, achieving great organisational success is dependent on meticulous management of sustainability and commercial aspects (Calic et al., 2020).

#### **2.2.4 The Australian Government and the Sustainability Agenda in the Industry**

Australia leaders have been involved in and supporting endorsing the 2030 Agenda for the Sustainable Development Goals (SDGs) alongside the United Nations since 2015 (DFAT, 2023a). Various topics within this Agenda align with the Australian vision in regard to promoting stability, security and economic prosperity, which emphasises the economic development and progress in the Indo-Pacific area, as well as for the advancement of gender equality, good governance, and the improvement of tax systems (DFAT, 2023a).

According to DFAT (DFAT, 2023a), in order to start closing the gaps, the development of policies and programs are required. Such development will only be enabled through use of trustworthy data associated with the current issues faced, as well as effective action plan management. Thus, Australia is working on implementing a program that can measure and monitor important attributes that support the SDGs.

A Business Partnership Platform is another initiative promoted by the Australian Government to encourage a buy-in from organisation CEOs and incorporate the SDGs Agenda into their strategic plans. Essentially, the main purpose of this Business Partnership Platform is to

enhance engagement between governments, leading businesses, non-profits and universities, which in turn creates a shared sustainable solution to existing challenges within the business private sector, and tackles the sustainable development outcomes (DFAT, 2023b). It is often assumed that the SDGs Agenda led by the United Nations is enough to mobilise the world on its own and transform businesses towards achieving the societal goals. However, the UN Global Compact Network Australia (UNGCNA), led by the world's largest corporate sustainability initiative UN Global Compact, argues that to connect the dots on the global sustainable values, organisations need to be brought together to share knowledge and put commitment into practice (UN Global Compact Network Australia, 2023a).

From a climate-change perspective, UNGCNA's aim is to influence and support organisations to set ambitious emissions targets with a strong pathway to net zero emission regardless of the stage that the organisation is at in their sustainability journey. The programme offers a benefit pack to organisations which implement the 2023 Climate Ambition Accelerator programme into their strategy, such as guidance, inspiration and training modules for all stakeholders including investors, employees, and shareholders; peer-to-peer collaboration to share insights; hands-on support from local and global insights and best practices (UN Global Compact Network Australia, 2023b).

### **2.3 The Sales and Operations Planning Role in Industry**

S&OP was firstly developed and introduced into industry by the end of the 1970s by business consultant Oliver Wight (Ávila et al., 2019b). As organisations began to exchange their S&OP experiences in groups, the process began to change. In 1987, the S&OP process was described as a business process with the objective of balancing supply and demand (Ávila et al., 2019b), integrate financial planning and operational planning, and link high-level strategic plans with day-to-day operations (Wandesleben, 2022).

Literature has increasingly expanded on the conventional practice of S&OP over time, and practitioners frequently define S&OP as a support for businesses to maximise opportunity, minimise risk, and make deliberate trade-offs based on profitability (Kreuter et al., 2021). Businesses who fully apply the S&OP method perform better operationally than those that only

partially do (Ávila et al., 2019b). There is no denying that S&OP has provided businesses with various beneficial management advancements over the years (Hove, 2022).

S&OP process has been implemented and experienced different levels of success across organisations. However, there is a rising demand for improved internal and external collaboration and for expanding S&OP beyond planning and execution as leaders search for the "what's next" of S&OP transformation (Johnson, 2020).

The desire for S&OP transformation comes from the idea of managing challenges and requirements from evolving industries and customer demands, quicker-moving environments, internationalisation, and growing complexity in global supply chains (Wandesleben, 2022). Those scenarios have revealed that regardless of the industry sector or organisation size, no one is exempt from such disruptions and the supply chain role has become more crucial than ever for business to achieve higher performance. S&OP, however, can assist with straightening the relationship between collaboration and cross-functional decision-making process, which is identified to be vital for supply chains to survive during disruptive events (Tagetik, 2021).

Although S&OP has evolved significantly over time, as demonstrated in Figure 2.1 and generated value for many organisations around the globe, since its debut in 1987, it has concentrated on advancements of supply chain and planning techniques but neglected to advocate for further integrations and cross silos inside the business, which impacts the true advance to become an undeniably best business management model (Hove, 2022).

**Figure 2.1 Development of Sales and Operations Planning** (Wandesleben, 2022)

*This image has been removed due to copyright restrictions. It is available online at <https://blog.aioneers.com/supplychain/the-evolution-of-sales-and-operations-planning-sop-to-integrated-business-planning-ibp> or see: Wandesleben, 2022.*

Thus, to increase the value of S&OP and keep it evolving, it needs to grow as an all-encompassing business model, focusing on collaborating and integrating with other functions (Hove, 2022).

## **2.4 The Case of the Beauty and Personal Care Sector**

### **2.4.1 Scope and Significance of the Sector**

This thesis uses the beauty and personal care sector as a case study. Statista (2022a), a comprehensive statistical portal that aggregates data from market researchers, scientific publications, and government sources, defines the beauty and personal care industry as products for personal grooming and aesthetic enhancement, encompassing facial cosmetics, lip products, skincare items, perfumes, and personal hygiene goods like hair care, deodorants, and shaving essentials.

The global market is categorised by three segments: Product type, Distribution Channel and Geography. These classifications are based on the comprehensive market insights provided by Mordor Intelligence, a market research and consulting firm (Mondor Intelligence, 2022b). Mordor Intelligence (Mondor Intelligence, 2022b) offers accurate data and forecasting across various industry verticals, helping businesses understand market trends and make informed decisions in dynamic environments.

Product type is subdivided by Personal Care, Cosmetics and Make-up products (Mondor Intelligence, 2022b). The leading product type categories worldwide, in order of importance, are Personal Care, Skin Care, Cosmetics, Fragrances (Statista, 2022b). Within the Cosmetics global category, the skin care product category contributed over 41% to the market share on its own in 2022, followed by Hair Care (22%) and Make-up (16%) (Statista, 2022b).

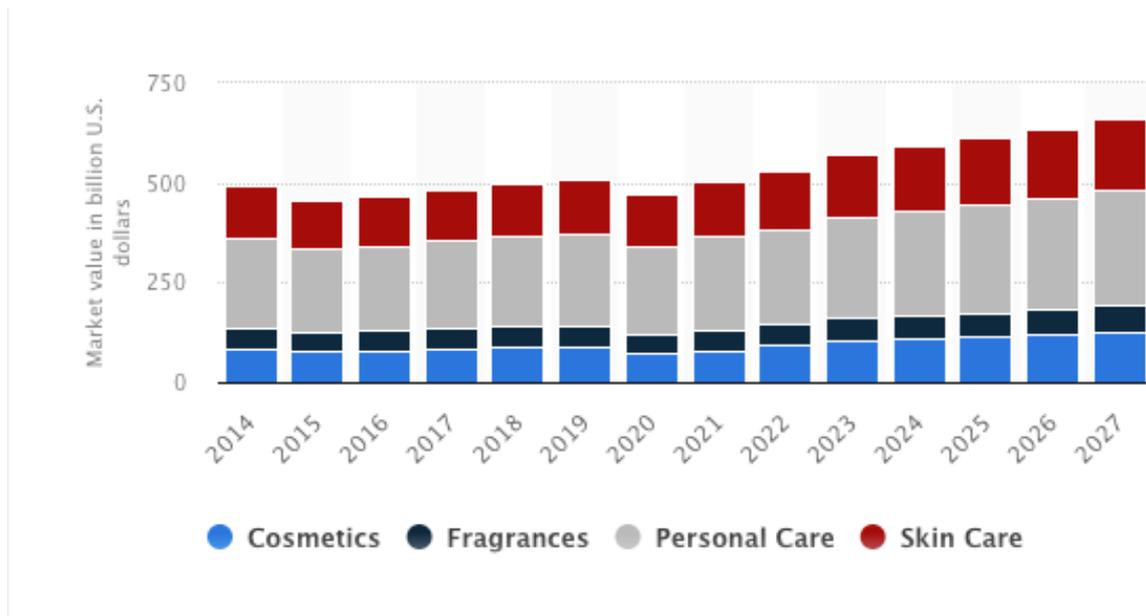
The Distribution Channel is split into Specialist Retail Stores, Wholesale and Digital (Mondor Intelligence, 2022b). The channel with strongest presence in the global market is the Specialist Retail Stores, which reached 35% of market share in 2021. These specialist retail stores lead the global market given the variety of products offered to customers in line with their interests as well as the specialised assistance at the point of sale providing the customers with consultancy on products composition and benefits. The Wholesale channel, such as supermarkets, convenience stores and pharmacies, is growing in popularity as places to buy beauty and personal care products due to the wide range of goods provided in one single place and the convenient location, which is usually situated close to residential areas. The Digital channel, lastly, is expanding due to the increasing internet usage and targeted marketing by businesses to reach a larger audience. Additionally, significant discounts and offers made

available by online marketplaces contribute to increasing sales of cosmetics and personal care products in this market (Verhoef et al., 2021).

Finally, Geography is subdivided into North America, Latin America, EMEA (Europe, Middle East, and Africa) and the Asia-Pacific (Mondor Intelligence, 2022b). The Asia Pacific and North America account for over 60% of the global market share, followed by Western Europe, Latin America, Eastern Europe, and Africa (Reilly Roberts, 2022). The top five countries which generate the highest revenue value are United States, China, Japan, India, and Brazil (Statista, 2022a).

With a significant number of multinational competitors and a small number of regional businesses, the beauty and personal care market is fragmented, a fact which several major firms concentrate on, growing their portfolio by releasing advanced, practical, and organic beauty and grooming essentials in the market. Some of the key companies trading in the global market are Unilever; The Estée Lauder Companies Inc.; Shiseido; Revlon; L'Oréal S.A.; Coty Inc.; Procter & Gamble; Kao Corporation; Oriflame Cosmetics S.A.; and Avon Products, Inc. (Reilly Roberts, 2022).

The global beauty and personal care sector is steadily growing stronger, holding the largest market share in 2021 at 84.9% (Berg et al., 2023). Worldwide, this industry generated USD 511 billion in 2021 (Reilly Roberts, 2022), and it is expected to grow over 7% between 2023 and 2030, which translates into approximately USD 400 billion (Berg et al., 2023) as shown in Figure 2.2.



**Figure 2.2 Beauty and Personal Care Market Value Worldwide by Category in Billion U.S. Dollars | Actual Growth 2013 to 2022 and Projected Growth 2023-2027 (Statista, 2022b)**

Market expansion is increasingly influenced by consumers, particularly millennials, who are becoming more conscious of their physical appearance and the health implications associated with conventional cosmetic products (Reilly Roberts, 2022; White et al., 2019). There is a rising awareness of the adverse impacts of synthetic chemicals on the skin, which has contributed to the increased demand for alternatives that are not only safer for individual use but additionally environmentally friendly (Jiotsa et al., 2021). Consequently, there has been a notable shift towards products that are vegan, organic, natural, and non-toxic, aligning consumer lifestyle choices with broader sustainability goals (Barysevich, 2020). This consumer-driven trend towards health and environmentally conscious products is a critical driver for sustainability within the industry, fostering market growth as businesses adapt to these evolving preferences (Verhoef et al., 2021).

In the upcoming years, there likely to be a dramatic increase in the usage of organically produced substances in the creation of cosmetics, which will drive market expansion throughout the course of the forecast period (Grand View Research, 2022). The natural cosmetics category is exponentially growing (Figure 2.3), projected to achieve an annual

market value of USD 54 billion by 2027, in comparison with the USD 42 billion reached in 2022 (Reilly Roberts, 2022).

**Figure 2.3 Global Market Value for Natural Cosmetics** (Reilly Roberts, 2022)

*This image has been removed due to copyright restrictions. It is available online at <https://commonthreadco.com/blogs/coachs-corner/beauty-industry-cosmetics-marketing-ecommerce> or see: Reilly Roberts, 2022.*

Various organisations have substantially invested in enhancing product quality and innovation in terms of ingredients, usability, and packaging. To achieve integration and enhance contributions, leading enterprises are prioritising product innovation and strategic merger and acquisition activities (Mondor Intelligence, 2022b).

#### **2.4.2 The Australian Beauty and Personal Care Industry**

This section will identify and analyse the peculiarities of Australian organisations, which make up most of this research sample, and their positioning in the beauty and personal care industry.

As with the global industry the segmentation of the Australia beauty and personal care market is subdivided into Product type and Distribution Channel.

Product type is categorised by Personal Care including sub-categories such as haircare, skincare, bath and shower, oral care, men’s grooming products. Cosmetics and Make-up includes sub-categories such as facial, eye, lip, nail, and make-up products (Mondor Intelligence, 2022a).

The Distribution channel has the same representation as the global market, Specialist Retail Stores, Wholesale and Digital (Mondor Intelligence, 2022b), with the Digital channel, however, generating and trending the highest sales revenue (Statista, 2022a). Across all sales channels, various organisations appear with their products and brands in the competitive Australian market. The five leading companies trading in Australia are Colgate-Palmolive Company, Unilever PLC, L’Oréal S.A., Procter & Gamble Company, and The Estee Lauder Companies Inc. (Mondor Intelligence, 2022b).

Following the result of modest growth in value during the 2020 global Covid-19 pandemic, the Australian beauty and personal care industry evidenced a robust rebound. The sector's revenue increased from AUD 7,756 million in 2021 to AUD 8,601 million in 2022 — a considerable 10% increment within a single fiscal year. Looking forward, projections suggest a continuation of this upward trajectory, with a forecasted growth rate of 4% over the course of five years, from 2023 to 2028, underscoring the sector's resilience and adaptability in the face of unprecedented market conditions (Accumulate Australia, 2023).

Some of the leading factors influencing such growth are the high Australian Disposable Personal Income, products innovation to mitigate hazards resulting from the severe Australian climate, and increases in the digital sales channel driven by consumers appetite for advice on beauty and personal care products (Mondor Intelligence, 2022a).

The Australia Disposable Personal Income has increased over time, with data demonstrating an average of AUD 105,363 million from 1959 to 2022 that households have available for spending and saving after income taxes. This upward trend is forecast to continue, with projections suggesting an increase to AUD 390,958 million by the year 2025 (Economics, 2023). As a result of such high income, statistics demonstrate that Australians tend to spend a large amount of money on skincare and cosmetics (Mondor Intelligence, 2022a), with the intention of improving their physical appearance (Accumulate Australia, 2023).

Part of the driving force of product innovation is associated with skin cancer results. According to the Australian Institute of Health and Welfare (Australian Institute of Health and Welfare, 2022), the fifth most common type of cancer detected in Australia each year is skin cancer, melanoma, which leads to an increase in the use of sun protection goods as well as the adoption of sun protection regimens by consumers. Another factor contributing to product innovation is customers' interest in products that offer multifunctional attributes, such as UV ray protection along with vitamins that nourish the skin (Mondor Intelligence, 2022a). The referred factors contribute to the increasing demand, and in turn, to the expansion of this industry in the Australian market (Mondor Intelligence, 2022a).

In Australia, e-commerce transactions for cosmetic products have increased from the year 2019 onwards. Consequently online sales constituted 36.1% of the overall beauty and personal care

market in 2021 reference. This figure represents a substantial increment of approximately 22.5 percentage points when compared to the year 2017. Furthermore, in 2022, online sales accounted for 39.8% of the market, and this is expected to rise to 52.4% in the coming years (Accumulate Australia, 2023). Two aspects account for these facts. Firstly, Australia is becoming a more popular country for online shopping given that the vast majority of the Australian population has access to the internet, and secondly the Australian beauty and personal care market has benefited greatly from social media, which has made it possible for businesses to create their brands at a reasonable cost (Mondor Intelligence, 2022a).

In addition, the Australia beauty and personal care market has become stronger over time due to emerging trends from Covid-19 pandemic impacts (International, 2022) and the increasing importance of animal welfare for Australians (Accumulate Australia, 2023).

The impact of COVID-19 on beauty and personal care in Australia led the industry to the 'From Sustainability to Purpose' trend. Organisations face great pressure to play a constructive and proactive part in preserving people and the environment, resulting in many adopting sustainability practises to safeguard their brand status, adhere to legal requirements, and recover more effectively from the COVID-19 pandemic (International, 2022).

Australians are increasingly considering animal welfare when selecting beauty items, for instance, 46% of women would not buy cosmetics if they were tested on animals. This is a considerable increase from 2012, when only 39% of women said animal testing affected their decision to buy (Accumulate Australia, 2023).

## **2.5 Summary**

Research into the specific relationship between the S&OP process and sustainability and the benefits resulting from their integration and application across industries is lacking. Thus, the research framework developed in this thesis is exploring the specific global industry context, aiming to understand the evolution, performance, and trends of both areas.

This review has shown that both sustainability and S&OP initiatives have been evolving over time since the First Industrial Revolution to support organisations to adapt and improve their processes' performance, which can then satisfy economic growth.

From a sustainability point of view, many technological initiatives have been developed in the past decades, however, new creative solutions to manage unknown risks need to be considered. Sustainability topics have become a critical and core pillar in today's world, increasing the interest from customers, organisations, investors, and governments.

As a result of this movement, the sustainability agenda has become part of strategic plans of organisations and government institutions to reduce sustainability impacts, whilst maximising profit. The literature has outlined that a good balance between sustainability impacts and commercial planning through risk management of current and future variations, are the key elements to embed and successfully perform this Agenda.

In the specific context of Australia, the country strongly supports and influences organisations to embed the sustainability agenda. Australia has been involved in the discussions of the 2030 SDG Agenda, in which the SDG targets align with the Australia visions. To move things forward, Australia is implementing programmes that can strengthen business partnerships, share sustainable solutions knowledge, and set ambitious targets along with strong pathways that put commitment into practice.

When viewing the S&OP role in the industry, its focus has been on balancing demand and supply, integrating financial and operational planning since it emerged in the industry in the 1970s. Although S&OP has provided organisations with the ability to achieve great performance outcomes over decades, leaders have urged for a S&OP transformation to improve internal and external collaboration and integrate further business functions, due to a growing and complex global supply chain, globalisation and fast-moving environments.

The role of S&OP for progressing the sustainability agenda through a case study of the beauty and personal care industry is examined in this research. The global industry is steadily recovering from the drop resulting from the Covid-19 pandemic impacts, and projects exponential growth in the coming years is driven mainly by the advance of digital marketing and increasing customers' concerns and awareness of their physical appearance and ingredients compositions, which lead them to be willing to purchase not only products that are good for the skin, but also for the planet.

Similarly, the Australian beauty and personal Care market has presented a rapid recovery over the past couple of years and a strong growth is forecast for upcoming years. The growth drivers are associated with the high Australian Disposable Personal Income value, which influences the population to spend on products that improve their physical appearance, product innovation that provides the customers with multifunctional products that offer protection from the Australian climate, nourish the skin and ensure animal welfare.

This thesis responds to calls for further development and integration of the S&OP processes beyond the supply chain and commercial areas, and for incorporation of the sustainability agenda into organisational strategy. The design of this thesis provides an insight into experts' experiences of supply chain and sustainability in the global and Australian beauty and personal care industry.

The next chapter details the thesis theoretical background.

## **CHAPTER 3 THEORETICAL BACKGROUND**

### **3.1 Objective**

This chapter provides theoretical perspectives underpinning this thesis and critically reviews the literature pertinent to its key concepts. It begins with systematically introducing, reviewing, and analysing extant literature relevant to understanding organisational readiness for supply chain management. This includes the introduction of management practices into supply chain functions, factors challenging the consistency of the model, and the connections between sustainability management and supply chain practices. The discussion covers not only the negative impacts, but existing practices used in industries to mitigate such factors. Finally, given that this thesis aims to examine the enhancement of sustainability performance through the integration of the S&OP process, this chapter delves into the theory associated with the S&OP model, including the principles and fundamentals, steps for implementation, and processes and practices that ensure the consistency of the model.

### **3.2 Supply Chain Management**

#### **3.2.1 Definitions of Supply Chain and Supply Chain Management**

Fazlollahtabar (2017) describes supply chain as the systematic coordination of material flow, information exchange, financial transactions, and service provision, originating from raw material suppliers and navigating through production facilities and warehouses, ultimately reaching the end customer. This comprehensive integration of elements underscores the complex and interconnected nature of the supply chain process.

Vitasek (2013), however, explains that the term supply chain encompasses a sequence that is initiated with unprocessed raw materials and ends with the delivery of finished goods to the final customer, establishing a collaborative network among various companies involving the exchange of both material and informational elements. The entities involved constitute integral links within the interconnected framework of the supply chain. Although both authors have a

similar definition, Vitasek has an emphasis on the stakeholder's connections across the end-to-end supply chain.

Another perspective stated by Lummus and Vokurka (1999) is that supply chain is a comprehensive undertaking that involves the entirety of activities related to the creation and delivery of a final product, extending from the supplier's supplier to the customer's customer. The fundamental processes of planning, sourcing, making, and delivering serve as overarching categories encompassing tasks such as supply and demand management, inventory tracking, distribution across all channels, and final delivery to the customer. These interconnected processes form the intricate network that ensures the seamless flow of goods from production to consumption.

The selection of these three definitions was founded on their comprehensive articulation of supply chain components, their recognition in academic literature, and their alignment with contemporary industry practices (Sánchez-Flores et al., 2020). Each offers a unique emphasis on systematic coordination (Fazlollahtabar, 2017), collaborative networks (Vitasek, 2013), or comprehensive undertaking of activities (Lummus & Vokurka, 1999), thus providing a well-rounded understanding of the term 'supply chain' within the field. Excluded were narrower definitions that did not encapsulate the range of activities across the supply chain or failed to capture the evolving nature of inter-organisational relationships (Govindan et al., 2021). This selective approach ensures a comprehensive discourse that reflects the multifaceted reality of supply chain operations, facilitating a robust academic exploration and offering pragmatic insights for industry application (Durugbo & Al-Balushi, 2023).

For the purpose of this thesis, which aims to investigate the factors influencing and impacting supply chain management practices, the definition by Lummus and Vokurka (1999) is the most appropriate. Considering the multi and cross-functional processes and stakeholders involved in the complex supply chain network, this definition reinforces the understanding of the intricate interactions and management dynamics required. This definition was meticulously selected for its precision in reflecting the underlying theoretical framework, its coherence with extant definitions within the underpinned theories, and its measurement applicability. Furthermore, it

is consistent with the collection of key concepts integral to this research, thereby reinforcing the theoretical significance of it.

Figure 3.1 provides an overview of a high-level organisation's supply chain materials flow.

**Figure 3.1 Organisation's Supply Chain Materials Flow** (Chen & Paulraj, 2004)

*This image has been removed due to copyright restrictions. It is available online at <https://doi.org/https://doi.org/10.1016/j.jom.2003.12.007> or see: Chen & Paulraj, 2004.*

Therefore, considering the above, the main objective of supply chain management is to integrate supply and demand management across multiple companies as well as connecting major business functions and processes to create a unified and efficient business model (Vitasek, 2013). Supply chain management involves the management of cross-functional relationships with a focus on transforming materials into services or goods, including a wide range of operational activities (Ballou et al., 2000). It thereby involves the coordination of all information flows, from the suppliers of raw materials to the final consumers, both inside and outside the organisation (McKinsey & Company, 2022).

### **3.2.2 Supply Chain Framework**

A supply chain is to manage the transformation of materials into finished goods, ensuring timely and cost-effective delivery to final customers (Parkhi et al., 2015). The configuration of the supply chain framework is contingent upon the range of available resources facilitating the flow of materials throughout the entire end-to-end process. By and large, the immediate supply chain functions encompass suppliers, manufacturers, distributors, wholesalers, and retailers (George & Pillai, 2019), as demonstrated in Figure 3.2.

**Figure 3.2 A Representative Supply Chain Structure** (George & Pillai, 2019)

*This image has been removed due to copyright restrictions. It is available online at [https://www.researchgate.net/publication/337637030\\_A\\_study\\_of\\_factors\\_affecting\\_supply\\_chain\\_performance](https://www.researchgate.net/publication/337637030_A_study_of_factors_affecting_supply_chain_performance) or see: George & Pillai, 2019.*

This representative structure is fundamentally comprised of processes, activities, and capabilities where these multiple layers, aligned with leading competencies, serve as the drivers to achieve higher results across the supply chain. A study from 2004 condensed those competencies into three streams: operational, planning and behavioural processes (Closs & Mollenkopf, 2004).

According to Closs and Mollenkopf (2004), the operational process integrates internal and external customers and suppliers, focusing on both material and service flow from start to finish. Meanwhile, the planning process aims to enable systems and tools, through technological resources, to support the implementation of strategies in the market plan segmentation. In essence, it measures statistical customer demand figures, influencing future business plan initiatives and the operational process plan. The integration of operational and planning competencies culminates in the development of supply chain management, which adopts a behavioural process perspective. This represents the third competence within the supply chain framework. Its primary focus is on building and maintaining the process integration through cross-functional collaboration.

From a more contemporary perspective, Blanchard (2021) further emphasises the importance of horizontal strategy as an instrumental approach to achieve profound and efficacious outcomes within the domain of behavioural process competency. This is particularly evident when the goals and policies are cascaded across interconnected business departments.

**Figure 3.3 The Supply Chain Framework** (Closs & Mollenkopf, 2004)

*This image has been removed due to copyright restrictions. It is available online at <https://doi.org/https://doi.org/10.1016/j.indmarman.2003.08.008> or see: Closs & Mollenkopf, 2004.*

The framework illustrated in Figure 3.3 establishes a paradigm grounded in strategic management theory. This paradigm focuses on the generation of competitive advantage through collaboration. In drawing attention to the centre of this framework, relationship aspects stand out as essential to the successful management of the supply chain (Anderson & Narus, 1990), creating an alliance to manage, achieve and maintain business targets. This framework

includes the alliance of all processes, from cash flow to product value flow management, in which strong and constant relationship management is needed to provide mutual benefit and enhance competitiveness on both inter-company and inter-supply chains (Christopher, 1996).

Therefore, considering the framework and definitions explored above it is understood that Supply Chain Management (ASCM) involves resource-base management through relationship, measurement, technology, and planning strategies. It focuses on managing materials and suppliers with an emphasis on end customers. These foundational concepts serve as the basis for delving into the nuances required for effective management practices within the SCM landscape. They support the findings and discussions derived to answer the three research questions of this thesis.

### **3.2.3 Supply Chain Framework Challenges**

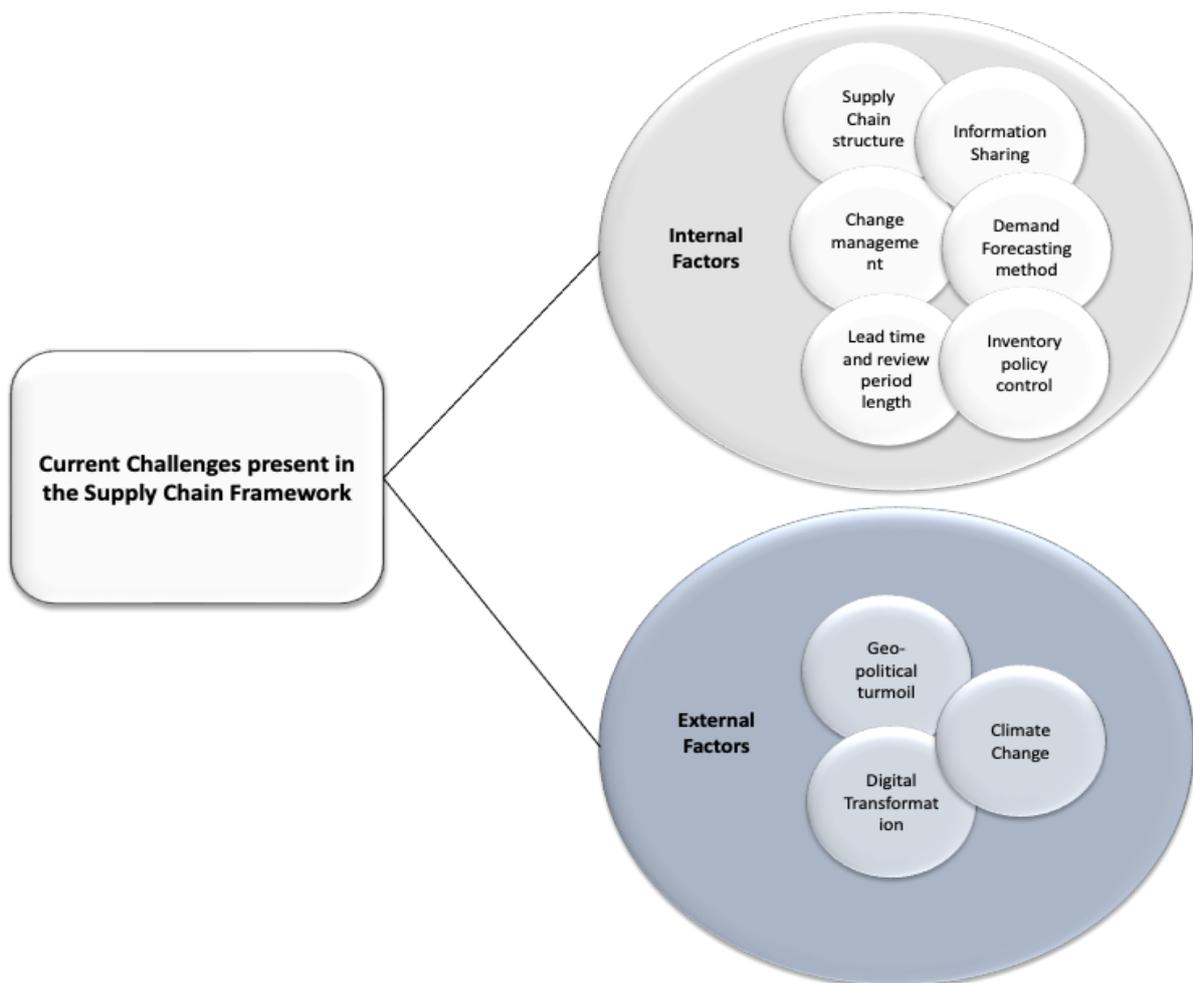
Over the past half-century, the shift towards globalisation was driven by economic and political forces (Beri et al., 2022). Organisations are now more reliant on components sourced globally, subject to numerous external and internal influences. Concurrently, the geographical span covered by a product during its lifecycle has garnered significant attention, especially within the manufacturing domain. Previously overlooked factors have now risen to prominence, highlighting a shift towards a heightened emphasis on the distance travelled by products (Podrecca et al., 2021).

Recently, supply chain management practices have focused on contemporary issues and challenges, identifying them as critical strategic drivers for enhancing outcomes and, consequently, increasing profitability across organisations, as captured by George Papageorgiou (2020, p. 84): “Supply Chain Management is a promising tool with a great impact on the efficiency of today's businesses and the wider assurance of quality processes in the highly competitive environment of modern economies”.

Some of the drivers are disruption, the effectiveness of contingency planning and risk management, low-carbon operations management (Azadegan et al., 2020), an extension of the Industry 4.0 (Frederico et al., 2019) and knowledge management (del Rosario Pérez-Salazar et al., 2017).

Moreover, according to George and Pillai (2019), supply chain performance has been measured by the combination of various factors coming from the internal and external environment, which is present across all markets and industries, creating performance competition beyond the organisational level, encompassing the entire supply chain network.

The major challenging factors found in literature reviews (Figure 3.4) are related to supply chain structure, lead time and review period length (George & Pillai, 2019), information on sharing, demand forecasting method and inventory policy control (George & Pillai, 2019), change management (Blanchard, 2021), digital transformation (Hai et al., 2021), and global disruptions (Tae-Woo Lee et al., 2024) due to geopolitical turmoil (Sarah Schiffing & Nikolaos Valantasis Kanellos, 2022) and conflicts such as climate change (Furlan Matos Alves et al., 2017), Covid-19 (Sharma et al., 2020), and the Russia-Ukraine conflict commencing in 2022 with no sign of abatement (S Schiffing & N Valantasis Kanellos, 2022), for instance.



**Figure 3.4 Factors affecting Supply Chain Performance.** *Informed from George and Pillai (2019), Blanchard (2021), Hai et al. (2021), Tae-Woo Lee et al. (2024), Sarah Schiffling & Nikolaos Valantasis Kanellos (2022), Furlan Matos Alves et al. (2017), Sharma et al. (2020) and S Schiffling & N Valantasis Kanellos (2022).*

The contrast and connections between the external and internal challenging factors impacting supply chains (Ning & Yao, 2023); (Bednarski et al.; Dubey et al., 2024) inform the development of Figure 3.4 and are further explained throughout this chapter.

### **3.2.3.1 Internal Factors**

Many organisations in the manufacturing and retail sectors have streamlined supply chain management yet face persistent barriers (Unhelkar et al., 2022). Blanchard (2021) references a

study by the consultancy firm Accenture, which attributes these challenges primarily to the inconsistent execution of the transformation process, considering technology, project costs, business strategy and change management streams.

According to George and Pillai (2019), internal factors are streamlined referring to such risks as an opportunity to create a plan that would secure long-term good performance once the finest specification is maintained. When correlating demand plans with process lead time, these authors emphasise that the longer the end-to-end process lead time is, the more complex the supply chain management will be. The flow-on effect of this complexity occurs by increasing not only business costs but also the management practice scope. For instance, to ensure an accurate inventory policy that covers a volatile demand plan with a high expected service level, these assumptions need to be calculated into the statistical model which may result in a high cost-investment. Moreover, lead time revision frequency is another key factor to secure the appropriate level of inventory to achieve demand plans. In this instance, the higher the demand deviation is, the more often the inventory policy needs to be revisited to avoid order disruptions and variances. On the other hand, reviewing the parameters less often would confirm a reduction in working capital. Thus, adjustments between the stock-outs period and costs are challenges to be factored into the business performance plan.

Research has shown that both demand forecasting methods and information sharing have a significant impact on supply chain performance (Yang & Zhang, 2019) and are both considered challenging to be managed across the supply chain given their influences on the data gathering and customer ordering process (Feizabadi, 2022). Data gathering is the first step to driving and building demand plans, minimising demand uncertainty and therefore, ensuring better performance of supply plans that will protect the business from loss of sales, for instance (Zhao et al., 2002). However, the quality and transparency of how this process is conducted, that is the forecasting methods and collaboration activities in place to connect stakeholders across the organisation will dictate the cost-effectiveness of the supply chain, affecting inventory costs, production capacity utilisation, and customer service level. In addition, continuous and accurate information sharing not only benefits demand forecasts development but also influences better decision-making reducing uncertainties (George & Pillai, 2019).

Globalisation presents organisations with both challenges and opportunities, compelling the need to form alliances with a broad spectrum of suppliers. The rigid emphasis on speed and cost efficiency requires the breakdown of rooted internal barriers and the fostering of effective cross-functional synergies. Failure to achieve progress in these critical domains carries increasingly significant risks (Beth et al., 2003).

Organisations have faced unanticipated challenges across the supply chain process due to inconsistencies during the transformation journey, such as digital enhancement not being well embedded, underestimated project costs, a business strategy not well determined, and lack of change management post-transformation implementation (Blanchard, 2021). From this perspective, it is understood that the potential cause of such behaviour is the 'working in silos' approach common in many organisations. This approach prevents departments and stakeholders from connecting and focusing on shared goals and consistent data sources, as indicated in studies conducted by Accenture (as cited in Blanchard, 2021, p. 10).

Conducting extensive research is imperative for organisations to effectively identify and mitigate risks. It requires mapping the entire supply chain, including the first and second tiers, classifying them as low, medium, or low risk (Richert & Dudek, 2023). This activity implies investment of time and resources, which explains why most major corporations have concentrated their efforts solely on strategic direct suppliers, who account for a large portion of their expenses (Karjalainen, 2011). However, a surprise disruption that pulls the business to a standstill might be far more costly than a thorough examination of the supply chain. Thus, using metrics to measure the impact on loss of sales as a result of supply disruptions is critical to determine how long the organisation can survive or quickly adapt to any unprecedented supply outages (Shih, 2020).

### ***3.2.3.2 External Factors***

Digital transformation initiatives have been strongly present in strategic plans, recognised by organisations as a powerful tool to accelerate, and support businesses to become more agile and competitive. Furthermore, the constant and fast pace of integration and evolution of the development of the digital sector has forced organisations to become aware and therefore,

change the focus in their strategic plans accordingly (Hai et al., 2021) That is, innovate existent or future models in line with what is currently updated across the industry.

Besides creating competitive advantages across organisations, such digitalisation has been seen as an opportunity to add value to the sustainable goals across the supply chain once a transition from conventional to digital supply chain management occurs (Ageron et al., 2020). However, Knudsen et al. (2021) argue that giving great emphasis to the evolutionary digital transformation can lead to the erosion of stable competitive advantages. This is attributed to the inherently temporary nature of the opportunities introduced by technological initiatives within organisations. Consequently, such a strategy can create a turbulent and toxic competitive workplace environment. Moreover, incorporating decarbonisation alongside digitalisation strategies has become essential to business growth strategies. This integration is especially pivotal as businesses restructure planning frameworks and strategise timelines to reliably meet the customer needs of an increasingly volatile global market (Tae-Woo Lee et al., 2024).

Geo-political turmoil stands as another factor contributing to inconsistencies and necessitating updates, both in technological dynamics and business strategic plans. With the emergence of the Covid-19 pandemic, for instance, organisations had to reconsider their digital strategy, adapting models to secure their space into the competitive business environment (Hai et al., 2021) and minimise disruptions on supply and demand aspects (van Hoek & Dobrzykowski, 2021).

Unprecedented outbreaks in the external environment such as pandemics and the most recent catastrophic Covid-19 play a substantial negative impact on the supply chain across any industry sector. Businesses have encountered challenges in managing and maintaining a constant flow in their end-to-end process to source raw materials and convert them into finished goods or services to supply the final customer (Sharma et al., 2020). A study from Chowdhury et al. (2021) reveals that Covid-19 has caused significant disruptions across supply chains, affecting both internal and external stakeholders to a substantial degree. This disruption led to a pronounced bullwhip effect in demand within a short timeframe, coinciding with operational constraints imposed by lockdowns and border closures.

In 2020, Shih (2020) outlined that once the Covid-19 pandemic was over, the globe would look very different. Once the global economy stopped, demand variability, trade restrictions, and products shortages of crucial supplies exposed the immense flaws in the business strategies and their supply chains. Furthermore, this posed a greater pressure on globalisation to increase local production and local employment, reduce reliance on risky sources, and reconsider their management strategies, involving the operations performance efficiency. From that perspective, Shih's (Shih, 2020) point is that the issue for businesses would be to strengthen their supply chain processes management without jeopardising their competitiveness, in which managers should first recognise their risks and then consider several steps to overcome such challenges.

Although pandemics cause such a calamitous disordering across the supply chain, other conflicts, such as the ongoing war between Russia and Ukraine, introduce additional challenges. According to S Schiffing and N Valantasis Kanellos (2022, para. 1), this conflict poses a significant risk of exacerbating the existing challenges in global supply chains, leading to further disruptions. Additionally, despite not being major import partners in terms of overall volume, Ukraine and Russia play a vital role as suppliers of raw materials and energy. These nations contribute crucial resources that support global industries and manufacturing processes, emphasising their importance in the intricate web of supply chains.

As the world recovers from the Covid-19 pandemic, it is anticipated that supply chain management will confront further challenges. Organisations must not only develop strategic models for growth and prosperity but also to ensure survival and distinction in unprecedented times (Moosavi et al., 2022).

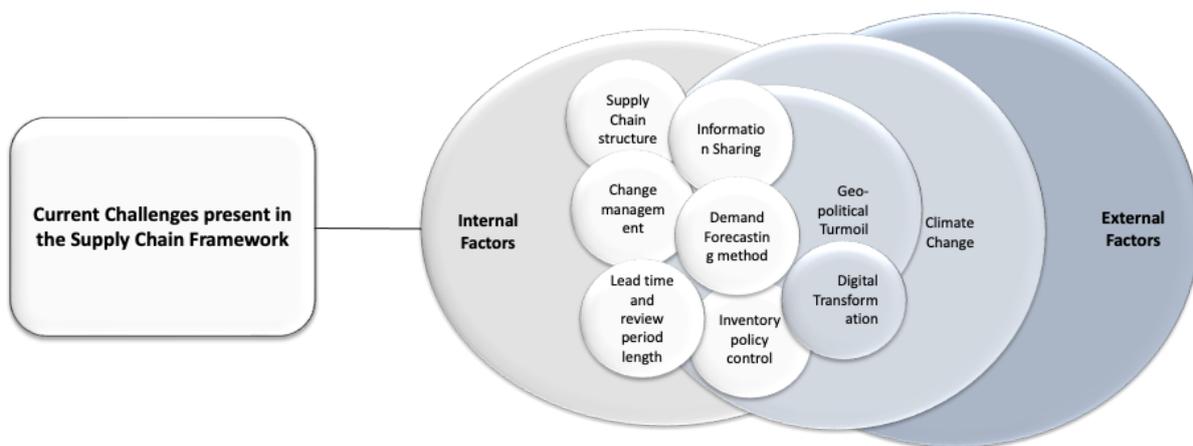
Climate change, a global concern, is another factor that has been extensively debated and researched over recent decades due to the significant risks and uncertainties it presents to both organisations and society at large. It introduces a range of risk considerations for businesses, including extreme weather events, evolving governmental regulations, emergent technologies, and rising costs (Furlan Matos Alves et al., 2017).

According to Furlan Matos Alves et al. (2017), the influence of organisational activities on climate change has been recognised and is continually evolving. A critical observation is the

extent of the impact, and the measures organisations are implementing to integrate external climate change data. This integration is pivotal for informing leadership decisions related to business structure modifications and the development of contingency strategies. Ultimately, the aim is to foster an agile and sustainable supply chain.

In light of climate change, supply chains are under escalating pressure to adopt sustainable practices, adhere to environmental regulations, and reduce carbon emissions (World Economic Forum, 2022a). Moreover, there is a push to adopt eco-friendly packaging, ensure responsible sourcing, and sustain ethical and social responsibility standards, while maintaining cost-effectiveness (Saveth, 2023). To navigate these challenges, supply chains need to engage in proactive and strategic planning, leverage new technologies, foster collaboration, improve transparency, and develop resilient and agile networks (Henrich et al., 2022).

Reflecting on the previously discussed challenging factors, it becomes apparent that internal and external factors within organisational environments are interrelated, thereby influencing each other, as demonstrated in Figure 3.5.



**Figure 3.5 Connection Between the Internal and External Factors that Affect Global Supply Chain Performance.** *Informed from George and Pillai (2019), Blanchard (2021), Hai et al. (2021), Tae-Woo Lee et al. (2024), Sarah Schiffling & Nikolaos Valantis Kanellos (2022), Furlan Matos Alves et al. (2017), Sharma et al. (2020) and S Schiffling & N Valantis Kanellos (2022).*

Consequently, an effective process model is one that not only anticipates risks but additionally formulates strategies to mitigate or contain the impact of unforeseen events, which is pivotal for achieving business objectives and ensuring resilience in the face of unpredictability (Jain et al., 2020).

### **3.2.4 Evolution of Supply Chain Management**

The foundational principles of collaboration with suppliers and customers have long underpinned organisational operations. Yet, it is only in the past half-century that the concept of supply chain management has evolved, delving into the complexities of supply and channel connections. This exploration has aimed to understand the limitations and challenges arising from variability in the demands of suppliers and customers, as well as to develop strategies to address these challenges (Blanchard, 2021).

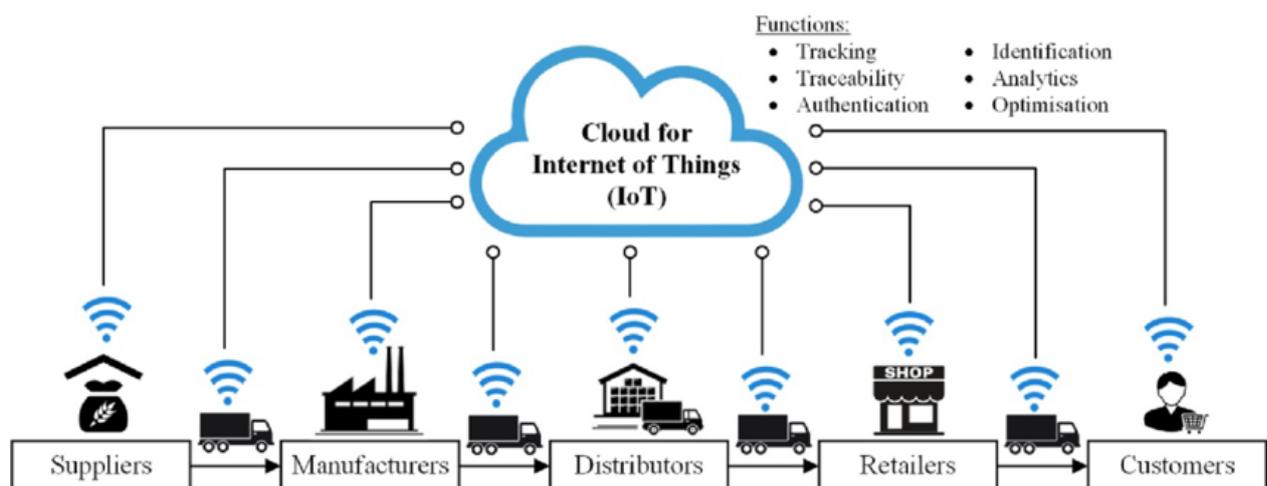
According to Habib (2014), the concept of supply chain initially came from the implementation of logistics management in the military segment to source, storage and transport supplies within that sector. Yet used as an operational function, it only started to be seen from a strategic point of view when changes occurred in the 1950s with the manufacturing sector managing the distribution management as a separate department within organisations. Habib (2014), continues by emphasising that the Supply Chain Management approach became an important area across organisations in the early 1980s when supply chain functions were integrated to be managed as one single area.

In the late 1980s, organisations faced an enormous working capital invested in inventory while dealing with customer disappointment with orders not being fulfilled due to issues with the order fulfilment and demand process. In this instance, supply chain management emerged as a fundamental model to develop and enhance business processes to meet customer needs (Lee & Billington, 1995). Higher business performance, with business achieving better results, did start to be seen upon supply chain network integration. To enhance overall performance, businesses needed to manage the entire supply network by outsourcing from suppliers offering cost-effective, high-quality products, rather than relying solely on in-house sourcing and benefit from each other's success (Lummus & Vokurka, 1999). In this context, supply chain

management expanded its concepts from logistics integration to supply chain network integration in the first half of the 1990s (Mukhamedjanova, 2020).

In the late 1990s and the beginning of the 2000s, the SCM designated the appropriate functions to manage and control each process across the flow of materials in the organisation. That meant a function to implement strategies to engage and integrate stakeholders ensuring a focus on effective communication (Mukhamedjanova, 2020). The effective results from the strong cross-functional relationship between organisations and their suppliers (internal and external) increased the interest of organisations in implementing the SCM practices across their processes.

With the accelerated progress of information technology, another element brought into the SCM framework was the ‘Internet of Things’. According to Zhou et al. (2015, p. 1), the ‘IoT’ allows objects to be “connected, monitored, and optimised through either wired, wireless, or hybrid systems”, enabling the flow of information across the network. In the period when the ‘internet of things’ was strongly introduced to the world, supply chain management embraced this approach to integrate its processes and network, consequently becoming more competitive in such a dynamic global environment Figure 3.6.



**Figure 3.6 Supply Chain Management Network Integrated Through the IoT** (Tsang et al., 2022). *Reproduced under a [CC-BY-NC-ND license](https://creativecommons.org/licenses/by-nc-nd/4.0/).*

The evolution of supply chain management approach is constantly evolving because of global competitiveness across industries. The evolution of information technology, the emergence of products with shorter life cycles, increased global market competition, and rising customer expectations collectively drive the transformation of supply chain management, necessitating innovative approaches (Sabbaghi & Sabbaghi, 2004).

Supply chain management, by its definition and its governance extension, continue to advance in response to the rapid and dynamic network of the global supply chain and its challenges (Parkhi et al., 2015). This is underscored by the fact that SCM is considered a fundamental practice for achieving higher performance, leading business towards more sustainable growth and profitability (Habib, 2014). Its ability to systematically manage short- and long-term targets, including influences from historical results, contributes to its effectiveness (Nitsche, 2021).

Building upon the foundations of dynamic globalisation, this thesis recognises the significant role various theories have played in shaping SCM solutions. Theoretical frameworks such as Systems Theory (Caddy & Helou, 2007), the Resource-based View (RBV) (G. Davis & T. DeWitt, 2021), Transaction Cost Economics (TCE) (Cuypers et al., 2021), and the Balanced Scorecards approach (Bhagwat & Sharma, 2007) are instrumental in elevating the comprehension and enhancement of supply chain operations management.

Guided by the Enacting theory type as proposed by Sandberg (Sandberg & Alvesson, 2021), this thesis employs these theories to build a robust theoretical base. This base enlightens the exploration and discussions concerning key factors that influence the effective performance of supply chain sustainability strategies and objectives. The integration of these theories within this thesis aims to delineate the evolution and transformation of the conventional Sales & Operations Planning (S&OP) process, identifying potential gaps in existing management practices, thereby generating novel concepts and initiatives within both theoretical and practical domains.

The upcoming sub-sections of Section 3.2.4 explore the literature on these theories, offering insights into their potential impacts on the objectives and questions addressed in this thesis from the theoretical point of view. Thereafter, Chapter 8 brings together the relationships and contributions to the empirical framework based on the theoretical framework underpinned by the investigation of these theories.

#### ***3.2.4.1 Systems Theory***

Systems Theory has influenced organisational studies since the 1960s. It views supply chains as a complex interconnected system comprising organisations, processes, and resources, that interact and influence each other. It emphasises understanding the relationships and interdependencies among different components and their impact on overall performance (Wilden et al., 2022).

Yet, when contextualised within the ambit of supply chain management, Systems Theory mandates a comprehensive perspective. It requires recognising the interdependencies and feedback loops between different elements, and understanding how changes in one part of the business process can affect the entire chain. This involves analysing the relationships, flows, and processes within the supply chain to identify potential risks, inefficiencies, and opportunities for improvement (Caddy & Helou, 2007).

However, the real-world application of System Theory to supply chains encounters the intricacy of network interdependencies, information transparency, and decision-making complexities. This becomes particularly pronounced when dealing with volatile and expansive global supply chains (Wilden et al., 2022).

Considering the above, it is evident that while Systems Theory provides a foundational framework, the complexity of contemporary supply chains challenges a one-size-fits-all application. Thereby, it is argued that the effective management of today's supply chains should transcend traditional theoretical models. This thesis suggests that there is a pressing need for adaptive strategies and innovative integration techniques, emphasising the need to address and navigate the evolving challenges of supply chain management, ultimately fostering resilience and competitive advantage in a progressively complex global marketplace.

### ***3.2.4.2 Transaction Cost Economics Theory***

In the early 1970s, the Transaction Cost Economics theory (TCE) was introduced with a purpose of examining costs associated with transactions throughout the supply chain network, supporting decisions on make-or-buy, supplier selection, and long-term relationships based on transaction cost analysis (Shahab, 2021). TCE offers valuable insights into supply chain management by investigating the governance and decision-making processes involved in structuring complex transactions. By focusing on transactional efficiency and minimising costs, TCE contributes to establishing strategies that support organisations in managing their supply chains effectively and make informed decisions regarding the performance of the operations of an organisation (Hardt, 2009).

Although TCE is acknowledged as an efficient governance method for manage transactions within an organisation's supply chain, some key challenges are present in this theory. TCE traditionally views transactions as distinct units, separable for the purpose of evaluation. However, this stance is overly reductive when considering the symbiotic nature of transactions that are inextricably linked to an array of interdependent factors and resources within the supply chain. To effectively employ TCE in such environments, a nuanced approach is a requisite – one that acknowledges and integrates these dependencies into the analysis of transaction costs (Ketokivi & Mahoney, 2020).

Furthermore, a critical challenge of TCE lies in the quantification of transaction costs. The diversity of methods and the inherent variability across different business processes reduces the measurement of these costs, an effort marked by uncertainty. This creates difficulty for organisations seeking to implement TCE principles as a foundation for governance and performance optimisation (Cuypers et al., 2021).

Considering the above, this thesis proposes an expanded utilisation of TCE that is adjusted to the complex realities of today's supply chains. It calls for an approach that exceeds the traditional boundaries of the theory, integrating critical analysis of the transactional relationships and the often intangible costs associated with them. Through such a critical and expanded application of TCE, organisations may better navigate the complexities of supply

chain management, ensuring that decision-making is both informed and adaptive to the ever-evolving business landscape (Hennart & Verbeke, 2022).

#### ***3.2.4.3 Resource-Based View Theory***

Underpinning TSE theory, Resource-Based View (RBV) theory was introduced in the early 1990s, asserting that an organisation's competitive advantage lies in its unique and valuable resources (Joyce & Winch, 2004). In supply chain management, RBV focuses on identifying and leveraging key resources, such as physical assets, intellectual property, and organisational capabilities, to create a sustainable competitive advantage (G. F. Davis & T. DeWitt, 2021). Furthermore, RBV has been applied to investigate the interconnections between environmental management practices, operational performance, social performance, and financial performance. It suggests that environmental management practices can positively impact on operational and financial performance through their influence on environmental and social implementation. Thus, RBV indicates that organisations which build capabilities and resources related to environmental management can enhance their financial performance while contributing to sustainability (Arda et al., 2023).

In the context of supply chain management, the implementation of RBV in an organisation does influence effective management performance, however, it additionally presents notable challenges as it not a straightforward introduction. These challenges encompass identifying the complexity and differences among various resources across the end-to-end network, facilitating information sharing and data integration across multiple functions and stakeholders, fostering trust and collaboration among cross-functional stakeholders within the supply chain. This is particularly pronounced in the presence of conflicts interests, power imbalances, or concerns about opportunistic behaviour (Arda et al., 2023).

Nevertheless, to address these challenges, this thesis suggests that organisations require investment in several key areas, including the adoption of a complementary management practice that fosters strong strategic alignment, implementation of effective coordination of tools and technological solutions, and promotion of collaborative efforts among stakeholders (Vitorino Filho & Moori, 2020).

#### ***3.2.4.4 Balanced Scorecard Approach***

As with RBV, the Balanced Scorecard approach (BSC) was introduced in the early 1990s. Expanding on previously discussed theories, RBV was initially proposed as a key practice to enable performance management framework (Bhagwat & Sharma, 2007). It was created with the perceived limitations of relying solely on financial transactions to assess organisation performance.

In the context of this thesis, BSC is utilised as a pivotal analytical framework for supply chain management within organisations. It facilitates the understanding of the multifaceted assessment of strategic objectives, encompassing both financial and non-financial metrics. The integration of BSC within supply chain management serves to streamline operations, improve alignment, enhance efficiency, and promote the reduction of wastage, thereby contributing to the elevation of overall organisational performance (Cobbold & Lawrie, 2002).

As with challenges uncovered in previous theories, the BSC presents various nuanced challenges in supply chain management. These challenges are associated with culture and collaboration resistance from employees accustomed to traditional processes, a lack of leadership support and commitment, and inaccurate or insufficient data leading to inconsistent analysis and decision-making (Pejić Bach et al., 2023). Additionally, sustaining improvements already achieved requires proper establishment of control and monitoring systems, which BSC does not underpin (Ali et al., 2020).

Addressing these challenges requires a holistic approach, including a management practice that fosters effective change management, leadership support, data governance management, and collaborative relationships with business cross-functional stakeholders (Salah & Rahim, 2019).

Consequently, this thesis explores the application of BLC principles to substantively address the three research questions presented, integrating the framework to elucidate the findings and contribute to the body of knowledge within the field.

### **3.3 Supply Chain and Sustainability Management**

#### **3.3.1 How the Supply Chain Activities Impact Sustainability Strategies and Goals**

Since the beginning of the industrial revolution in the second half of the 18<sup>th</sup> century, environmental factors such as “natural resources, energy, pollution, and waste products” have caused an increase in carbon emissions, and consequently accelerated global warming (Lindsey, 2020). Among the organisational functions, supply chain, however, is the main source contributing to this phenomenon given the complex end-to-end process and connection with various stakeholders across the chain (Ahmed & Sarkar, 2018, p. 1).

As previously discussed in this literature review in Section 3.2.1, supply chain management comprehends the integration of organisations’ stakeholder (Azevedo et al., 2012) in the activities of material sourcing, manufacturing of finished products and transportation to the end customer. This process together known as supply chain management, accounts for 18% of global carbon emissions (Li et al., 2021).

The materials sourcing phase represents a fundamental portion of the sustainability performance management, influencing the procurement process, manufacturing use, and finished product life cycle which when combined demonstrate how the sustainability parameters are part of the sourcing decisions strategy (Keoleian & Sullivan, 2012).

Within the supply chain landscape, the manufacturing sector is a significant environmental contributor, surpassed only by logistics in its ecological footprint. Upon acquitting raw materials, the process involved in manufacturing often leads to increased carbon emissions, largely due to inefficiencies in managing both direct and indirect resources (Mohammed T. Hejazi et al., 2023). The main direct impacts come from poor management of elements used to operate the manufacturing processes such as fossil fuels consumptions, transportation and electricity usage. Indirect aspects, however, are those from outside sources, arising from normal human activities including commuting to work or flying for business opportunities which contribute significantly to the rise in CO<sub>2</sub> emissions within the industry (Burton, 2020).

In this context, a study conducted by Ahmed and Sarkar (2018) shows that the logistics process, represented over 80% of the total supply chain network carbon emissions, primarily led by transportation. The authors argue that this occurs because of the distance and lead time between stakeholders, from the harvesting process to the distribution of finished products to the end customer, based on their market location.

Logistics services have been constantly expanding throughout the years since the 1950s with a comprehensive objective to manage resources and capabilities. As part of this expansion, digital innovation initiatives came about to remove costs and inefficiencies from the supply chain process introducing logistics services into the ecosystem thinking concept (as demonstrated in Figure 3.7), which ultimately aims to connect organisations to collaborate and add value to the end customer (Langley Jr, 2020).

**Figure 3.7 Evolution of Supply Chain Management** (Langley Jr, 2020)

*This image has been removed due to copyright restrictions. It is available online at <https://www.supplychainquarterly.com/articles/3806-pls-4pls-and-beyond> or see: Langley Jr, 2020.*

Ahmed and Sarkar (2018, p. 3) point out that “environmental concerns arising from the logistic operations affect business growth along with the sustainability of the supply chain system, which must be taken into account during policymaking”. Such a policy, for instance, involves the coordination of multiple delivery models, optimising goods transportation between external stakeholders thus increasing supply chain efficiency as a primary goal.

With the evolution of digital innovation, incentivised by the geopolitical aspects, the logistics performance has been expanding to continuously meet customer demand. However, such expansion directly contributes to an increase in carbon emission generation, translating what is supposed to be a positive customer demand and business efficiency aspect into a negative output for the environment (Wang, 2021).

Another aspect that entails the supply chain activities and sustainability impacts is associated with circular supply chains (CSCs), which have emerged as a result of the Circular Economy (CE) to reduce the environmental implications of linear industrial systems. The shift to CSCs comes with difficulties and uncertainties, which have an impact on sustainability performance (de Lima et al., 2022).

Within the framework of SC uncertainty management, suitable SC performance assessment and management, as well as the specific linkages of different aspects of performance with certain uncertainty management strategies, must be considered (de Lima et al., 2022). It is

highly recommended that leaders in the industry focus on an efficient planning model to optimize the demand and distribution process (Ahmed & Sarkar, 2018).

### **3.3.2 The Evolution of Sustainability Management Across the Supply Chain Framework**

The requirement to insert sustainability management practices into the supply chain management process was introduced not long time ago . As uncovered in Section 3.3.1 in the second half of the 18<sup>th</sup> century environmental issues started to arise from production, suppliers and logistics processes accentuating the need for innovative models that would support business decisions based on environmental impacts (Wong et al., 2015). Ever since that time, sustainability topics have been prominently integrated into supply chain operations, driven by the need to address the significant level of greenhouse gas emissions resulting from operational activities within the supply chain (Carter et al., 2020).

To understand the evolution of sustainability management within the supply chain, the starting point is to explore the definitions of Green Supply Chain Management from different authors' perspectives and therefore, to detail its evolution from the origin to current and existing models.

When the sustainable supply chain management model was first introduced, the principal focus of this stream was on the reduction of energy consumption, waste and pollution aspects (Centobelli et al., 2021). Later, another approach to manage business environmental aspects came about, known as Green Supply Chain Management (GSCM). Srivastava (2007) defines GSCM as the integration of environmental thinking into supply-chain management encompassing a holistic approach. It involves considering environmental aspects in various stages, starting from product design and material sourcing to manufacturing processes. Additionally, it extends to the delivery of the final product to consumers, emphasising sustainability throughout the entire lifecycle (Rajeev et al., 2017).

Although the definition of Green Supply Chain Management focuses on the end-to-end process, social concerns are rarely brought into practice when working towards the development of a more sustainable supply chain (Srivastava, 2007).

Ahi and Searcy (2013) warn that environmental, economic as well as social factors are the fields to be taken into consideration in studies associated with managing a supply chain to build

customer value creation. That means creating synchronised supply chains with the objective of meeting stakeholder demands, enhancing organisation profitability, competitiveness and resilience in both the short and long-term (Fairchild & Alexander, 2021).

Seuring et al. (2022) assert that an organisation starts to see sustainable practices reflected in their business performance once the three dimensions of sustainable development are integrated across the supply chain management strategy. This integration aims to achieve and maintain profitability while ensuring a transparent approach to managing impacts on both people and the environment (Ahmed & Sarkar, 2018).

Thus, elevating sustainability performance has emerged as a critical priority for supply chain management practices in organisations, aligning with the adoption of the United Nation's Sustainable Development Goals agenda (Kumar et al., 2023), which is discussed in the following Section 3.3.3.

### **3.3.3 The United Nations 17 Sustainable Development Goals and their Interaction with Supply Chain Management Practices**

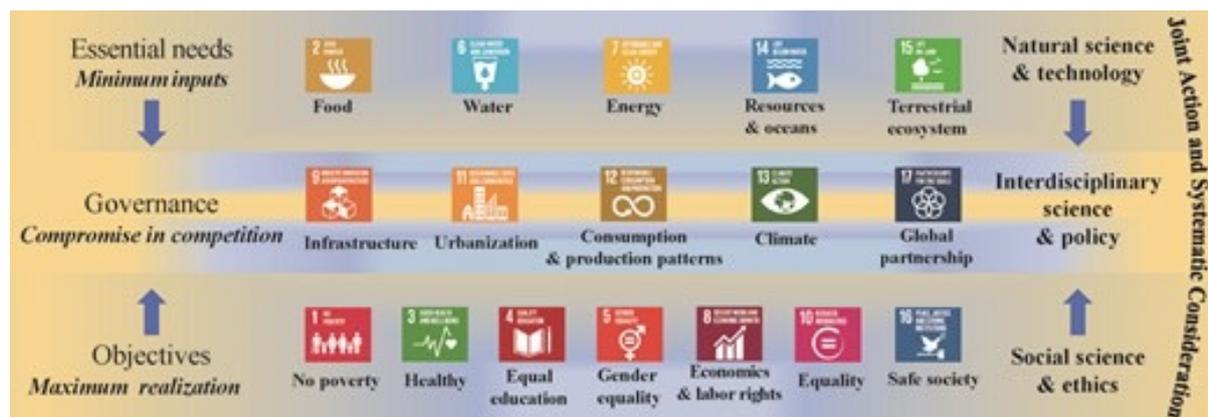
In addition to the evolving solutions that have emerged from sustainable supply chain management to mitigate the impacts derived from the supply chain activities, the 17 Sustainable Development Goals (SDGs) developed by the United Nations provide additional insights to continually advance the sustainability management field (Scavarda et al., 2023).

The SDG agenda accounts for developing a short and long-term plan to provide peace and prosperity for both people and the planet (United Nations, n.d.).

In 2015, the United Nations introduced sustainable goals to the 2030 Agenda for Sustainable Development as a means to change global governance over factors affecting the Triple Bottom Line aspects. That is, a one-plan setting to “integrate economic and social development with environmental sustainability” (Biermann et al., 2017, p. 1).

Besides establishing governance, other categories associated with the SDGs are the reduction of essential needs and the set of objectives. When those categories are combined, the conclusion demonstrates that the actions to achieve the goals need to be aligned with the

minimisation of the inputs coming from natural resources through the implementation of technological innovation to improve resource-use efficiency, the establishment of policies to compromise governance, and the set of robust targets lined up with the interaction of overall policies, as demonstrated in Figure 3.8 (Fu et al., 2019).



**Figure 3.8 The 17 Sustainable Development Goals Categories** (Fu et al., 2019)

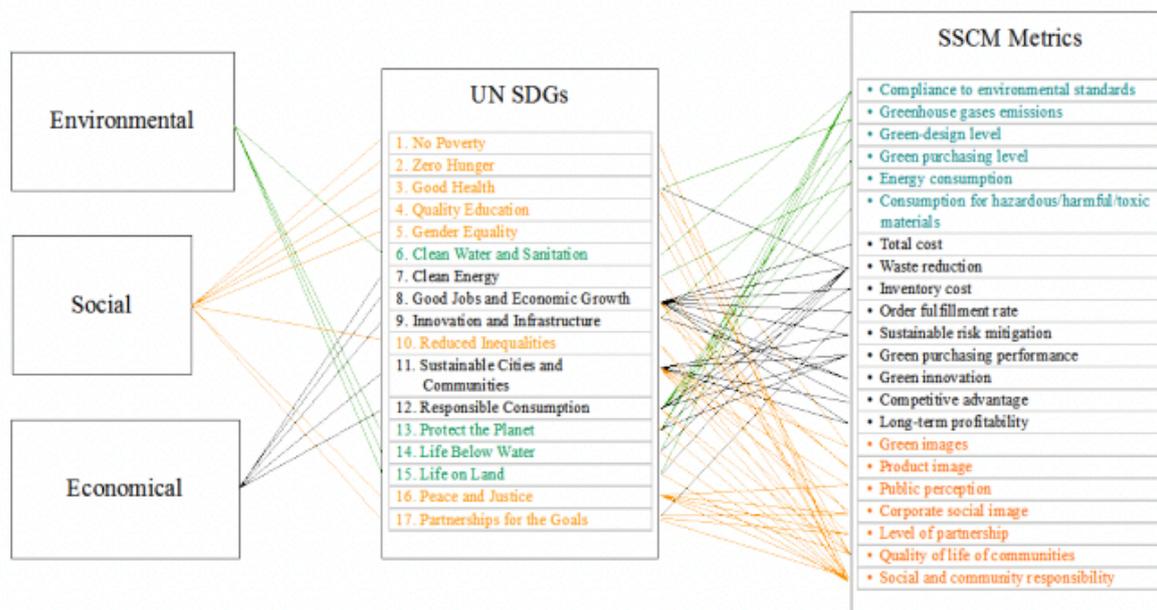
According to the Economic and Social Council (Nations, 2023), the COVID-19 pandemic profoundly influenced consumption and production patterns, with global supply chains disruptions and consumer behaviour changing. Thus, responsible consumption and production must be a vital part of the recovery from the pandemic. However, the global economy needs to accelerate the decoupling of economic growth from resource usage by maximising the socioeconomic benefits of resources while minimising their negative effects. Reporting on corporate sustainability has more than tripled since the start of the SDG period, but the private sector will need to significantly increase governance on SDG-related activities (Nations, 2023).

Moreover, the world is on the verge of a climatic disaster, and present responses and strategies to solve the situation are inadequate (Fawzy et al., 2020). To tackle climate change and its consequences by 2030, immediate and transformative action is required to decrease greenhouse gas emissions substantially and swiftly in all sectors (Abbass et al., 2022). The fusion of Sustainable Supply Chain Management practices with the Sustainable Development Goals enables organisations to create advanced supply chain strategies, fostering stability, efficiency, and ethical practices. Notably, the SDGs are designed to interact with businesses, promoting collaborative economic benefits (Zimon et al., 2020).

However, challenges are expected throughout implementation of the SDGs given that the identified assumptions to incorporate the 'goals' into business plans are associated with complex multi-level discussions. These include arrangements and cooperation between intuitions to connect and drive stakeholders; global inclusion encouraging the idea that all countries are in the 'developing' process so that environmental plans are part of everyone's agenda; freedom to countries and business, that is organisations, to incorporate the goals into their objectives as per their own strategy (Biermann et al., 2017).

In the endeavour to align Sustainable Supply Chain Management (SSCM) practices with the 17 SDGs Zimon et al. (2020) introduced a conceptual framework (Figure 3.9) aiming to systematically integrate the economic, social and environmental dimensions associated with each SDG, establishing correlations with pertinent SSCM practices based on distinct scopes and objectives. Essentially, the central focus of this framework lies in striking a balance between internal and external pressures, constraints, and resources allocation for optimal implementation. The overarching goal is to contribute effectively to the realisation of the designated SDGs agenda.

Consequently, the inherent trade-off within this framework involves concurrently addressing risk management imperatives resulting from the growing global supply chain disruptions while adhering to ever-changing regulatory requirements (Cai & Choi, 2020). Additionally, the framework advocates for the adoption of a minimum specific set of SSCM practices as a strategic approach to attain the desired performance outcomes, which can become challenging when dealing with a dynamic supply chain landscape (Zimon et al., 2020).



**Figure 3.9 Sustainable Supply Chain Management Practices aligned with the 17 SDGs** (Zimon et al., 2020). Reproduced under a [CC-BY-NC license](#).

Although the 17 SDGs approaches seem to be robust enough to secure the future of sustainable topics, some studies argue that the goals are qualitative and therefore, are not easy or even simple to achieve (Fu et al., 2019), and it can be indistinct, allowing adjustments and interpretations along the way. Thus, if the incorporation of the ‘goals’ into the business strategy is not well tie-up, its implementation may turn out to unsuccessful (Biermann et al., 2017).

Drawing from the extensive studies and frameworks, existing literature (Zimon et al., 2019) (Fritz, 2022) argues that transitioning from reactive models to an integrated approach is essential for sustainability to become a collaborative and dynamic paradigm. The integration of management principles presents a significant opportunity for organisations, as it ensures alignment across vertical and horizontal dimensions of sustainability initiatives within supply chains (Negri et al., 2021). Furthermore, this integration enhances alignment with business objectives and global SDGs, leveraging sustainability efforts as facilitators for transformative change within their supply chains (Zimon et al., 2020).

### 3.3.4 The Key Initiatives that Industries are Engaged with to Thrive in Supply Chain Sustainability Management

As extensively discussed in the previous sections of this literature review, the combination of the 17 SDGs agenda, coupled with the internal and external factors challenging the supply chain framework management, and considering the direct and indirect impacts of supply chain activities on sustainability performance, industries have been compelled to innovate methods and management approaches. This innovation aims to mitigate social, environmental, and economic aspects (Azevedo et al., 2012).

Over the years, academic and industrial domains have thoroughly investigated models such as Triple Bottom Line, Green Supply Chain, Lean Supply Chain, Life Cycle Assessment, and Circular Economy approaches. Alongside these, stakeholder theory and risk management theory have been extensively explored to integrate processes to enhance stakeholder engagement and optimise material flow (Mugoni et al., 2024). However, despite the increasing interest in green and sustainable supply chains, there remain prevalent industry practices that fail to meet sustainability objectives (Rupa & Saif, 2021). This disconnect underscores the ongoing challenge of translating sustainable theories into consistent, practical applications across industries (Menke et al., 2021).

The overall purpose of explaining theory in scientific studies is to explain, comprehend, categorise, reproduce and challenge a phenomenon. This encompasses the employment of the most appropriate theory type to define the phenomenon in depth and its particularity. Sandberg and Alvesson (2021) additionally structure five elements of theories to help investigate the nuances within each theory type: what the phenomenon refers to, the overall conceptual purpose of the phenomenon by categories including the relevance criteria and boundary conditions of each category, empirical data, and logical meaning of the phenomenon.

The following sub-sections of Section 3.3.4, offer an in-depth examination of the literature on these practices and theories. This exploration aims to provide theoretical perspectives based on empirical studies to guide the understanding on how these practices and theories could influence the objectives and questions addressed in this thesis.

#### ***3.3.4.1 Triple Bottom Line Approach***

The Triple Bottom Line approach serves as a foundational framework for organisational management of economic, social and environmental dimensions within the sustainable supply

chain landscape, providing a comprehensive perspective for evaluating organisational performance (Stroumpoulis & Kopanaki, 2022).

A consistent organisational management integrates strategies to engage with practices that do not compromise and instead contribute to the evolution of the Triple Bottom Line—encompassing people, profit, and the planet. This alignment defines the essence of a sustainable business striving for success both in the present and the future (Azevedo et al., 2012).

Achieving alignment across sustainability dimensions in organisations, integrating risk assessment practices, assigning equal importance to the social dimension, fostering collaboration throughout the supply chain, and establishing robust measurement and reporting are some of the aspects to consider when managing the Triple Bottom Line in supply chain and sustainability management practices (Miemczyk & Luzzini, 2019).

Recent study reveals that challenges still need to be addressed throughout the integration between supply chain and sustainability management aspects, requiring a multidimensional approach that considers risk management, resilience, technology integration, data-driven decision-making, and collaborative efforts across the supply chain (Tundys & Wiśniewski, 2023).

#### ***3.3.4.2 Green Supply Chain Management Practice***

Green Supply Chain Management (GSCM) is one of the first approaches introduced in industry to support organisations to manage their supply chain operations with a focus on sustainability principles. GSCM consists of a systematic strategic model to integrate environmental thinking and principles into the end-to-end network, involving the process and activities of the design of products, source of material, production and delivery to end-consumer product shelf-life management (Ahi & Searcy, 2013). In other words, this focuses on the Triple Bottom Line in the acquisition and flow of materials to meet the sustainability performance (Gera et al., 2022).

However, recent studies reveal that GSCM still falls short in addressing stakeholders' environmental concerns. This indicates a significant gap in aligning current business management practices with broader environmental expectations (Mohammed Taj Hejazi et al., 2023). Furthermore, a knowledge gap that requires attention exists, particularly in effectively

mapping GSCM initiatives to align with global sustainability goals (Raman et al., 2023), as further explored in Section 3.3.1.

Although GSCM is defined as a maintenance system for managing the flow of materials in a sustainable manner, it requires the implementation of environmental practices and process controls for continual improvement (Kim & Chai, 2017).

#### ***3.3.4.3 Lean Supply Chain Practice***

The Lean Supply Chain (LSC), however, is an initiative that focuses on tools to eliminate activities that add no value added to the customer. Thus, LSC contributes to the GSCM practice by optimising the process and reducing costs across the end-to-end process (Arif-Uz-Zaman & Ahsan, 2014) from a customer and supplier perspectives (Huo et al., 2019). According to Arif-Uz-Zaman and Ahsan (2014, p. 2) “the core thrust of a lean supply chain is to create a streamlined, highly efficient system that produces finished products at the pace customers demand with little or no waste”.

Although both GSCM and LSC approaches concentrate on engaging suppliers and customers into the management scope, they offer distinct contributions that influence sustainable performance. Specifically, LSC emerges as the primary facilitator for achieving superior sustainability performance across all the TBL aspects. In contrast, GSCM inherently directs its efforts towards enhancing environmental performance (Huo et al., 2019). Consequently, the integration of LSC with sustainability strategies and goals reveals a significant gap, specifically in the realm of environmental management.

Rupasinghe and Wijethilake (2021) suggest that establishing a balance between financial and operational metrics is vital to leveraging the efficiency benefits of Lean methodologies, promoting sustainability within the supply chain.

#### ***3.3.4.4 Life Cycle Assessment Practice***

Life Cycle Assessment (Gil-Doménech et al.) within the sustainable supply chain context refers to the application of Life Cycle Assessment methodologies to analyse and evaluate the environmental impacts of products throughout the entire supply chain network. It enables an organisation’s supply chain to identify areas for improvements including reduce environmental

impacts, optimise resource efficiency, and make informed decisions from product design to transportation and waste management strategies (Yun et al., 2023).

When implementing LCA on its own, several challenges may pose risks to a successful outcome. According to Fet et al. (2023), a successful LCA depends on data availability and quality, end-to-end value stream mapping, strong stakeholder engagement and collaboration, as well as investment in specialised resources and cost.

Furthermore, given that LCA results can be complex, effective interpretation and communication of the findings to stakeholders is crucial. It is important to note that while LCA focuses on environmental impacts of a product throughout its entire life cycle, commercial insights are not directly considered in its implementation, which can influence informed decisions that align with sustainability goals and market demands. Van der Giesen et al. (van der Giesen et al., 2020) support this claim emphasising that without commercial insights, the availability of accurate data for future scenarios is limited, which increases the uncertainty in the assessment results.

#### ***3.3.4.5 Circular Economy Practice***

Circular Economy (CE) practice aims to reconfigure core supply chain management (ASCM) processes in order to shift from linear production and consumption patterns to a more circular approach (Hazen et al., 2021). Consequently, integrating the life cycle of products with Circular Economy practices is an essential aspect to ensure effective sustainable supply chain management. By focusing on prolonging a product's lifecycle, resource utilisation can be maximised, and waste production minimised, which contributes to a sustainable and regenerative economic system (Reslan et al., 2022).

Moreover, in the context of supply chain management, the CE practice emphasises the importance of creating a circular system in which the goal is to minimise waste and maximise the efficiency of products, components, and materials. This entails reducing the amount of waste generated and ensuring that resources are utilised to their fullest potential. It encompasses designing products with recycling and reusability in mind, implementing reverse logistics processes to recover and reintegrate used products and materials back into the supply

chain, and collaborating with suppliers and stakeholders to optimise resource utilisation and minimise environmental impact (Di Vaio et al., 2023).

Overall, successfully implementing a Circular Economy in supply chain management requires a multi-dimensional approach, incorporating practices such as the GSM, LSC, LCA as discussed above. The aim of this approach is to promote collaboration, innovation, customer engagement, technology adoption, and awareness of regulatory and market factors, including forecasting trends and risks that can impact performance of supply chain sustainability processes (Farooque et al., 2019).

Nonetheless, the Circular Economy faces challenges associated with data gaps (Serna-Guerrero et al., 2022), stakeholders cooperation and knowledge gaps (Gasparri et al., 2023), hindering efficient implementation. In order to effectively implement the distinct but valuable practices, it is essential to carefully assess the specific complexities within each supply chain context and adapt strategies accordingly to achieve circularity goals effectively (Hinkel, 2022).

#### ***3.3.4.6 Stakeholder Theory***

To provide significant insights into the people aspect of the Triple Bottom Line and to address the management gaps discussed earlier, Stakeholder Theory provides valuable perspectives on understanding the roles and responsibilities within organizational management. These insights contribute to the nuances required for optimising effective management practices.

Stakeholder theory, as articulated by Freeman et al. (2010), extends organisational responsibilities beyond shareholders, considering value creation for customers, employees, suppliers, and communities, not just shareholders. The theory emphasises interconnected relationships, asserting that recognising diverse needs of each group and managing these relationships leads to organisational success.

Additionally, stakeholder theory plays a crucial role in sustainable supply chain management, acknowledging multiple stakeholders' influence on organisational activities and performance (Menke et al., 2021). It aligns with management principles emphasising stakeholder identification and consideration of their interests in decision-making processes (Siems et al., 2023).

In the context of sustainable supply chain management (SSCM), stakeholder engagement goes beyond the traditional supply chain members, and it plays various roles such as drivers, facilitators, or inspectors within the SSCM process, contributing to the integration of sustainability practices and enhancing business performance. However, these roles and their impacts on SSCM practices have not been extensively analysed. Furthermore, researches on SSCM triggers, stakeholder influences, and sustainability-related risks appears somewhat disconnected, with limited comparison and integration between them (Siems et al., 2023).

The practical application of stakeholder theory faces a gap between theory and practice, highlighting discrepancies in stakeholder roles and their actual influence on decision-making within organisations (Wojewnik-Filipkowska et al., 2021). The conceptual frameworks derived from this thesis aims to contribute to closing this theory's gap, which is further discussed in Chapter 8.

#### ***3.3.4.7 Risk Management Theory***

In addition to stakeholder theory, this thesis employs Risk Management Theory to assess the applicability of risk management recommendations derived from the theory in comparison to the existing risk management practices utilised across organisations. The ultimate goal is to comprehend the synergy and complementary nature of these theories and practices, addressing gaps in achieving effective performance in SCM and SSCM practices while expanding the existing the literature, as discussed in depth in Chapter 8.

Risk management theory in supply chain sustainability involves proactive identification, planning, and mitigation of sustainability-related risks. It requires transparency, collaboration with suppliers, diversification of supplier portfolio, and the implementation of a structured risk management framework supported by technology and data analytics. By adopting these strategies, organisations can build more resilient and sustainable supply chains (Han & Um, 2024).

To develop robust risk management strategies, organisations are required to enhance data collection and analysis capabilities, promote stakeholder collaboration across the supply chain network, and prioritise sustainability-related risks alongside traditional supply chain risks (Landi et al., 2022). Thus, Wang et al. (L. Wang et al., 2022) discuss that integration of

sustainability considerations into risk management practices in the supply chain is often insufficient. A more comprehensive and systematic approach that accounts for the Triple Bottom Line aspects is needed, including considering the long-term economic performance, environmental impact, and social responsibility of the supply chain.

#### ***3.3.4.8 Integrative Analysis of Stakeholder and Risk Management Theories***

The incorporation of both stakeholder theory and risk management theory within this thesis provides a robust framework for dissecting the complexities of S&OP and sustainable supply chain management. Stakeholder theory offers invaluable insights into the roles and responsibilities within organisational management, crucial for understanding how diverse stakeholder involvement influences strategic decisions and sustainability practices. This theory, as developed by Freeman et al. (2010), expands organisational accountability beyond just shareholders, emphasising value creation for a broad array of stakeholders including customers, employees, suppliers, and communities, thereby facilitating optimal management practices.

On the other hand, risk management theory offers a structured approach to identifying potential risks and developing strategies to mitigate these challenging factors, ensuring operational stability and continuity. This proactive perspective on risk management is essential for sustaining organisational resilience and achieving long-term sustainability objectives.

The synergistic application of these theories provides a comprehensive perspective on the organisational ecosystem, crucial for holistic decision-making and the advancement of sustainable practices. This integration facilitates a deeper understanding of how organisations can effectively balance stakeholder expectations with potential risks, thereby enhancing the efficacy of supply chain sustainability processes. This dual-theoretical approach does not merely add complexity but significantly augments this thesis' relevance and applicability in addressing real-world business challenges, ensuring that strategic decisions are informed by both stakeholder interests and risk awareness. This enhanced perspective is vital for driving forward the principles of sustainable supply chain management and is discussed further in Chapter 8.

## 3.4 Sales and Operations Planning (S&OP) Process

### 3.4.1 Existent S&OP Model and Principles

Business and supply chains have encountered challenges in managing their business plans due to the high complexity that globalisation creates in their processes. Information fragmentation and excess are some of the factors that drive this phenomenon as often they do not occur in a consistent way from a time and location perspective. Furthermore, discussions may occur in siloed and ad-hoc forums, impacting transparent flow of information for grounded informed decisions (Sharma et al., 2022). Figure 3.10 demonstrates the nuances of these issues, mapping the intricate web of factors that add layers of complexity to supply chains.

**Figure 3.10 Globalization challenges: Time, location and complexity** (E2open, 2014)

*This image has been removed due to copyright restrictions. It is available online at [https://www.supplychainbrain.com/ext/resources/secure\\_download/KellysFiles/WhitePapers/AndBenchMarkReports/E2Open/E2open-WP-Four-Must-Haves-SOP.pdf](https://www.supplychainbrain.com/ext/resources/secure_download/KellysFiles/WhitePapers/AndBenchMarkReports/E2Open/E2open-WP-Four-Must-Haves-SOP.pdf) or see: E2open, 2014.*

In recent business landscape, Sales and Operations Planning (S&OP) has emerged as a crucial component within the supply chain operations of numerous organizations, recognised for its capacity to establish organisational alignment with operational strategies (Kymäläinen, 2020).

To explore adaptable and transferable principles from the Sales and Operations Planning (S&OP) process, which could generate innovative insights for addressing challenges in supply chain and sustainability management, a critical literature review was conducted. This review focused on S&OP principles and fundamentals, drawing from a range of sources including scholarly articles and public sources. Scholarly sources, being peer-reviewed and expert-approved, offer detailed and rigorously evaluated information, ensuring the accuracy and reliability of the review. Conversely, public sources provide diverse perspectives and opinions, reflecting broader societal views and complementing the examination of the subject matter (Atilano, 2012). By including both types of sources, this review aimed to provide a comprehensive and nuanced analysis of the theoretical and practical implications of S&OP application across organisations.

“The Sales and Operations Planning (S&OP) is one of the most important planning levels” (Samouche et al., 2020, p. 1). It is a process model that creates a unified, concurrency business plan that allows organisations to effectively manage customer demand and operations functions and costs while significantly improving customer service (Kumar, 2016).

According to the APICS dictionary, the S&OP process integrates all business plans, sales, finance, demand and supply, into a unified and cohesive plan (Thomé et al., 2012). The unification of the plans associates the business strategic plan (monthly/yearly) with the operational (weekly and daily) execution. Such integration aims to provide a clear understanding of supply risks that may compromise the demand plans (Thun et al., 2024) in the short and long-term (Grimson & Pyke, 2007). The horizon covered in the S&OP process goes between 0-24 months or more, depending on the business strategic decision (Duarte Azevedo et al., 2021a). Having visibility into future demand and supply underpins and mitigates risks associated with inventory shortages or excess, enabling proactive decision-making to address potential challenges (Dittfeld et al., 2021).

In essence, the S&OP comprises strategies for organisations seeking improved tracking of historical data, enhanced visibility into current operations, and greater control over future outcomes (Spittle, 2018).

In order to build one reliable plan, i.e. a comprehensive demand forecast plan, the S&OP process relies on full transparency of inputs from all SMEs across the business on a regular basis (Spittle, 2018), including executive, marketing, commercial, finance and supply chain teams (Thomé et al., 2012), as presented in more detailed in Section 3.4.3. Together, these stakeholders discuss and align insights that create opportunities as well as risks to the demand plans. Thus, they drive informed decisions that provide a clear view of the business performance (Grimson & Pyke, 2007).

Although there are several frameworks that illustrate the integration of business plans through the S&OP model (Thomé et al., 2012), the following diagram, Figure 3.11 demonstrates the overall S&OP structure from inputs, decision-making and outputs perspectives.

**Figure 3.11 S&OP Framework** (Thomé et al., 2012).

*This image has been removed due to copyright restrictions. It is available online at [https://www.researchgate.net/publication/354180000\\_Decision-Making\\_Process\\_on\\_Sustainability\\_A\\_Systematic\\_Literature\\_Review](https://www.researchgate.net/publication/354180000_Decision-Making_Process_on_Sustainability_A_Systematic_Literature_Review) or see: Thomé et al., 2012.*

By efficiently overseeing and involving cross-functional stakeholders in a systematic and sequential framework, the alignment of modifications and mitigation of risks that could compromise demand accuracy gradually evolve into a shared understanding. Over time, this shared approach serves as the singular source of truth for the business plan. This concept suggests that effective collaboration and communication go beyond sharing information but rather involve the set of common goals that drive organisations towards excellence (Roscoe et al., 2020).

Besides people engagement, three other dimensions are required to embed the integration and transparency of plans and goals across the organisation. They are robust process implementation, which is a sequential cycle of meetings, along with the support of system and tools that enable the adjustment of the plans in a timely manner (Roscoe et al., 2020), and managing the results of the strategies put in place through a set of KPIs. The balance of the three dimensions - Process, Technology and People – illustrated in Figure 3.12, demonstrates the level of maturity and effectiveness of the S&OP implementation (Duarte Azevedo et al., 2021a).

**Figure 3.12 4 S&OP Dimensions Source (Toledo, 2021)**

*This image has been removed due to copyright restrictions. It is available online at <https://www.wysupp.com/en/sop-4-dimension-major-challenges> or see: Toledo, 2021.*

In addition to pursuing the balance of the three dimensions, an effective and mature S&OP process integrates the Triple Bottom Line dimensions (TBL) embedding goals and discussions that contribute to the aspects of the economy, environment and social performance (Roscoe et al., 2020). The S&OP process has proven to be able to establish a common language and goals across organisations through strong relationships and collaboration among stakeholders as well

as steady team structures (Bower, 2006), therefore, incorporating the TBL dimensions drives a more holistic business decision-making (Miemczyk & Luzzini, 2019).

The S&OP process guarantees that business processes are aligned with a set of competitive priorities, which are then managed through a set of key performance indicators, while driving the entire organisation towards its aspirations and strategic goals (Tchokogu e et al., 2022a).

Successfully designing and implementing the S&OP process requires concentrated efforts on multiple fronts. The impact levels of these efforts vary among the organisational factors contributing to success (Ambrose & Rutherford, 2016). Key elements include collaboration, integration, and synchronisation across end-to-end demand and supply functions, highlighting the interdependence of these factors in achieving effective S&OP (Stahl & Wallace, 2012). Furthermore, effective implementation crucially relies on managers' capacity to instigate shifts in mindset within the organisational culture and to strategically plan and coordinate the deployment of the S&OP process. It is essential to accurately integrate key facilitators, considering contextual variables such as the company's internal and external environments, along with the unique characteristics of the industry to which the company belongs (Tchokogu e et al., 2022b).

Thus, despite the strategic nature of the S&OP process, its complex implementation and ongoing management urge the need for a holistic and tailored approach, encompassing a business model that its principles focus on, expanding cross-functional collaboration (Hove, 2022), as discussed in section 2.3 of this thesis.

### **3.4.2 The S&OP Cycle**

The primary S&OP steps to support decision-making are subdivided into two streams: the Preparatory and the Meeting Management (Stahl, 2010).

The first stream, Preparatory, entails the Data Gathering & Alignment process, which is formed by Product Review, Demand Review, Supply Review and Finance Review. The second stream, Meeting Management is formed by Pre-S&OP Meeting and Executive S&OP Meeting.

**Figure 3.13 Monthly S&OP Process** (*Bedford Consulting, 2024*)

*This image has been removed due to copyright restrictions. It is available online at <https://bedfordconsulting.com/the-six-phases-of-sop/> or see: Bedford Consulting, 2024.*

Data Gathering and Alignment means the activity of consolidating inputs from appropriate cross-functional teams (marketing, commercial, supply chain, finance), review KPI performance identifying and aligning discrepancies between actualised and forecast plans (Ávila et al., 2019a), thereafter forecasting updates through a statistical model. As a result of these activities, the demand forecast plan is reconciled and validated through the subsequent meetings, Demand, Supply and Finance reviews (Stahl, 2010).

During the initial stage, Product Review, those engaged in the R&D, product development and introduction of new products assess the market's product landscape. They examine product pipelines and make decisions regarding product planning, such as establishing timelines for new production or discontinuation (Bacciotti et al., 2016). Expanding on Section 3.3.2, this holist approach ensures that not only are the strategic objectives considered but additionally practical considerations related to the product lifecycle and financial aspects are incorporated (Bower, 2006).

This process aids in prioritising projects and allocating resources effectively. Additionally, considerations involve evaluating the implications on existing products when introducing a new one, referred to as cannibalisation. The collaboration of inputs from cross functions is essential to formulate a comprehensive and easily accessible plan (Bedford Consulting, 2024).

Demand Review meeting, in essence, is a difficult and key meeting where stakeholders meet to discuss past period sales performance and the updated consolidated forecast numbers to then agree on the final demand plan (Croxtton et al., 2002). This step means that any risks and opportunities that may impact the plans are discussed and actioned or cascaded into the management meeting for decisions. Therefore, collaboration and full transparency of the factors that drive demand (Stahl, 2010), including risks and opportunities, play a crucial role in adjusting and achieving the business plan. In preparation for the management meeting where final sign-off on decisions takes place, the output of the demand review meeting is focused on delivery performance which may result in a gap in the financial plans (Hulthén et al., 2016).

Once the demand plan is validated, the supply plan is generated based on scenarios to identify possible supply constraints that may result in risks to the demand plan (Peterson et al., 2003). The supply risks are determined based on production and operations capacity and established inventory policy levels (Gholami-Zanjani et al., 2021), where the inputs are generated by consulting key stakeholders from the manufacturing, operations, logistics and finance (Peterson et al., 2003).

With a clear view of risks and opportunities and escalations for decisions, the demand plan is taken to a Finance Review meeting. During this stage, the financial performance of the previous month is consolidated to generate information for evaluating the current month's S&OP cycle (Kalla et al., 2024). This process results in establishing baseline figures that are subsequently utilised to make adjustments in product, demand, and supply reviews, as well as contributing to pre-S&OP and executive S&OP reviews (Ávila et al., 2019a). The ownership of this process lies with the finance team and encompasses the analysis of various categories such as product, geography, customer, and channel. A comparison between actual costs and budgets forecasts is conducted to assess forecast accuracy over a continuous period (Seeling et al., 2022).

The management meeting starts with a Pre-S&OP meeting. The purpose of this meeting is to align the business sales plan based on the reconciled scenario plans from demand, supply and finance, as well as the risks and opportunities identified through the cycle (Tinker, 2010). In this context, in-depth scenarios considering impacts on future sustainability strategies and goals are not included in the decision-making process (Duarte Azevedo et al., 2021b).

Various key indicators are considered in analysing metrics past performance in S&OP.. Apart from traditional metrics including revenue, profit, forecast accuracy, production efficiency and inventory levels, organisations increasingly incorporate sustainability metrics, including tracking of waste reduction, and carbon footprint (Duarte Azevedo et al., 2021b). This process involves examining the metrics and key indicators at both the top-down and bottom-up levels and helps to comprehend the financial and operational consequences of decisions, whether viewed from an overarching business perspective or a more detailed product-line standpoint (Bedford Consulting, 2024).

The second meeting of the management meeting is the Executive S&OP meeting. The purpose of this meeting is to produce an aggregated and consolidated plan throughout the cycle with approved decisions by the leadership of the business, which is then released to execution to cross-functional operations and disseminated downstream to all relevant departments (Tinker, 2010).

Although the cycle seems to be simple to implement and execute, it requires diligence and commitment from all stakeholders involved (Stahl, 2010). A mature S&OP is found in a robust agenda for each of the S&OP steps (Kreuter et al., 2021). This includes reviewing business performance through using Key Performance Indicators (KPIs) and supporting metrics, as well as key specific inputs for discussions and decisions (Goh & Eldridge, 2019). This process underpins a cross-functional coordination and execution towards achieving effective business performance and enables the establishment of realistic targets founded on baselines and smart goals. In turn, it promotes accountability of stakeholders to successfully achieve effective performance (Tinker, 2010).

The sample agenda of this meeting is shown in Figure 3.14.

### Sample Agenda for Executive S&OP Meeting

Review S&OP calendar – critical dates

S&OP aggregate summary

- Actual to plan budget, sales, supply
- Performance metrics – on time, stock-outs, and inventory levels (excess and obsolete)
- Review applicable action items related to this section

Last Month Performance – actual to plan review by category

- Sales and operations deltas
- Causals
- Inventory
- Utilization
- Review applicable action items related to this section

Review 12-month rolling demand and supply plan by category including;

- Short-term concerns
- Capacity and scheduling challenges and plan of action
- New products introduction
- New or lost critical customers
- New or lost critical suppliers
- Product transfers from one facility to another
- Inventory and supply projections and targets
- Other major risk factors in the business
- Review applicable action items related to this section

Summary of new action items

Final approval

**Figure 3.14 Sample Agenda for Executive S&OP Meeting** (*Plex DemandCaster, 2024*)

It can be seen from the information above that incorporating sustainability management metrics into S&OP analysis has been a recent practice to measure the operational tactics trends towards impacting the sustainability KPIs (Roscoe et al., 2020). However, despite the recognition of

sustainability's importance, traditional S&OP processes frequently lack the design to effectively capture and interpret sustainability-related data (Duarte Azevedo et al., 2021a). To address this deficiency, it is imperative that S&OP processes advance to embed sustainability goals as a core element of planning and decision-making. This requires a fundamental shift in perspective—viewing sustainability not as a separate or supplementary effort but as an intrinsic component of every business decision. Acknowledging that sustainable practices can significantly contribute to economic performance and a competitive edge is essential for this transformation (Sengupta & Dreyer, 2023).

### **3.4.3 The Stakeholders Engaged in S&OP**

Given that the S&OP is a process that integrates the end-to-end business in order to build one single and clear business plan, the stakeholders involved in its cycle are key cross-functional decision-makers. Stakeholders contribute with diverse perspectives, expertise, and insights throughout the S&OP cycle. Engaging the cross-functional stakeholders ensures a comprehensive and well-rounded understanding of various aspects, such as sales forecasts, production capabilities, and resource availability (Roscoe et al., 2020). Their active engagement enhances collaboration, aligns objectives, and facilitates informed decision-making, ultimately leading to a more effective and integrated S&OP process. Additionally, stakeholder input helps to address potential challenges, mitigate risks, and optimise the overall performance of the organisation (Gurzawska, 2020).

The stakeholders basically fall into six groups in which each of them is primarily contacted for dispute resolution, discussing issues of the demand drivers, and analysing and developing plans. The role and responsibilities of each stakeholder in the S&OP process are often detailed in a RACI Matrix, as per the sample in Figure 3.15. This is a crucial tool for defining roles and responsibilities within the S&OP process. It identifies who is Responsible, Accountable, Consulted, and Informed for each task and decision (Gran & Ismail, 2022b). Furthermore, this matrix is designed to streamline communication, enhance collaboration, and ensure clarity regarding individual contributions to the effectiveness of the S&OP cycle review. The traditional groups involved are subdivided into Executive leaders, Sales & Marketing leader, Demand planner, Supply Planner, Operations leader (Messias, 2018).

### RACI Matrix - Sales and Operations Planning

Activities \ Roles	CEO	S&OP Leader	Directors					Corporate Managers					Analysts		
	Executive Sponsor	S&OP Leader	Sales	Marketing	Industrial	Logistics	Financial	Sales	Marketing	Operations	Logistics	Controller	Demand	Supply	S&OP
<b>Data Gathering</b>															
- Collect Sales History		I	I	I				R	C				R		
- Adjust Outliers													R		
- Update the Sales Indicators	I	I	I	I	I	I	I	I	I	I	I	I	R	I	I
- Prepare the Pre-commercial Meeting								C	C				R		R
<b>Pre-commercial Meeting</b>															
- Conduct the Meeting		R	I	I				C	C				C		
- Take part in a meeting		R						R	R				R		R
- Report Marketing Inputs		I		I					R				A		
- Report Sales Inputs		I	I					R					A		
- Report Inputs Prices		I		I											
- Make the Minutes and send them to interested parties		I	I	I	I	I	I	I	I	I	I	I	I	I	R
<b>Demand planning</b>															
- Analyze Data Collection and Minutes													R		
- Design the next cycle forecast - Statistical and Collaborative		I						C	C			C	R		
- Prepare the Commercial Consensus Meeting		R						C	C				R/A		R
<b>Demand Review Meeting</b>															
- Conduct the Meeting		R	C	C			C	C	C				C		
- Take part in a meeting		R	R	R				R	R				R		R
- Making the Sales Forecast Decision		C	R	R				C	C				C		
- Make the Minutes and send them to interested parties		I	I	I	I	I	I	I	I	I	I	I	I	I	R
<b>Supply Planning</b>															
- Make plans and Scenarios		C			C	C	C			R	R	C		R	
- Prepare the Meeting		C												R	R
<b>Supply Review Meeting</b>															
- Conduct the Meeting		R			C	C	C			C	C	C		R	
- Take part in a meeting		R								R	R	R		R	R
- Recommend the best plan		C								R	R	R			
- Make the Minutes and send them to interested parties		I	I	I	I	I	I	I	I	I	I	I	I	I	R
<b>Pre-S&amp;OP Meeting</b>															
- Prepare the Meeting		R	I	I	I	I	I	I	I	I	I	I			R
- Take part in a meeting		R						R	R	R	R	R	R	R	R
- Conduct the Meeting		R						C	C	C	C	C	C	C	R
- Make the Minutes and send them to interested parties		I	I	I	I	I	I	I	I	I	I	I	I	I	R
<b>Executive Meeting</b>															
- Prepare the Meeting		R						C	C	C	C	C	C	C	R
- Take part in a meeting		R	R	R	R	R	R	R	R	R	R	R			R
- Take the decision	R		C	C	C	C	C								
- Make the Minutes and send them to interested parties	I	I	I	I	I	I	I	I	I	I	I	I			R
<b>Communication Process</b>															
- Perform the communication of the Plan and the actions	I	R	I	I	I	I	I	I	I	I	I	I	I	I	R

Figure 3.15 Sample of S&OP Stakeholders RACI Matrix (Messias, 2018)

Once the key stakeholders are mapped into the RACI matrix, a robust engagement program is required to ensure the success of the S&OP process. Engaging stakeholders to focus on one common target is a challenging but fundamental critical step.

Change management activity that engages stakeholders to collaborate in the S&OP process is generated by how they are influenced. That is, involving them in the implementation process, listening to their concerns, insights and experiences ensures a higher level of engagement. Furthermore, a clear and consistent approach will demonstrate how they will benefit from S&OP as well as what they will be requested to commit to from a goals perspective, (Pilkington, 2021).

The S&OP implementation is primarily a question of change management, which relates to an organisation's adoption of a new behaviour and mindset. Thus, in a mature S&OP process, an organisation's culture influences the effective knowledge management among stakeholders across various business functions (Tchokogué et al., 2022a).

Although the S&OP is recognised for encompassing an end-to-end business perspective, drawing on a range of stakeholders to streamline business plans and decision-making, sustainability experts have not yet been fully integrated into the core decision-making led by S&OP processes (Roscoe et al., 2020). The paradigm is that while the S&OP can drive alignment and shift in cultural and behavioural norms (Tchokogué et al., 2022a), the integration of sustainability experts within this process has frequently been transferred to a procedural task of environmental stewardship, rather than being leveraged as a strategic imperative for shaping long-term competitive advantage and fostering sustainable business growth (Ngwa, 2022).

#### **3.4.4 Risk and Opportunity Management Through S&OP**

As discussed in Sections 3.2 and 3.3, risk is one of the integral aspects within management practices, which organisations need to leverage risk management techniques and strategies to address challenges proactively and reactively (Noroozi & Wikner, 2017). Similarly, risk and opportunity management is consistently integrated into the S&OP cycle. This strategic consideration serves as both an input and output, enriching the overall resilience and effectiveness of the planning and decision-making process (Dittfeld et al., 2021).

Risk management is the process that anticipates and mitigates possible issues that will limit the effectiveness of the demand and supply plans and as a result, the business plan (Kalla et al., 2024). Furthermore, the risk management process is a tool that brings awareness of future risks

that can compromise the plan and therefore, supports leaders to make better informed decisions (Duarte Azevedo et al., 2021a).

In a mature S&OP, organisations assess the impacts of risks and opportunities through scenario planning, which helps prepare for a variety of future situations. Effective risk and opportunity management, detailed by Dittfeld et al. (2020), involves a set of measurements used to identify, assess, treat and monitor the scenarios, considering internal and external factors that could have an impact on the demand or supply plans. Examples of internal factors include cost, growth, issues, insights, complexity, and operational process disruptions (Dittfeld et al., 2020). External factors include politics/socioeconomic concerns, geopolitical factors such as climate change (Furlan Matos Alves et al., 2017), Covid-19 (Sharma et al., 2020), disruptive innovation, and regulatory changes (Gartner, 2021).

Following the identification of risks and opportunities through the S&OP process, the next step involves driving decision making. These factors can emerge at various stages, requiring an agreed-upon method for seamless information transfer to the subsequent S&OP stage (Kalla et al., 2024). This ensures a comprehensive analysis of the impact of risks and opportunities, leading to the proposal of alternative solutions (Dittfeld et al., 2021). In the final step of the Executive S&OP, the teams undertake a thorough assessment of these risks and opportunities evaluating their impacts, potential actions, and projected outcomes. This critical analysis informs and guides the strategic direction and future planning of the organisation, ensuring that decisions are both proactive and informed by a comprehensive understanding of potential business scenarios (Ambrose & Rutherford, 2016).

Moreover, identifying the scope and origin of the risk and opportunity as well as assessing its likelihood to impact the demand-supply plans helps determine the level of focus needed during the S&OP process. That is, risk should be either informed, confronted and eliminated, or mitigated. Once risks and opportunities are actioned according to the R&O assessment outcome, a monitoring phase is fundamental to ensure that decisions made throughout the S&OP cycle are consistent and the business plan is well-balanced (Dittfeld et al., 2020).

Therefore, a systematic identification, assessment, and management of risks and opportunities plays a crucial role in maintaining the effectiveness and balance of the S&OP process (Kalla

et al., 2024). It does not only contribute to the long-term viability and resilience of demand and supply operations, but additionally fosters businesses ability to navigate and address further cross-functional challenges (Ivanov, 2022).

In the context of this thesis, Figure 3.16 demonstrates a framework to manage risks and opportunities in S&OP. Its inclusion and discussion within this thesis illuminates the strategic importance of how systematic risk management can enhance decision-making processes, lead to more resilient supply chain strategies, and drive competitive advantage.

**Figure 3.16 Assessing Risks and Opportunities Through S&OP** (Gartner, 2021)

*This image has been removed due to copyright restrictions. It is available online at <https://emtemp.gcom.cloud/ngw/globalassets/en/supply-chain/documents/trends/how-to-assess-risk-opportunities-through-sop.pdf> or see: Gartner, 2021.*

Thus, this framework underpins the three research questions to adopt S&OP practices to respond to the dynamic and uncertain nature of global supply chains (Tuomikangas & Kaipia, 2014a).

### **3.4.5 Tools for Governance in S&OP**

The governance process embedded in the S&OP process drives transparency, accountability, and efficiency for informed decisions (Tuomikangas & Kaipia, 2014b). The primary format of S&OP meetings encompasses a governance process guided through a S&OP term of reference, which includes the purpose, key inputs and outputs, frequency and calendar, KPIs and metrics, and agenda (Lapide, 2005).

The meeting agenda is a crucial tool for maintaining the focus and effectiveness of the S&OP meetings, as discussed in Section 3.4.2 (Kreuter et al., 2021). Functioning as the source of truth, it clearly outlines the topics of discussion, inputs, and the origin of action items and outputs. This structured approach ensures consistency and alignment among meeting attendees. Proactively sharing the meeting agenda and outputs with all involved parties allows teams to review, address questions, and propose changes, fostering a collaborative and well-prepared environment for S&OP meetings (Kozlowski, 2018).

Furthermore, the S&OP meeting calendar provides a structured and organised view of important activities that require planning and alignment in advance. With a clear S&OP calendar, decision-makers have a comprehensive understanding of the timeline of essential activities, which enables them to make informed decisions aligned with business objectives (Mangione, 2019).

It can therefore be seen a consistent meeting agenda and calendar in S&OP serve as a blueprint, ensuring that pertinent topics are systematically addressed, fostering comprehensive timely discussions by aligning activities with predefined timelines (Seeling et al., 2021).

An effective and informed decision-making process in S&OP meetings requires a discussion centred around detailed sales numbers, demand forecasts, and supply plans. These elements are captured in consolidated reports and dashboards, which serve as a single source for all required data and metrics, accessible to all cross-functional stakeholders (Stefanovic, 2014).

Upon the conclusion of each S&OP meeting, it is standard practice to produce a detailed record summarising the discussions, decisions, actions assigned to everyone including escalations required to the next S&OP meeting. This record not only fosters accountability among participants but also serves as a reliable point of reference for future deliberations and decisions within the S&OP framework (Ambrose & Rutherford, 2016). Meeting Attendance and Effectiveness reports are attached to the meeting outputs. These records hold accountability to all stakeholders involved in the process, encouraging active participation, open dialogue and input from all attendees, ensuring diverse perspectives are considered (Floyd, 2023). Furthermore, assessing the effectiveness of S&OP meetings supports in identifying improvement areas in the meeting process, agenda and participation. This assessment also fosters communication by allowing participants to provide feedback on the clarity of discussions, information sharing, alignment of strategic objectives, and overall communication effectiveness (Jordan, 2021).

Another key tool actively used in the S&OP process is Scenario Planning. Scenario planning is a strategic tool for a comprehensive gap review analysis, employing a demand gap bridge. The process involves developing various scenarios that encompass different potential futures,

considering factors such as market trends, economic shifts, and technological advancements. Thus, it involves a collaborative participation of cross-functional teams (Roubelat, 2000).

Moreover, it includes scenario-specific demand forecasting to estimate future demand through the analysis of customer behaviour, market dynamics, and external influences. This approach encompasses risk mitigation by assessing potential risks associated with each scenario, promoting a proactive attitude in navigating uncertainties, as discussed in Section 3.4.4 (Dittfeld et al., 2020). Lastly, scenario planning in S&OP is recognised as an iterative process, requiring regular reviews and updates based on evolving market conditions to maintain continuous alignment with business goals (Peterson et al., 2003).

Thus, effective decision-making in S&OP is contingent upon the meticulous implementation of consistent tools for governance. These tools form an integral framework that fosters a structured and systematic approach to the decision-making processes. Furthermore, the utilisation of additional tools, for example an advanced planning system, complements this framework by underpinning analytical insights and sustaining data-driven decisions for a more mature S&OP (Pereira et al., 2020).

In this thesis context, consistent governance in S&OP not only streamlines decision-making process but additionally contributes significantly to the overall effectiveness and resilience of a sustainable business model that needs to adapt and respond to navigate dynamic market conditions.

### **3.5 Research Framework**

Building on the extended theories of reasoned existing principles and processes management, as support to mitigate challenging factors impacting the upstream and downstream processes, an integrative conceptual framework for the scope of supply chain sustainability management through the S&OP is proposed. The framework outlines the key current challenging factors impacting business supply chains and sustainability performance and facilitates explanation of the relationships and commonalities between the various key existing theories used to manage such areas with the S&OP principles and process.

A summary of the literature-based framework is presented in Table 3.1.

**Table 3.1 Summary of Literature-Based Framework**

<b>Challenging Factors that Impact Supply Chain &amp; Sustainability Performance - (Internal &amp; External)</b>		<b>Supporting References</b>
<b>Internal and External Challenging Factors</b>	Team's structure (siloeed decision-making) Geo-political turmoil Information sharing (risks and opportunities) Demand forecasting method Inventory policy control Lead time & review period length Change management Digital transformation	(George & Pillai, 2019, Zhao et al., 2002, Blanchard, 2021, Hai et al., 2021, Ageron et al., 2020, Knudsen et al., 2021, van Hoek & Dobrzykowski, 2021, Sharma et al., 2020, Chowdhury et al., 2021, Schiffing et al. 2022, Furlan Matos Alves et al., 2017, Jain et al., 2020)
<b>Business Management Area</b>	<b>Existing Management Theories</b>	<b>Supporting References</b>
<b>Supply Chain Management</b>	Systems Theory	(Nitsche, 2021, Wilden et al., 2022, Davis & DeWitt, 2021, Shahab, 2021, Salah & Rahim, 2019, Wang et al., 2004, Bhagwat & Sharma, 2007, Kaplan & Norton, 2015).
	Resource-Based View Theory	
	Transaction Cost Economics	
	Balanced Scorecard Approach	
	Lean Thinking, Six Sigma, Network Theory	
<b>Supply Chain Sustainability Management</b>	Green Supply Chain	(Ahi & Searcy, 2013, Arif-Uz-Zaman et al. 2014, Jr., 2020, Azevedo et al., 2012, Yun et al., 2023, Di Vaio et al., 2023, Kayikci et al., 2022, Landi et al., 2022, (Wang et al., 2022, Freeman et al., 2010)
	Lean Six Sigma	
	Triple Bottom Line	
	Life Cycle Assessment	
	Circular Economy	
	Stakeholder Theory	
	Risk Management Theory	

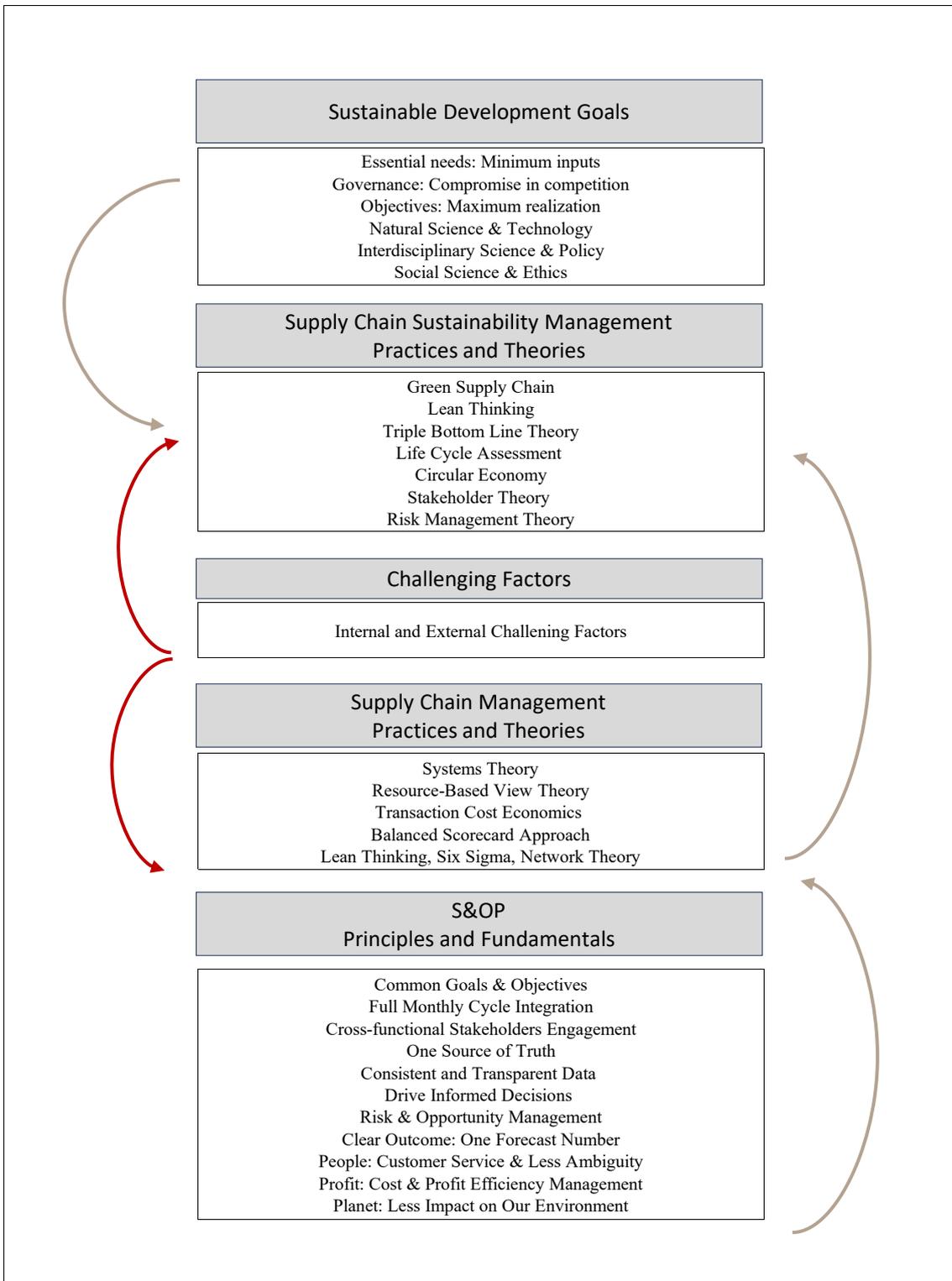
<b>S&amp;OP Process</b>	S&OP principles and fundamentals	(E2open, 2014, Kumar, 2016, Thomé et al., 2012, Grimson & Pyke, 2007, Spittle, 2018, Roscoe et al., 2020, Toledo, 2021, Stahl, 2010, DemandCaster, n.d., Pilkington, 2021, Duarte Azevedo et al., 2021, Dittfeld et al., 2020, Furlan Matos Alves et al., 2017, Sharma et al., 2020)
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In addition to identifying theories, practices and challenging factors influencing management of organisations' supply chain sustainability performance, the readiness literature has supported the development of a theoretical framework. This framework suggests the existence of relationships between the identified factors and the principles and fundamentals of S&OP, as illustrated in Table 3.2.

**Table 3.2 Overview of the Relationship Between Supply Chain and Sustainability Theories with S&OP Principles and Fundamentals**

Business Management Area	Existing Management Theories	S&OP Principles and Fundamentals									
		Common Goals & Objectives	Full Monthly Cycle Integration	Cross-functional Stakeholders Engagement	One Source of Truth	Consistent & Transparent Data	Informed Decisions and Risk & Opportunity	Clear Outcome: One Forecast Number	People: Customer Service & Less Ambiguity	Profit: Cost & Profit Efficiency Management	Planet: Less Impact on Our Environment
Supply Chain Management	Systems Theory	✓			✓	✓		✓			
	Resource-Based View Theory			✓				✓			
	Transaction Cost Economics	✓	✓				✓			✓	
	Balanced Scorecard Practice	✓	✓							✓	
	Lean Six Sigma, Network Theory	✓	✓							✓	
Supply Chain Sustainability Management	Green Supply Chain Practice		✓						✓		✓
	Lean Six Sigma Practice			✓						✓	
	Triple Bottom Line Practice								✓	✓	✓
	Life Cycle Assessment		✓	✓			✓				
	Circular Economy Practice										✓
	Stakeholder Theory	✓		✓	✓	✓	✓				
	Risk Management Theory						✓	✓	✓		

Bringing together the key factors uncovered through the Summary of Literature-Based Framework as well as the Overview of the Relationship Between Supply Chain and Sustainability Theories with S&OP Principles and , a conceptual framework has been developed, as represented in Figure 3.17. The influence of the Sustainable Development Goals, Supply Chain Management theories and practices, as well as the S&OP principles and fundamentals, suggested by the literature, are indicated by the brown arrows. The internal and external challenging factors impacting organisations management practices are represented by the red arrows.



**Figure 3.17 Theoretical Framework (Author)**

**3.6 Summary**

This chapter has positioned a robust theoretical foundation for understanding the integration of organisational readiness for enhanced supply chain sustainability performance. It critically evaluates literature covering the foundation of supply chain management practices, the evolution of sustainability management and Sales & Operations Planning (S&OP) process. This comprehensive review aims to identify key research gaps that will inform the research questions of this thesis.

The theoretical foundations of this thesis are rooted in classical and contemporary theories that delineate the structure and function of supply chains. The Resource-Based View (RBV) theory was explored to understand how internal resources contribute to competitive advantage, while Transaction Cost Economics (TCE) shed light on the efficiencies of inter-organisational relationships. The Dynamic Capabilities Framework was invoked to examine how organisations adapt to rapidly changing environments. Systems Theory was applied to comprehend the complexity and interconnectivity of supply chain activities.

Particularly prominent are risk management theory and stakeholder theory. Risk management theory is instrumental in understanding how to systematically identify, assess, and respond to potential risks that can adversely impact supply chain sustainability. This theory informs the need for proactive measures to mitigate risks associated with demand and supply variability, regulatory compliance, and environmental uncertainties. Stakeholder theory is equally significant, underpinning the notion that businesses must consider the interests of all parties affected by their operations. This includes customers, employees, suppliers, communities, and shareholders. Stakeholder theory suggests that successful supply chain sustainability is achieved not just by managing resources but by engaging with stakeholders to understand their needs, values, and concerns. These theories together create a basis of understanding that supports the subsequent analysis of Sales and Operations Planning (S&OP) and sustainability within supply chains.

Furthermore, this chapter intricately navigated the multifaceted domain of supply chain management, revealing how the sophisticated interplay of operational, planning, and behavioural competencies paves the way for organisational excellence. The narrative evolved

to trace the transformation of supply chain dynamics in the face of global competitive pressures and disruptions resulted from internal and external challenging factors.

Central to this theoretical background is the robust examination of the Sales & Operations Planning (S&OP) process, unveiled as a harmonising force within business operations. S&OP emerges as a conduit for embedding business planning processes deep within organisational strategies.

The discourse then shifted to focus on the essential role played by cross-functional stakeholders in S&OP, examining the decision-making process while acknowledging a notable oversight—the insufficient inclusion of sustainability expertise in core planning discussions. Furthermore, this chapter delved into the systematic management of risks and opportunities, asserting the indispensability of such frameworks in steering through the unpredictability inherent in global supply chains.

In essence, the literature reveals that S&OP is commonly examined from an economic standpoint, focusing on its role in maximising profits. Despite various fields such as Green Supply Chain, Lean Six Sigma, and Triple Bottom Line already incorporating sustainability into their supply chain practices, the existing literature on S&OP has not acknowledged or adopted supply chain sustainability considerations to shape decision-making processes. Building upon this gap in literature, a research framework was developed.

This framework aligns the intricate web of theories, practices, and principles of S&OP with the sustainability challenges and opportunities faced by industry. It acts as a precursor to empirical explorations, indicating the direction for theoretical and practical applications.

The next chapter identifies, and presents the methodology employed in this thesis.

## **CHAPTER 4 RESEARCH METHODOLOGY**

### **4.1 Objective**

The purpose of this chapter is to detail the research methodology applied in this thesis. It explains the theoretical background as well as the research approach, design and processes to best answer the research questions. Finally, the data collection and analysis are detailed to ensure data validity, reliability, truthfulness, and integrity.

### **4.2 Research Philosophy**

The research philosophy used to guide the work through the development of this thesis is based on the following framework elements: “philosophical assumptions about what constitutes knowledge claims; general procedures of research called strategies of inquiry, and detailed procedures of data collection, analysis, and writing, called methods” (Creswell & Creswell, 1994, p. 3). These elements guiding how and what knowledge will be claimed are known as pragmatism, post-positivism and constructivism, which are followed by the interconnected dimensions of ontology, epistemology and methodology (Creswell & Creswell, 1994).

The philosophy represented by pragmatism is promoted in a mixed-methods approach, believing that knowledge comes to light from the combination of actions, situations and consequences given that mixed-methods framework focuses on the problem rather than the method and therefore, all methods are available to be used in the assumption of the research.

Post-positivism is a philosophy based on science, a quantitative method in which the analysis of the topic comes only after the results are found from an pre-existing condition. This philosophy implies that the root cause influencing the results of the research is examined to narrow the hypotheses to answer the research question.

Constructivism, however, is a philosophy developed to construct knowledge upon interaction with individuals’ experiences of a specific topic in qualitative research. This idea means that the topic is widely analysed, looking for complexities and different meanings based on the

participant's views so that the investigation with participants is founded on broad and open-ended questions (Creswell & Creswell, 1994, 2017).

In relation to the dimensions of the philosophy, the ontology dimension introduces assumptions of existing theories and ideas of a specific topic as it is known. This dimension is then combined with the epistemology dimension to capture further evidence and knowledge of the topic's structure through the most appropriate methodology, which is the technique to investigate the topic of interest and acquire the desired knowledge outcome (Denzin & Lincoln, 2011).

This thesis utilises constructivism as the baseline of the philosophical dimension as it aims to uncover and access factors connecting the integration of Sales and Operations Planning with supply chain sustainability performance. As the literature on this subject has not been widely explored, this thesis is based on the perspectives and experiences of senior leadership participants involved in organisations that have already implemented S&OP practices or are aiming to. Therefore, the investigation and analysis of the topic relies heavily on participant assumptions.

Considering that the constructivism philosophy aims to explore the participant experiences and views hence exploring the research questions specifically, this thesis adopts semi-structured interviews in order to not only provide the participant with the opportunity to share their in-depth knowledge, but to enable follow-up questions during the interview (Creswell & Creswell, 2017). However, the participants approached for interview are a convenient sample from a known and defined cohort of businesses and therefore, care is taken about prioritising perspectives that align with the researcher's beliefs and subjugating those that don't. Furthermore, this approach allows the analysis to be undertaken with more flexibility, correlating the interpretation of data collected with the existent theory (Charmaz, 2014).

### **4.3 Research Approach**

Research can be designed to collect and interpret the data of the study through two different approaches: qualitative and quantitative paradigms (Pathak et al., 2013). Both approaches aim to appropriately answer the research questions hence the method to be used in data gathering and analysis will depend on the level of information required to support this process. In other

words, the method will support revealing the results of the topic according to the nature of the desired outcome, whether factual or interpretative data is needed (Hammarberg et al., 2016). To answer the research questions, a qualitative approach will be followed in this thesis.

Qualitative research aims to explore inquiries related to cultivating insights into the significance and experiential aspects of human existence and societal interactions (Fossey et al., 2002). In addition, qualitative research employs nuanced data expressed through narratives, images, and symbolic representations, whereas quantitative research relies on empirical data typically quantified in numerical form (Mulisa, 2022). Thus, given the nature of this thesis scope and questions, the qualitative approach ensures the connection between existing practices and the theory found in the literature. That is, through a qualitative research approach, the lack of an in-depth theory of how Sales and Operations Planning process contributes to the supply chain sustainability performance can be satisfied with the contribution of current knowledge and experiences across organisations.

This thesis adopts an inductive research approach, which is characteristic of qualitative studies. Inductive reasoning allows for the development of theories as a direct result of the analysis of the data collected during the research. This approach is particularly effective in exploring nuanced aspects of Sales and Operations Planning (S&OP) and supply chain sustainability, where specific outcomes are not predetermined but emerge through the data analysis process (Thomas, 2022).

Moreover, sustainable goals and performance have become a common agenda across organisations, challenging them to investigate why and how their processes can provide support to the 17 sustainable development goals, [SDGs] (Rosati & Faria, 2019). From this perspective, qualitative research helps answer ‘why’ and ‘how’ questions, providing factors not well covered through the literature review (Creswell & Creswell, 2017).

Ultimately, reliability and effectiveness of resources and time used in the data collection and thereafter data analysis result, are essentially driven by the sample size (Majid, 2018). Quantitative research requires a comprehensive sample size. It quantifies variables and measures relationships between them, often using statistical tools to analyse numerical data. Its primary aim is to test hypotheses, establish patterns, and generalise findings from a sample to a

larger population (Rahman, 2017). Therefore, limitations are found in both approaches implying that a clear understanding of the research objectives is required before determining the most appreciated approach.

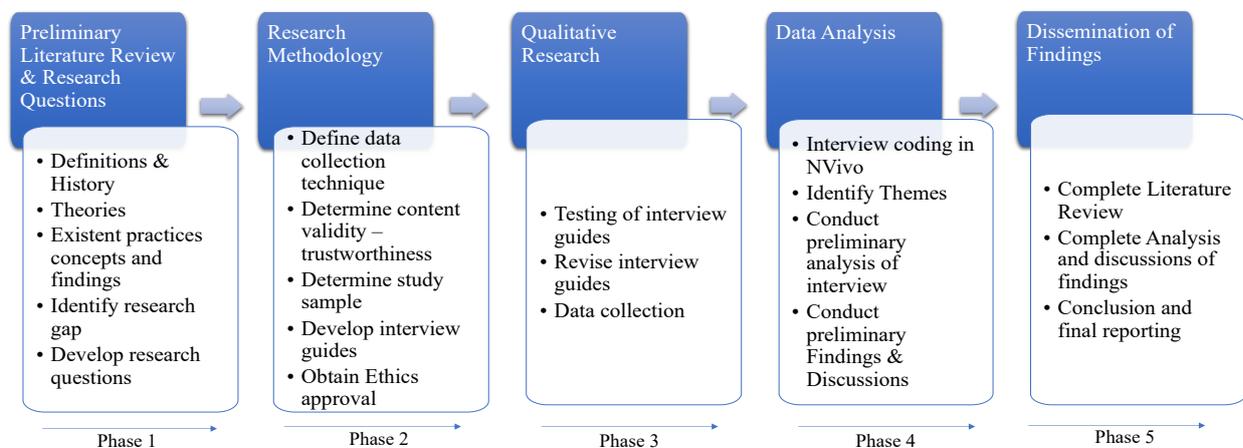
Furthermore, acknowledging and addressing insider positionality, particularly in qualitative research, is crucial (Holmes, 2020). Insider positionality not only enriches the validity of the qualitative findings due to the researcher's direct experiences and relationships within the community (Yip, 2023) but also introduces potential biases due to the researcher's role as a senior leader within the same group as the research sample (Tutuncu et al., 2022). Manohar et al. (2017) highlight that insider researchers can gain valuable insights that outsiders might not access, but they need to employ practices to ensure data transparency and reflexivity in mitigating biases related to the dual role as a senior leader and researcher.

Despite the advantages and disadvantages demonstrated in both approaches, this thesis makes use of qualitative research, ensuring that key concerns are detailed and covered in the research design and research trustworthiness, Sections 4.4 and 4.8 , to minimise the drawbacks common to qualitative research.

#### **4.4 Research Design**

The research design encompasses a thorough plan outlining the framework, processes, and approaches for collecting, analysing, interpreting, and reporting data. Its purpose is to prevent any inconsistency between the evidence gathered and the research questions that lead the investigation (Creswell & Creswell, 2017).

This thesis research design employs five sequential phases, as detailed in Figure 4.1, grounded in the principles of systematic inquiry and guided by a comprehensive literature review.



**Figure 4.1 Research Design Framework** *proposed by Kallio et al. (2016)*

The first phase involves an in-depth literature review of definitions, theory, history, and specific concepts pertinent to current practices of supply chain management as well as sustainability management. Through the literature review phase, a research framework was developed in order to clearly streamline the steps to work through this thesis making sure not only theoretical concepts are applied in the end-to-end research process but avoid potential delays to the plan when re-building new ideas (Denzin & Lincoln, 2011). Furthermore, the literature review supported the formulation of the thesis objective and the three questions including identifying the research gaps.

Following on from phase one, in phase two the selection of an appropriate research method to be applied in this thesis, including the planning of data collection, technique, and study sample selection was defined. As the qualitative approach was defined to answer the three research questions, the semi-structured interviews were conducted through the data collection step, aiming to firstly investigate the main topic of study, followed by exploring participant insights into their perceptions and interpretations related to the subject matter. To proceed with the data collection stage, an interview guide was developed (informed from the literature review and attached as Appendix A) as well as ethics approval acquired through the Project ID 5365 with the Flinders University Human Research Ethics Committee (Appendix D), in line with the Australian Research Council (Australia Universities, 2018).

The next step, phase three, was to undertake a pilot test of the interview guide to ensure a consistent attitude during the interviews. Still in this phase, data collection through qualitative semi-structured interviews were conducted with experts of the selected organisations via video conference on Microsoft Teams. The conducted interviews had duration of between 40 and 60 minutes.

In the phase four, the transcription of the interviews was performed using Microsoft Teams, followed by data coding and preliminary analysis and discussion using the NVivo R1 (2020) platform.

Furthermore, to mitigate the potential influence of the researcher's position on participants' responses and ensure data trustworthiness, as discussed in Section 4.3, anonymity and confidentiality were guaranteed to encourage honest and unfiltered feedback (Yip, 2023). Additionally, a structured interview guide with open-ended questions ensured consistency and focused on participants' experiences and perspectives (Kotonya, 2024).

To further enhance the credibility of the data, continuous reflexivity was practised, with the researcher maintaining a reflexive journal to document thoughts, assumptions, and potential biases. Participant validation allowed participants to provide comments on the findings to ensure accurate representation of their views. Multiple data sources and methods, including literature, interviews, and document analysis, were used for triangulation to corroborate the findings, thereby validating the consistency and reliability of the results. These comprehensive measures ensured that the data collected was genuine, unbiased, and trustworthy, reinforcing the robustness and integrity of the research.

Final reporting and discussion of findings was the last phase of the research design. To ensure the truthfulness and integrity of the data collected and analysed through this thesis, this research embedded contemporary criteria as suggested by Guba (1981), i.e. credibility, transferability, dependability, and confirmability. The method is detailed in-depth in Section 4.8.

## **4.5 Sampling Strategy**

The sampling strategy in qualitative research determines the depth of understanding of the topic being studied. Furthermore, the sample selection method is usually directed by the research

question. That is, build results to answer the research questions based on pre-determined hypotheses or on the interpretation of the sample experiences (Marshall, 1996b). Hence, engaging with key experts in the field is imperative for providing the foundational support necessary to address the research questions posited by this thesis (Marshall, 1996a). This requires a careful selection process to identify participants whose expertise and insights are most pertinent to the study's objectives (Fossey et al., 2002).

Additionally, participant selection is critical for the development of the study as well as for the data source sampling which plays a fundamental role in accurately describing and investigating the subject meanings. From that perspective, the purposeful sampling method was employed as criteria for inclusion and exclusion of participants. Fossey et al. (2002, p. 10) advocate for the strategic selection of “people, situations or processes on theoretical grounds to explore emerging ideas and build theory as data analysis progresses”. Within this method, typical case sampling technique was applied to identify the currently most common organisations' supply chain management practices already in place to mitigate risks to the sustainable development goals (Suri, 2011). The attributes of the sample criteria to be included in this thesis are identified below.

Firstly, organisations based in the beauty and personal care industry in Australia market are predominately part of the scope given that this industry in the Australian market represents a 4% growth between 2023-2028 (International, 2022; Statista, n.d). Worldwide, this industry has a projected growth rate of 7% between 2023 and 2030 (Grand View Research, 2022). Secondly, the market's largest segment is Personal Care in both Australia and worldwide (Statista, n.d). Therefore, firstly, this thesis investigated Australian and global beauty and personal care organisations.

This qualitative research focuses on examining beauty and personal care organisations where the categories of hair care, skincare, bath and shower, oral care, and make-up are presented where statistics show year on year (YoY) ascending growth (Mordor Mordor Intelligence, n.d.).

Moreover, to compare the results that the S&OP has on the supply chain sustainability performance, this qualitative research included organisations where the Sales and Operations

Planning model is already incorporated into their business process as well as those where it is part of their strategy pipeline only. That means organisations that only have S&OP as to-be-implemented were included.

This study sample approach enables the researcher to identify the different streams implemented across the organisations and therefore, comprises an in-depth knowledge and nuance of the factors necessary to explain this topic (Chiesa et al., 2007). Furthermore, in face of the impact that geopolitical turmoil had on overall business and on supply chain sustainability performance, such as the Covid-19 pandemic which accelerated the digital sales and as a result increased inventory and shipment processes in some instances (Mordor Mordor Intelligence, n.d.), this thesis focuses on the inclusion of beauty and personal care organisations that operate from or to overseas, by importing and/or exporting components and finished goods.

Qualitative research typically requires a smaller, more focused sample of participants for an in-depth exploration of complex phenomena, however, the meticulousness and comprehensive nature of data collection are pivotal in clarifying the phenomena under investigation (Fossey et al., 2002). According to Marshall (1996a), choosing the correct participants ensures meaningful insights into the topic being studied. Thus, senior leadership participants were the focus point of the thesis sample given that they are key decision-makers in organisations holding substantial and privileged knowledge (Grajfoner et al., 2022), along with the ability to impact significant organisational results, either independently or in collaboration with others (Solarino & Aguinis, 2021).

Going through sampling and analysis of the data, this research began by interviewing four senior leadership participants as the base and progressed by incorporating more senior participants interviews until no novel concepts emerged from the additional 16 interviews. This marked the point of saturation, as detailed in Section 4.6.3. The initial sample of potential participants was refined using typical case sampling, while snowball sampling was employed to gain access to further participants.

Snowball sampling is a research technique primarily employed in qualitative research, especially when the target population is challenging to access or remains somewhat concealed (Biernacki & Waldorf, 1981). This approach entails the initial identification and recruitment of

research participants, who subsequently assist in identifying and referring more participants, thereby initiating a cascading and expanding effect often likened to a snowball (Nikolopoulou, 2022).

Senior leadership participants frequently have limited accessibility due to their rarity or exclusivity. However, snowball sampling allows researchers to tap into these hard-to-reach populations by leveraging existing connections (Simkus, 2023). In addition, senior leadership participants may be hesitant about engaging in traditional random sampling methods due to concerns about privacy. Conversely, given that snowball sampling is based on referrals within trusted networks, it can provide a sense of confidentiality and trust, making senior leadership participants more willing to participate (Sharma, 2017). However, to minimise the inherent limitations of snowball sampling, including potential bias and lack of representativeness (Boyd et al., 2023), this thesis employed a demographic data collection strategy (Leighton et al., 2021). This approach was carefully designed to capture a diverse range of participant characteristics, such as years of experience in the field, educational background, geographic distribution, and a spectrum of organisational sizes, ranging from small to large multinational corporations. This demographic stratification ensured a comprehensive and nuanced participant pool, reflective of the broader industry landscape, as detailed in Table 4.1 and Table 5.1.

For the purpose of this thesis, which intended to capture the experiences of experts and perceptions (Puricelli, 2016) of how S&OP can contribute to improving the supply chain sustainability performance, key participants had to be in senior leadership roles, who are accountable for leading the supply chain/S&OP, as well as sustainability strategies. They were able to comment on the challenging factors influencing business performance and possess a deep understanding of business management strategies, as well as the interrelations between such factors. Therefore, to achieve a successful recruitment rate and meaningful data gathering, both the typical case and snowball techniques were employed in this study.

To ensure the participants included in the study sample are in accordance with the scope of this thesis and contribute with meaningful inputs to support answering the research questions, exclusion criteria were coordinated. Beauty and personal care organisations based in the

Australian market that do not operate globally were excluded. This approach ensures that various sustainable streams are included in the analysis, such as carbon emissions generated from higher freights costs, and materials import as well as higher inventory holdings to cover the long process lead time (Li et al., 2021).

The final sample consisted of thirteen organisations based in the beauty and personal care industry, of which eight are based in Australia and the remaining four based in Latin America, North America and EMEA, as shown in the NVivo Table 4.1.

**Table 4.1 NVivo Coding—Organisations Demographics (Sorted by Size)**

Pseudonym	Revenue	Size	Trading Presence	Operations Presence	Geography	S&OP Presence	Sustainability Function
Org 1	> \$500M	Large	Global	Global	Latin America	Yes	Yes
Org 2	> \$50M < \$500M	Large	Global	Global	Asia-Pacific	Yes	Yes
Org 3	> \$500M	Large	Global	Global	EMEA	No	No
Org 13	> \$500M	Large	Global	Global	EMEA	Yes	Yes
Org 4	> \$500M	Large	Global	Global	Latin America	Yes	Yes
Org 5	> \$50M < \$500M	Large	Local	Global	Asia-Pacific	Yes	Yes
Org 6	> \$500M	Large	Global	Global	Asia-Pacific	Yes	Yes
Org 7	> \$500M	Large	Global	Global	Asia-Pacific	Yes	Yes
Org 8	> \$10M < \$50M	Medium	Global	Global	Asia-Pacific	Underway	No
Org 9	> \$10M < \$50M	Medium	Global	Global	Asia-Pacific	Yes	Yes
Org 10	< \$10M	Small	Local	Global	Asia-Pacific	No	No
Org 11	< \$10M	Small	Local	Global	Asia-Pacific	Yes	Yes
Org 12	> \$10M < \$50M	Small	Global	Global	North America	Underway	No

*Note: Organisation size is Large if greater than 200 employees, Medium if 50 to 199 employees and Small if 0 to 50 employees.*

Although eight of the 13 organisations are based in Australia (Asia-Pacific), all 13 of the sample operate internationally through exporting and/or importing goods and components. The S&OP process is present across the majority of the organisations, 11 out of 13, with nine fully implemented and two underway. Similarly, the sustainability function is structured in nine of the 13 organizations.

Regarding the final sample of experts, they consisted of 20 senior leaders in the field of supply chain/S&OP and sustainability roles. The detailed overview of the participants is in Section 5.3.

## **4.6 Data Collection Method**

Phase one of the research design, the literature review, broadly followed a critical literature review approach. The purpose of this literature search was to identify, select, and critically evaluate the research work to answer the research questions. That is, explore the definitions, theory, and history of the evolution of supply chain management and how sustainability management has been integrated into it and evolved over the years and therefore, identify practices that still need further mapping and expansion of knowledge.

Following on from the literature review, this section demonstrates the nature and scope of the qualitative data collection including the data collection technique and process as well as data saturation to support its development.

The qualitative data collection enables a deeper understanding of the subject being studied based on the analysis of the experiences and views of the participants. Therefore, in order to gather rich in-depth data that would allow the development of meaningful insights, careful decision making regarding the process and technique to be applied to the data collection is essential (Barrett & Twycross, 2018).

### **4.6.1 Data Collection Technique**

As this thesis aims to identify the prospect of the Sales and Operations Planning process to contribute toward improving supply chain sustainability performance, the responses captured from the practising senior leadership participants related to their respective companies serve as

baseline data. Thus, the quality and accuracy of the nature of the data is fundamentally relevant to the progress and output of this research. Considering this, the data collection technique used in this research was elite interviewing.

“Interviews give the most direct and straightforward approach to gathering detailed and rich data regarding a particular phenomenon” (Barrett & Twycross, 2018, p. 1). Elite interviewing (EI) aims to gain a deeper and critical understanding of the interviewee experiences and perspectives. EI presents a distinctive opportunity to investigate the underlying foundations of an organisation’s strategies, and how the uppermost organisation hierarchy influences the lower tiers. Furthermore, the insights provided by senior leadership participants play a vital role in constructing and validating theories within the field of strategic management research (Aguinis & Solarino, 2019) given the fact that EI presents a distinctive chance to delve into the fundamental building blocks of a company's strategic framework, including a comprehensive understanding of the decision-making process. EI additionally allows the researcher to gain insight into an informant's examination and viewpoints regarding a specific matter, occurrence, or circumstance (Solarino & Aguinis, 2021).

The data collection was conducted through semi-structured interviews consisting of pivotal questions to explore rich and in-depth interviewee knowledge, views and experience about the organisation’s management practices and performance (Gill et al., 2008). When dealing with senior leadership participants who have time constraints or can only be interviewed once, it is suitable to adopt a semi-structured interview format as follow-up interviews are not always feasible, and the initial interviews represent a one-off opportunity. This approach enables the exploration of all pertinent participants without imposing limitations on the conversation. Additionally, the semi-structured method was employed as it communicates that researchers do not intend to apply excessive control over the discussion (Solarino & Aguinis, 2021). Therefore, the focus was predominately on capturing detailed insights that address answers to the research questions, as well as discovering facts that may not have been covered in the literature review, which may contribute to further deepening this thesis (Gill et al., 2008).

In addition, a semi-structured interview can be designed following the structured and unstructured interview. A structured interview is based on a set of precise questions not

allowing flexibility for external influences. On the other hand, an unstructured interview does not follow a script and in fact, allows the interview to follow its flow (Denzin & Lincoln, 2011). The design of the interview applied in this research is open-ended and neutral questions, starting from less complex questions which do not require much elaboration from the interviewee, moving toward built-up answers throughout the interview. This technique aimed to allow the participant to feel more comfortable and confident and therefore, provide a higher quality of data. In addition, open-ended questions in Elite Interviewing offer the benefit of enabling interviewees to express what they consider relevant and significant to the interviewer, rather than being restricted by the researcher's predetermined ideas so that this technique "allows the researcher to make decisions about what additional questions to ask as the session progresses", offering "a distracting digression or an interesting new avenue to pursue" (Berry, 2002, p. 3).

The development of the qualitative semi-structured interview guide was methodically informed by a comprehensive review of existing literature, focusing on identifying key themes, gaps, and debates within the field, which were then used to frame the interview questions (Alsaawi, 2014). Prior to finalising the interview guide, a pilot test was conducted with two participants in the field of supply chain and sustainability domains. Feedback from this pilot test led to modifications in question wording and order, ensuring clarity and logical flow (Valenzuela & Shrivastava, 2002). The process to develop the interview guide is detailed in-depth in Section 4.6.2.3.

## **4.6.2 Interview Process**

### ***4.6.2.1 Preparation***

According to Barriball and While (1994) a comprehensive literature review in preparation for conducting interviews is required given that the success of the interview is driven by the interviewer's deep knowledge and competencies acquired from literature.

In light of the above, a literature review was conducted on topics associated with definitions, evolution and existent challenges across the supply chain framework as well as the supply chain impacts and current practices to mitigate and/or improve the sustainability performance. This review insured the researcher's skill-building of the relevant topics of this thesis so that

potential errors or bias that might come up during the interviews are avoided, including misunderstanding of answers given and missing important content shared by the participants.

The next step following the interview preparation was to build the interview guide [see Appendix A]. The interview guide facilitates and ensures the success of the interview by consolidating the relevant topics to be discussed throughout the interview. This guide provides more focus on the conversion yet permits flexibility in collecting participant inputs (Valenzuela & Shrivastava, 2002). The open-ended questions began with broad inquiries regarding the individual's background, as this approach can enhance the interview process since individuals typically enjoy discussing their own experiences such as, general questions about their educational and professional experiences including roles and responsibilities. Moving on, more detailed questions associated with the subject matter focused on process management practices and governance, which aimed to comprehend the procedures, principles and values driving the management approach (Liu, 2018). The pool of questions was discussed and validated with the research cohort team to consider others research experience of interviewing senior leadership participants.

Thereafter, an interview pilot was conducted with two colleagues in the field (Supply Chain Data Governance Manager and Supply Planning Manager) to assess the quality of contents of the interview guide and process as well as the confidence level of the interviewer so that appropriate adjustments were made ahead of the official interview (Barriball & While, 1994). This process provided feedback on refining the questions to be more related to the research questions and by incorporating additional follow-up "why" and "how" questions instead of only interrogative "what" questions that may produce constrained factual answers.

The last step in preparation was to gain a more profound understanding of each participant's social demographic and professional background, encompassing their life history and career by referring to pertinent websites (Mikecz, 2012). This preparatory step aided the researcher to becoming more informed about the participants, thereby facilitating the establishment of a productive rapport and the cultivation of trust (Conti & O'Neil, 2007).

#### ***4.6.2.2 Senior Leadership Participant Recruitment***

Obtaining access to senior leadership participants is difficult, and establishing trust with them can prove challenging (Mikecz, 2012). Researchers must not only comprehend the methods for gaining access to participants but additionally recognise what topics are of significance to them (Liu, 2018).

The initial set of organisations and participants to take part in this research were selected through searches on LinkedIn as well as through reports from the specialised market and consumer data websites, following the typical case sampling technique. Seven participants were recruited through this method. The remaining participants, eleven of the twenty, were referred using the snowball technique.

The researcher contacted potential respondents via the LinkedIn platform, following the ethical conduct guidelines of the Australian Research Council (Australia Universities, 2018). Each potential participant was invited to the interview through a recruitment letter/information sheet [see Appendix B], which provides all detailed information regarding ethical conduct guidelines and conditions, ensuring the confidentiality of the data collection and therefore, encouraging them to participate. The recruitment letter ensures that results published through this research are kept confidential. Upon each potential participant demonstrating their willingness to participate in the interview, the researcher provided the senior leadership participants with a set of interview timing options, allowing them to choose the most suitable dates, recognising their occupied calendar.

Along with the interview meeting invitation, the participants were asked to sign a participation consent form to be returned ahead of the interview date [see Appendix C]. In addition, a sample of the interview questions was attached to the meeting invitation, providing the participants with transparency and opportunity to prepare for the interview, and as a result, share extra meaningful data with the researcher.

#### ***4.6.2.3 Interview Guide Development and Execution***

The primary aim of a qualitative interview is to “describe the meanings of central themes in the life world of the subjects” through participant experiences. In doing so, “the main task in interviewing is to understand the meaning of what the interviewees say” (Valenzuela & Shrivastava, 2002, p. 2).

An interview needs to flow its natural course and be rich in detail. Therefore, the set of ten open questions to lead the conversation determined the success of the interview (Alsaawi, 2014) [Appendix A]. The questions were determined based on the scope followed in the literature review of this research: exploring definitions, theory, history, and specific concepts of the topics to study.

The interviews consisted of five consecutive phases as recommended by Alsaawi (2014). The first phase is the introduction. The interviewer conducts the initial introduction followed by describing the purpose of the study and the interview. The second phase is the warm-up questions where the easiest questions will be asked to get the participant involved and comfortable with the interview. The third phase is the main-body questions, focusing on the principal topic of study with prescriptive topic-related questions. Following this, the cool-off phase will take place to start moving towards the interview closure. Finally, in the closure phase the participant is thanked and asked for further contribution and feedback regarding the interview.

The open-ended questions (Appendix A) were structured in a simple straightforward, clear, and short way. This ensured precision in the answers given by the participants. Furthermore, this method encouraged each participant to elaborate further, sharing extra meaningful content beyond the scope of the asked question (Alsaawi, 2014) which aligns with the aim of the semi-structured interview approach (Creswell & Creswell, 2017).

Yet following on from the semi-structured interview approach, the format of the interview permitted the use of follow-up questions as well as rephrasing of the pre-formulated interview guide to ensure the depth of knowledge obtained (Barriball & While, 1994).

Regarding the execution of the interview pilot test, two interviews were conducted with colleagues in the field of supply chain and sustainability domains with the aim to evaluate the depth and understanding of the questions as well as the execution of the interview format. That is its duration, distracting noise background, and recorder functioning and therefore, put measurements in place to improve the interview process where required. The final interview guide and the process were built up based on the interview test outputs (Valenzuela & Shrivastava, 2002).

#### ***4.6.2.4 Interview Recording***

The interviews were video audio recorded via Microsoft Teams. Recording the interviews is an important step during the data collection as it gives the opportunity to the interviewer to review the answers afterwards, improving the quality and reliability of the data analysis. A review may capture equivocation, data missed during the interview, and any additional detail provided (Alsaawi, 2014).

Alsaawi (2014) additionally recommends that despite recording being important, the interviews should only be electronically recorded if the participant gives permission to do so. Therefore, before starting the interview and being sure that the participant feels settled and comfortable, the participant was asked if the recorder could be turned on to start the interview.

To retain essential information, the researcher kept fieldwork notes to document new insights and to record the researcher's observations and reflections encountered as they occurred throughout the entire process. The notes subsequently played a pivotal role in enhancing the overall comprehension of the entire conversation.

Therefore, the conducted interviews had duration of between 40 and 60 minutes, with senior leadership participants with leading roles in supply chain management and sustainability management of organisations based in the beauty and personal care industry. The participants were recruited from thirteen organisations based in Asia-Pacific, North America, Latin America and EMEA (Europe, Middle East, and Africa), and asked ten open-ended questions. In total, 20 interviews were conducted during the exploratory study across the months of June 2022 and September 2023.

#### **4.6.3 Data Saturation**

Data saturation in qualitative research indicates the stage at which researchers have collected enough data to gain a thorough comprehension of the subject being studied. This concept holds significant importance within qualitative research methodologies, especially in research that entails interviews, observations, or content analysis (Saunders et al., 2018).

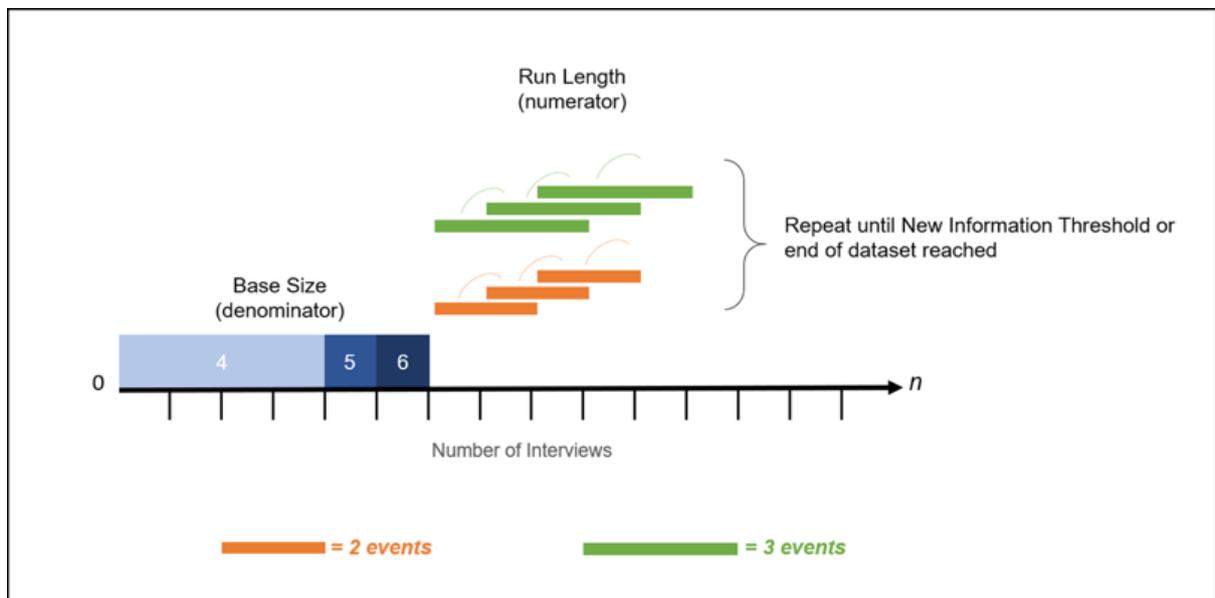
When collecting additional data no longer yields new insights or information regarding the research topic it implies that the researcher has reached a point of redundancy where themes,

patterns, or categories have been thoroughly explored and adequately represented in the data. This concept is essential in qualitative research as it ensures the depth and richness of findings to answer the research questions (Fusch & Ness, 2015).

According to Guest et al. (2020), the majority of the new insights emerging from the data is produced from the first five to six interviews, which generally means no additional information emerges when the sample size approaches 20 interviews. Furthermore, an empirical study from Guest et al. (2020), suggests that over 80% of the new concepts identified within the data are detected in the first ten interviews, whilst 92% of the themes are uncovered in the initial 12 interviews. Earlier studies from Namey et al. (2016) reported similar findings.

Considering the above and following the framework designed by Guest et al. (2020), demonstrated in Figure 4.2, a saturation method was developed for assessing and reporting on saturation in the context of the thematic analysis of this research. This method involved three foundations: base size, run length, and the new information threshold (Guest et al., 2020).

Firstly, base size refers to the number of participants that the researcher initially plans to include in the study to start generating new information. In the context of this thesis, the established base-size was four interviews. Secondly, run length determines the number of consecutive data points before the researcher identifies a new piece of information or theme, in which the quantity of these new themes determines the numerator saturation ratio. This thesis employed runs of four interviews before assessing the number of new themes for the numerator. The longer the run length, the more conservative and confident the data reach saturation (Guest et al., 2006). Finally, the new information threshold refers to the point at which collecting additional data does not yield substantially novel or unique information. Study from (Hennink & Kaiser, 2022) suggests that  $\leq 5\%$  threshold is a widely accepted and practical guideline in qualitative research because it balances the need for data richness with resource constraints, ensures consistency and comparability, and has empirical support for its effectiveness in identifying data saturation (Hennink & Kaiser, 2022). Given the high complexity of the sample criteria for this thesis, that is elite sampling, the new information saturation threshold assigned for this thesis was  $\leq 3\%$ .



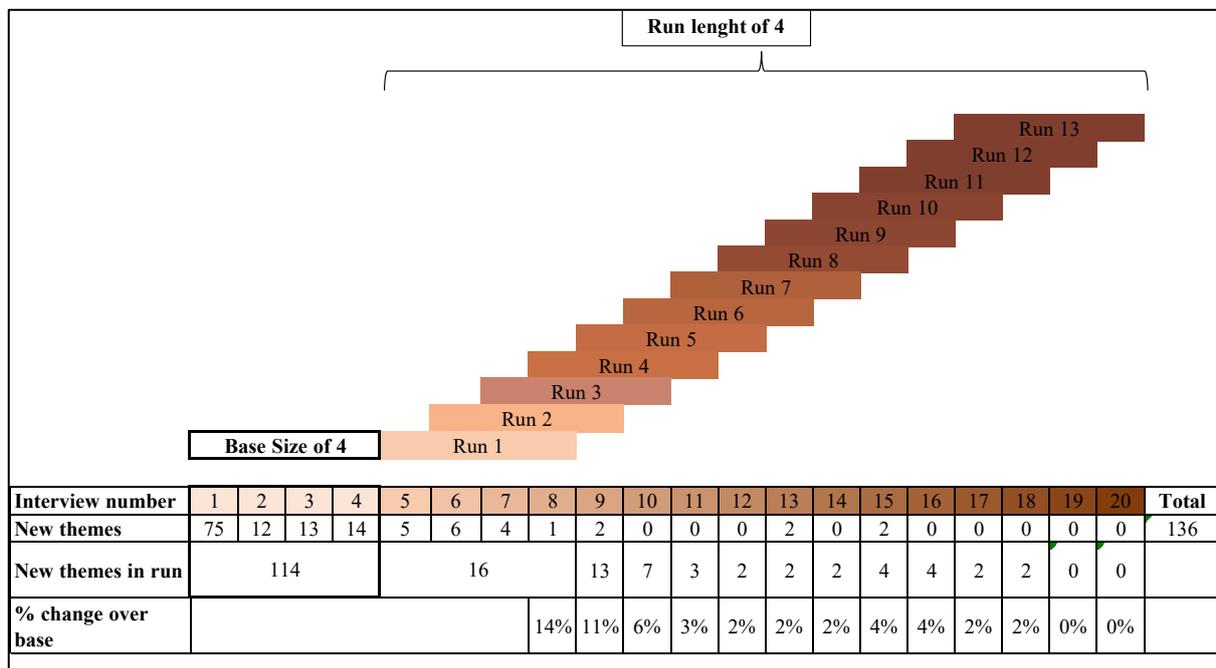
Interview number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	
New themes per IDI	17	8	5	7	4	3	1	0	2	1	0	0	0	1	1	0	0	0	0	0	0	50
New themes in run	37				7	4	1	2	3	1	0	0	1	2	1	0	0	0	0	0	--	
% change over base					19%	11%	3%	5%	8%	3%	0%	0%	3%	5%	3%	0%	0%	0%	0%	0%	--	

Saturation point at  $\leq 5\%$  threshold:  $6 \times 2$ 
Saturation point at  $0\%$  threshold:  $10 \times 2$

Base of 4
Runs of 2

**Figure 4.2 Data Saturation Framework** (Guest et al., 2020). Reproduced under a [CC-BY license](https://creativecommons.org/licenses/by/4.0/).

By following the above studies estimation and guidance, this thesis encompassed 20 interviews with senior leaders in supply chain/S&OP and sustainability roles. The interview guide used in the interviews contained ten main open questions, including the employment of inductive probing throughout the interviews, as described in Section 4.6.2.3. As a result, this thesis reached data saturation point from the 11<sup>th</sup> interview, with 132 unique codes. By the end of the third run, the tenth interview, the researcher was no longer encountering new themes, however, given the new information threshold was set at 6% rate, the researcher conducted an additional run to reach the saturation point of  $\leq 3\%$  rate.



**Figure 4.3 Data Saturation Results** (Author).

To ensure the validity of the data saturation, an additional four runs of interviews were conducted. At the last run of this phase, that is run eight and the fifteenth interview, two new themes emerged changing the saturation rate to 4%. Therefore, the researcher carried out five additional runs of interviews until the data saturation stabilised at the  $\leq 3\%$  rate and no new themes emerged. Figure 4.3 demonstrates the data saturation results of this thesis.

## 4.7 Data Analysis and Interpretation

Data analysis in qualitative research refers to the systematic process of organising, interpreting, and originating insights from non-numeric, conceptual information gathered during qualitative research studies. This method involves examining the nature of phenomena to understand the underlying reasons and contexts (Lester et al., 2020). To ensure rigour in the analysis of the qualitative data, scholars outline the significance of employing analytical approaches that systematically centre on the content. This entails paying careful attention to details, consistency, and transparency throughout the research process (Maher et al., 2018).

This thesis followed the data analysis method suggested by Creswell and Creswell (2017) as demonstrated in Figure 4.4.

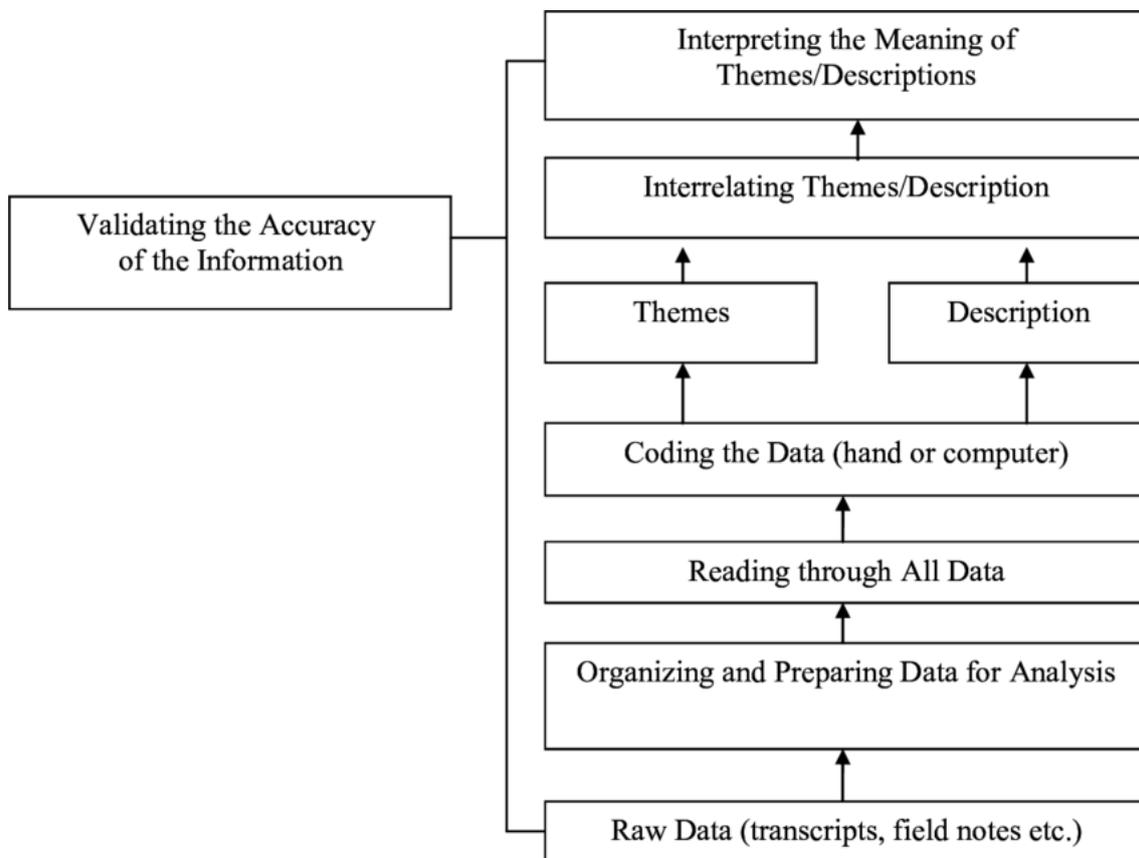
The analysis encompassed six consecutive stages. In the initial stage, the researcher meticulously organised the data for examination. This involved transcribing the data, manual coding, and importing it into NVivo R1 (2020). Simultaneously, the focus of the analysis was determined, and the choice was made to employ thematic and content analysis techniques. In qualitative studies, particularly when the data analysis pivots on verbal contributions from participants, it is advisable to centre the analysis on the constituent of what participants express (Dey, 2003). Given that this thesis aims to comprehend the participants' experiences and viewpoints regarding integrating sustainability management into the S&OP process with the purpose of contributing to supply chain suitability performance, non-mathematical analysis was employed, facilitating an in-depth understanding of the meaning conveyed by the participants' inputs (Maykut & Morehouse, 2002).

The second stage consisted of the researcher becoming familiar with the data by reading through the transcripts multiple times. This allowed the researcher to become immersed into the content and therefore gain an overall understanding of the meaning of the interview responses (Glaser et al., 1968).

In the third stage, the data was coded. Two coding approaches were used to assist in this process, thematic and content analysis. This was undertaken to ensure reliability and accuracy of data over the entire lifecycle, especially in qualitative studies in which integrity can be at risk when using an inductive approach (Glaser et al., 1968).

Following the generation of the codes, content with similar meanings was grouped into thematic categories.

In the subsequent stages, fifth and sixth, a representation of the identified themes and categories was developed, subsequently leading to the data interpretation.



**Figure 4.4 Data Analysis following the Creswell Model** (Creswell & Creswell, 2017)

The next sections explain in depth the techniques employed in this thesis to make the outcomes of thematic analysis more evident and precise whilst emphasising valuable insights (McMurray, 2004).

#### 4.7.1 Transcription of Data

Data transcription of the information provided by the participants during the interview was conducted to systematically organise the data gathered and to deepen the data analysis. The transcription task needs careful management to make sure the data is unviolated and to prevent delays from poor data analysis preparation (Reyes et al., 2024). Thus, this process was supported by the use of the Microsoft Teams transcript, which shows 85-90% accuracy level (Aregger, 2023). Furthermore, the full transcripts were listened to and cross-referenced many times to ensure full accuracy of the data entered (Fasick, 1977) as well as to acquire further relevant notes not previously captured which supported the depth of understanding of the topic.

#### **4.7.2 Coding of Data**

Once the data was well understood and accurately transcript, coding as applied to group it into a set of themes, aiming to ease the analytical interpretation of the data. This process involved the reading of the transcription, segmenting it into relevant categories which then allowed the identification of similarities between the collected data (Creswell & Creswell, 2017). This thesis employed a combination of both approaches a priori and inductive codes,, oriented by the literature review as well as from the collected data. As a result, potential gaps in literature could be identified as this method allows the researcher to further contemplate and cross-reference the theory found, obtaining extensive understating of the study (Kiger & Varpio, 2020).

Considering the above, the coding process was firstly manually built and thereafter, uploaded into the NVivo R1 (2020) platform. As suggested by Kiger and Varpio (2020), this approach allows the researcher to further connect with the meaning of the data collected as well as identify uncovered themes in the literature.

#### **4.7.3 Data Analysis Method**

The next step with data analysis was to examine the coded data and categorise it into themes and sub-themes. This process was “constructed by the researcher through analysing, combining, comparing, and even graphically mapping how codes relate to one another” (Kiger & Varpio, 2020, pp. section Step 3: Searching for themes, para 1) providing a strong representation and connection between the insights provided by the participants during the interviews, hence deepening the comprehension of the meanings which then contributes to a valuable analysis of the study (Strauss & Corbin, 1990).

##### ***4.7.3.1 Thematic Analysis***

The semantics of data analysis rely on the format in which the analysis is conducted. Refining the findings into thematic categories supports the researcher in collecting as many meaningful insights as possible (McMurray, 2004).

The thematic analysis is a systematic process converting the qualitative data into a numerical format to identify and compare frequency, similarity, and relevant findings of the phenomenon in study (Crowther & Lancaster, 2008).

The resulting findings from the thematic analysis is often seen as a non-structured approach in qualitative research (Braun & Clarke, 2006). From that perspective, this research employs a six steps structured approach following on from the study outlined by Nowell et al. (2017): 1 Familiarising yourself with your data; 2 Generating initial codes; 3 Searching for themes; 4 Reviewing themes; 5 Defining and naming themes; 6 Producing the report. Step 6 will be detailed in the next chapter of this thesis.

In order to becoming familiar with the content, the researcher reviewed and immersed themselves in the data. This involved repeated reading through the transcribed data and notes taken during the interviews before even starting with the coding process. The purpose of this step was to capture potential data similarities and insights (Guba, 1981).

Once familiar with the data, the next step was producing the initial codes which had emerged from the first step. Here, the researcher reviewed the data once again and created the initial codes based on the research questions of this thesis. This step, additionally known as ‘open-codes’ (Bowen, 2009), was produced following a line-by-line approach in NVivo R1 (2020) platform. By adopting a line-by-line coding approach in qualitative research, researchers can enhance the trustworthiness of their findings and reduce the influence of bias, ensuring that the results accurately reflect the participant perspectives and experiences (Maher et al., 2018).

After creating a list of initial coding found within the dataset, the next step was to organise and compile the potentially applicable coded data into thematic categories, axial coding. Thematic analysis in qualitative research allows the researcher to identify patterns, trends, and recurring ideas within the data, as well as gain insights into the underlying meanings and concepts present in the data (Goldwater et al., 2016). Furthermore, it enhances the research credibility by transparently documenting the process of theme development, which helps demonstrating the rigour and trustworthiness of the findings (Nowell et al., 2017).

During axial coding, related codes were grouped together into potential themes and compared with the themes revealed in the literature review establishing a strong connection to both practical application and theoretical frameworks (Braun & Clarke, 2006). Additionally, the researcher requested the research team to review the created themes and their relevance to the research questions, aiming to minimise researcher biases (Nowell et al., 2017).

In the process of data analysis with NVivo, the software provides descriptive statistics, a helpful feature that shows the number of respondents and references linked to each code. This aided the researcher in identifying prominent themes and increasing their confidence in the identified themes and internal validity. If nodes have few references in the dataset, NVivo implies the theme's limited importance or potential misclassification, demanding a review of those references and potential reassignment or exclusion to enhance analysis accuracy (Zamawe, 2015).

The last step carried out in the thematic analysis of this thesis is defining and naming themes. In other words, selecting coding. In this step, clear definitions for each theme were determined and descriptive names that accurately represent their content were assigned. This ensures that the themes are easily understandable to others (Williams & Moser, 2019). In this context, NVivo provides a distinct benefit by summarising an overview of the nodes associated with more advanced themes. This enhances the comprehension of interconnections and relationships between parent and child nodes, as well as enriching the analysis with meaningful insights, contributing to the overall findings (Strauss & Corbin, 1990).

#### ***4.7.3.2 Content Analysis***

Content analysis in qualitative research is a complementary method used to systematically examine and interpret the content of the thematic analysis. That is, to identify patterns, themes, and specific elements within the analysed data (Brod et al., 2009). The aim of content analysis is to depict the attributes of the data by investigating who communicates what to whom, and the resulting impact (Vaismoradi et al., 2013). The depth, concept level, and subsequent interpretation of qualitative data are dependent on the approach employed by the researcher to perform the analysis (Silverman, 1993).

Moreover, the process of systematically examining and interpreting data inherently involves comparing different pieces of data to identify patterns and themes. This process aligns with the core principle of content analysis, which is to analyse and interpret meaning in recorded forms of communication by breaking down and examining individual elements of the data (Mayring, 2004).

Once the interviews were finalised the next step was to proceed with the data analysis. According to Kiger and Varpio (2020), data analysis in qualitative research is a complex process as it requires careful data management to avoid inaccuracy of the analysis performed. Qualitative data analysis involving senior leadership participants requires a well-planned methodology, ethical considerations, and specialised techniques to extract valuable insights from the unique perspectives of senior leadership participants (Scally et al., 2021).

#### **4.8 Research Trustworthiness**

Qualitative research has been continuously used as a research approach, however, criteria to assess and apply validity and reliability of the study collected is an essential step in supporting credible research results (Golafshani, 2003).

Considering the reservations surrounding the perception of qualitative research as a "soft science", it becomes vital to establish optimal methods that sustain the scientific accuracy of the research process, thereby safeguarding its validity (Brod et al., 2009).

The interpretation of qualitative data requires a creative mindset, as discriminating complex patterns and themes within complex data is not typically straightforward (Silverman, 2024). In order to address this complexity, recommendations encompass staying open to diverse perspectives and strategies when dealing with a problem, exploring alternative avenues of thinking, establishing connections between unrelated elements, and experimenting with different perspectives. The ultimate objective of these approaches is to uncover new insights and expand the understanding of the subject matter (Patton, 2014).

The most appropriate approach for obtaining data and ensure content validity in qualitative research involves direct interactions with experts in the field. This method effectively captures their viewpoints on matters relevant to the focus of the study. Both focus group discussions

and one-on-one interviews can be carried out systematically and rigorously, ensuring the data collection and analysis processes are well-documented and accurate (Brod et al., 2009). Additionally, to explore complex processes and facilitate the discovery of new insights, the majority of thoughtful qualitative research questions tend to focus on ‘how’ or ‘what’ questions (Flick, 2013).

As discussed in previous sections, elite interviewing, semi-structure interviews and open-ended questions was the technique employed in this thesis to validate the strategic management theories with the interviewees’ insights, viewpoints, as well as understanding the organisational strategies on managing challenging factors and objectives performance (Aguinis & Solarino, 2019). Despite the valuable contribution this technique adds to the research outcomes, it presents risks to ensure the research validity, such as finding a balance between guiding the interviewee to sharing meaningful and accurate data whilst keeping focus on the subject matter (Berry, 2002).

Additionally, open-ended questioning, the most challenging yet potentially rewarding form of elite interviewing, demands interviewers be able to skilfully discern when and how to improvise probing and follow-up questions, as well as identify when it is time to transition to questions that will yield greater outcomes. “The best interviewer is not one who writes the best questions. Rather, excellent interviewers are excellent conversationalists. They make interviews seem like a good talk among old friends” (Berry, 2002, p. 1).

Considering the above, the validity or credibility of qualitative research is normally suggested to as trustworthiness (Flick, 2013). Research trustworthiness is the concept of ensuring “confidence..., interpretation, and methods” (Connelly, 2016, p. 1) used to assess and ensure diligence and quality of the data (Krefting, 1991). In order to establish research trustworthiness, qualitative research needs to conduct meticulous, systematic, and comprehensive data analysis, entailing appropriate documentation, organisation and transparency of the analytical methods applied (Nowell et al., 2017).

An analysis of a study revealed by Guba (1981) suggests four contemporary criteria to embed the traditional criteria (validity, reliability and objectivity) into the research: credibility, transferability, dependability and confirmability.

Credibility is associated with the level of confidence in the findings of the research (Connelly, 2016), demonstrating all the truth behind the topic being investigated (Shenton, 2004). Transferability is the ability to convert the finding's background into a clear perspective allowing the reader to easily understand and decide on its applicability in their own environment (Connelly, 2016). Dependability, however, is the approach that ensures the consistency of the use of the findings over time, under the same or comparable assumptions (Guba, 1981). Finally, confirmability aims to avoid biases from the researcher, indicating that the research output comes from the findings of data collected rather than from the researcher's prejudices, attitude or bias (Connelly, 2016).

This research takes into the research design consideration of all the above criteria, as detailed in the following sections.

#### **4.8.1 Credibility**

Guba (1981) suggests that credibility of research is established when co-researchers or readers can readily identify and acknowledge its authenticity.

The validation of this research was ensured by engaging with data observations through triangulation. That is, cross-referencing the theory found in the literature review from various sources, with the data collected from the senior leadership participants during the interviews.

Firstly, the data was systematically coded, identifying similarities or discrepancies across the topics discussed in the literature. This analysis was conducted through comparing the themes categorised in NVivo with the relevant literature.

Secondly, the techniques applied to analyse the research, previously detailed, ensured an in-depth analysis of the experiences and views presented by the participants. Furthermore, the transcript and memos of the interviews were used as a support during the data analysis, obviating missing data entered, as well as assuring all relevant information was captured, allowing the researcher to comprehend all statements accurately.

The third step was the output validation. Preliminary findings were produced prior to the final findings and conclusions with the aim of comparing and confirming whether the data from

different sources align or complement each other. Furthermore, feedback was provided by colleagues in the field, confirming the interpretation accuracy. Here, discussions of the results found were assessed.

#### **4.8.2 Transferability**

To comprehend the transferability of the research findings, close attention to the data sample selection and connection between reporting findings and literature was conducted. The sample of this research was selected based on typical case sampling, with detailed criteria for inclusion and exclusion of the population to be investigated (Suri, 2011), identifying the required attributes of the studied population and ensuring the applicability to that specific group. Snowball sampling was applied to obtain extra access to the senior leadership participants sample, with 11 subsequent referrals.

Additionally, consistency correlating the principles, methods, and findings of this research with literature was continuously applied in order to ensure a grounded understanding of the knowledge generated through this research is applicable and transferable. Moreover, evidence of the findings and methodology employed were detailed in-depth, enabling a solid path for findings to be judged transferable across other similar fields (Flick, 2013).

#### **4.8.3 Dependability**

Dependability in research ensures reliability and stability of the use of research results in future studies (Flick, 2013). Firstly, the dependability approach in this thesis encompassed strategies such as audit trails through detailed documentation, and data triangulation. Secondly, rich descriptive research methodology by detailing the research design, research method, data collection and data analysis technique, as previously described in this chapter, was developed, which researchers can follow in future studies. Finally, the interview guide was not developed using conventional standards, making it easy for researchers to replicate in future studies.

#### **4.8.4 Confirmability**

Confirmability in qualitative research is ensured by establishing a clear approach that proves the researcher interpretation originates from the data. The self-reflection and acknowledgement

of the researcher that their preconceptions may influence the research outcome must be included to support maintain confirmability (Flick, 2013). Having in mind that the research results cannot be subject to the researcher's prejudices, detailed notes of beliefs and methodologies used during the data collection and analysis were kept. Secondly, this action demonstrated the decisions and reasons behind the results collected, allowing the researcher to gather feedback from colleagues in the field and therefore, confirm the consistency of the data interpretation (Connelly, 2016). Moreover, as suggested by Flick (2013), the confirmability of this thesis was ensured by external peer review through applying and presenting a paper to an international conference. This approach offered an external perspective on the study, helping identify any potential biases or subjectivity in the research process and findings.

#### **4.9 Summary**

This chapter identified and detailed the research methodology appropriate to meet the objective of this thesis and answer the research questions guiding it. This thesis employed the philosophical stance of constructivism, which encompassed a qualitative approach. The data were collected via 20 semi-structured interviews. The data were coded employing a priori and inductive codes. The main techniques of data analysis used was thematic analysis following the model suggested by (Creswell & Creswell, 2017). Both coding and analysis processes were conducted using a manual coding technique and NVivo. Throughout the data collection and analysis process particular attention was paid to ensuring research trustworthiness.

The following chapter reports on the thematic analysis of the first research question of this thesis.

## CHAPTER 5 ANALYSIS - RQ1

### 5.1 Objective

The purpose of this chapter is to address the first research question (*RQ1 What are the key factors influencing effective management practices in organisations' supply chain and sustainability processes?*) by presenting the analysis of the qualitative data collected from 20 experts in the supply chain/S&OP and sustainability leadership roles from 13 organisations in the beauty and personal care industry. This chapter starts by bringing together an introduction of what encompasses the analysis conducted in this thesis in Section 5.2. Section 5.3 provides an overview of the participants interviewed during the data collection phase. In Section 5.4 the key factors that influence the effective management practices in organisations' supply chain and sustainability processes are unfolded.

### 5.2 Analysis

As the baseline of the philosophical dimension aiming to uncover and access factors to build knowledge upon participants' experiences of a specific topic, constructivism requires the researcher to consistently maintain careful attention to the development of themes throughout the research. This was managed through using manual notetaking and coding via NVivo.

To answer the three research questions, the researcher first needed to obtain an understanding of the background experiences of participants. The participants were asked about their career path, including roles and responsibilities, opportunities and challenges encountered throughout their journey in the Supply Chain or sustainability areas.

The exploratory analysis started by identifying broad categories, which are the 1<sup>st</sup> level of themes, and were pre-identified from literature. Themes were developed during the manual analysis drawing on the literature and participant responses – and ensuring they align well with both.

In the subsequent focused coding, those categories were broken down into sub-themes, the 2<sup>nd</sup> level, which were defined during the manual data analysis through NVivo. The attributes were uncovered applying a priori and inductive codes generated during the data analysis.

The next sections present the key analysis of this thesis as they relate to the first research question.

### 5.3 Overview of the Participants

Twenty experts in the field of supply chain/S&OP and sustainability senior leadership roles were interviewed. The senior leadership participants’ demographic data is presented in Table 5.1 to contextualise the cohort. The table was consolidated in the case classification table produced in NVivo. It was systematically composed by aggregating individual data points to categorise and analyse the cases within the research’s dataset. This structured consolidation facilitated a more comprehensive and nuanced interpretation of the qualitative data, aligning with the analytical framework of the research.

The senior leadership participants were divided into supply chain/S&OP senior leadership participants (SC) and sustainability senior leadership participants (SU). They were labelled as SC1 through to SC12 and SU1 through to SU8 representing their respective fields of expertise.

The participation retention rate for this research was incredibly high with no interviews cancelled or rescheduled nor withdrawn. Furthermore, 20 of 50 (40%) of the participants recruited, accepted the invitation to participate in the interviews, demonstrating an excellent recruitment rate.

**Table 5.1 NVivo Coding—Participants Demographics (Sorted by Years of Experience Followed by Field of Expertise)**

Participants	Years of Experience	Role Level	Education	Gender	Field of Expertise	Geographical Job Location (Continent)	Sampling Technique
SC1	11 to 20	Head/Director	Diploma Degree	Male	Supply Chain/S&OP	Asia-Pacific	Typical Case
SC2	11 to 20	Head/Director	Bachelor Degree	Female	Supply Chain/S&OP	North America	Snowball
SC3	11 to 20	Head/Director	Bachelor Degree	Female	Supply Chain/S&OP	Asia-Pacific	Snowball
SC4	11 to 20	Head/Director	Master Degree	Female	Supply Chain/S&OP	EMEA	Snowball
SC5	11 to 20	Head/Director	Master Degree	Male	Supply Chain/S&OP	Asia-Pacific	Snowball
SC6	11 to 20	Head/Director	Master Degree	Female	Supply Chain/S&OP	Asia-Pacific	Typical Case

SC7	11 to 20	Head/ Director	Master Degree	Male	Supply Chain/ S&OP	Latin America	Snowball
SC8	Above 20	Head/ Director	Diploma Degree	Female	Supply Chain/ S&OP	Asia-Pacific	Typical Case
SC9	Above 20	Senior Manager	Bachelor Degree	Female	Supply Chain/ S&OP	Asia-Pacific	Typical Case
SC10	Above 20	Head/ Director	Bachelor Degree	Male	Supply Chain/ S&OP	Asia-Pacific	Snowball
SC11	Above 20	Head/ Director	Master Degree	Male	Supply Chain/ S&OP	Latin America	Typical Case
SC12	Above 20	Head/ Director	Master Degree	Female	Supply Chain/ S&OP	Asia-Pacific	Snowball
SU1	0 to 10	Head/ Director	Bachelor Degree	Male	Sustainability	Asia-Pacific	Snowball
SU2	0 to 10	Head/ Director	Bachelor Degree	Female	Sustainability	Asia-Pacific	Typical Case
SU3	11 to 20	Manager	Doctor Degree	Male	Sustainability	Asia-Pacific	Snowball
SU4	11 to 20	Head/ Director	Master Degree	Male	Sustainability	Asia-Pacific	Snowball
SU6	11 to 20	Manager	Doctor Degree	Female	Sustainability	Asia-Pacific	Snowball
SU5	Above 20	Head/ Director	Doctor Degree	Female	Sustainability	Asia-Pacific	Snowball
SU7	Above 20	Head/ Director	Master Degree	Male	Sustainability	Latin America	Typical Case
SU8	11 to 20	Head/ Director	Master Degree	Male	Sustainability	EMEA	Snowball

According to the summary data represented in Table 5.2, the supply chain/S&OP and sustainability fields are characterised in this thesis by a wealth of experience and leadership. The data provides an empirical foundation for examining the representation across experience levels, roles, educational attainment, gender, operational fields, and geographical regional distribution.

**Table 5.2 NVivo Coding—Summary of Participants Demographic Category**

Demography	Demographic Category	SC (Count)	SU (Count)	SC (Percentage)	SU (Percentage)
Years of Experience	0 to 10	0	2	0%	25%
	11 to 20	7	4	58%	50%
	Above 20	5	2	42%	25%
Role Level	Head/ Director	11	6	92%	75%

	Senior Manager	1	0	8%	0%
	Manager	0	2	0%	25%
Education	Diploma Degree	2	0	17%	0%
	Bachelor Degree	4	2	33%	25%
	Master Degree	6	3	50%	38%
	Doctor Degree	0	3	0%	38%
Gender	Female	7	3	58%	38%
	Male	5	5	42%	63%
Geographical Job Location	North America	1	0	8%	0%
	Asia-Pacific	8	6	67%	75%
	EMEA	1	1	8%	13%
	Latin America	2	1	17%	13%
Recruitment Technique	Snowball	7	6	58%	75%
	Typical Case	5	2	42%	25%

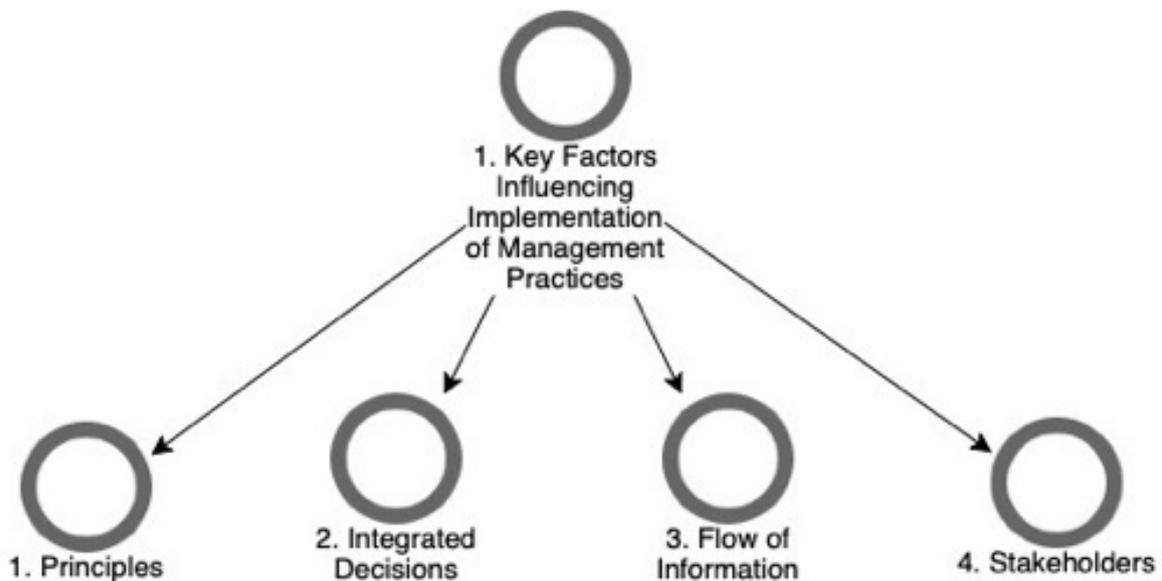
In terms of experience, NVivo descriptive statistics data identified that 58% of the supply chain/S&OP senior leadership participants had 11 to 20 years, compared with 50% of their sustainability counterparts within the same experience bracket. Notably, 92% of the supply chain/S&OP participants are in Head/Director roles, while this figure is slightly lower at 75% in the sustainability sector. Educational credentials vary, with supply chain/S&OP leaders showing a higher proportion with Master's degrees at 50%, compared to 38% within sustainability. Sustainability senior leadership participants, however, exhibit a higher percentage of Doctoral degrees at 38%, denoting a high level of academic achievement that complements their practical experience (Abun, 2021).

Gender data reveal that supply chain/S&OP has a majority female representation at 58%, whereas sustainability leadership is predominantly male at 63%.

The geographical job location distribution indicates a strong Asia-Pacific presence with 67% of supply chain/S&OP and 75% of sustainability leaders located in this region, emphasising its significance in both fields. Finally, recruitment techniques employed within the supply chain/S&OP and sustainability fields both favour snowball sampling, with percentages exceeding 50% - 58% for supply chain/S&OP and 75% for sustainability.

#### **5.4 Key Factors Influencing Effective Management Practices in Organisations' Supply Chain and Sustainability Processes**

The analysis of the exploratory interviews with leaders in Supply Chain/S&OP as well as Sustainability led to the identification of four broad categories of factors influencing effectiveness of management practices in organisations' supply chain and sustainability processes, as demonstrated in Figure 5.1: 'Principles', 'Integrated Decisions', 'Flow of Information', and 'Stakeholders'. This figure and all the following figures and tables picturing the coding structure of the data analysis in NVivo, are presented for transparency in data analysis purposes.



**Figure 5.1 NVivo Coding Tree—Key Factors Influencing Implementation of Management Practices in Organizations' Supply Chain and Sustainability Processes (NVivo)**

The number of interviews coded within each category with the supply chain and sustainability experts is in the Table 5.3. Column one shows the key factors that influence effectiveness of the management practices in the industry. The second column outlines the attributes which constitute each of the influencing key factors. Columns three and four show the number of interviewees that outlined the importance of each identified key factors: column three refers to the 12 Supply Chain/S&OP interviews, and column four to the eight sustainability interviews.

Each of these sub-themes (2<sup>nd</sup> level) is attributed to a specific category which define what the categories (1<sup>st</sup> level) entail.

- Principles includes the business foundation elements that impact the effectiveness of management practice as well as the attributes required to enhance such a practice

- Integrated Decisions consists of the key purposes and fundamentals of the management practices.
- Flow of Information entails the inputs and outputs in the decision-making process forums.
- Finally, Stakeholders refers to the participants involved in the flow of information process.

**Table 5.3 NVivo Coding—Attributes Influencing Implementation of Management Practices**

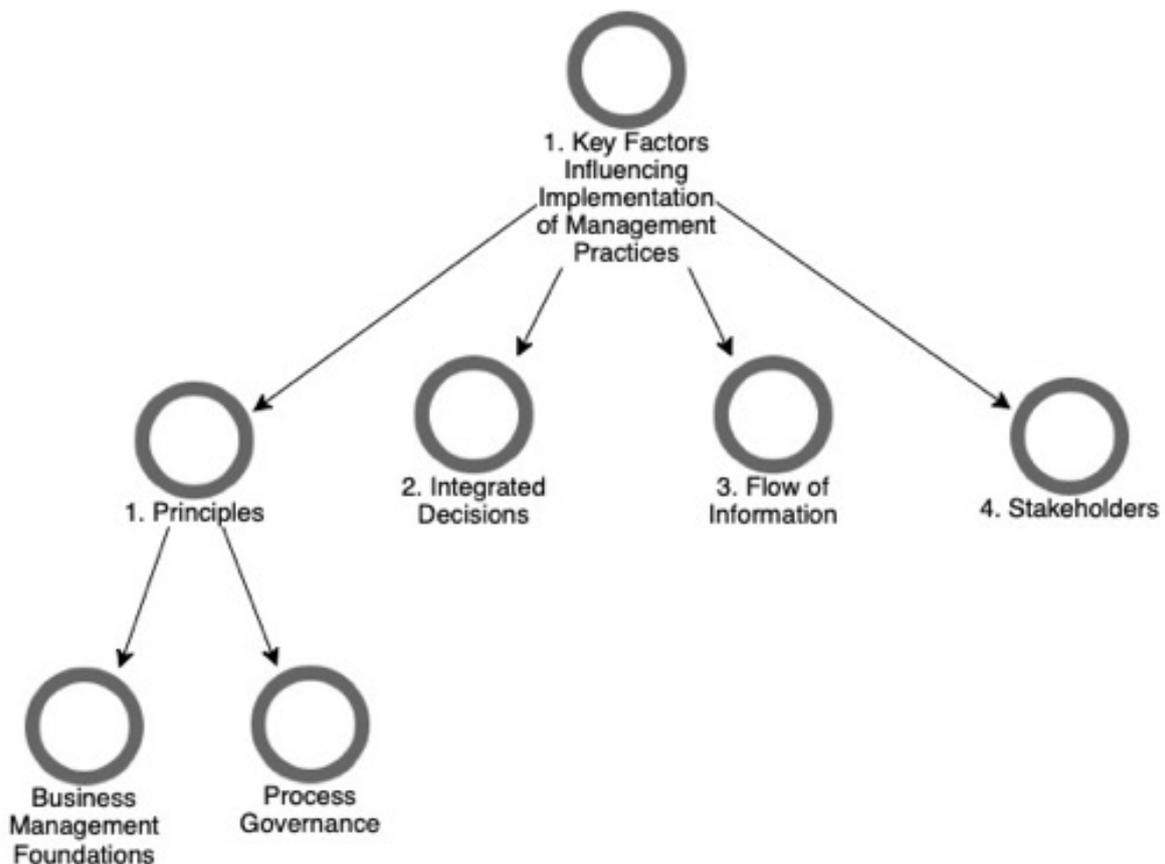
Key Factors	Sub-themes - Attributes Influencing Key Factors	Supply Chain/S&OP Senior Leadership Participants	Sustainability Senior Leadership Participants
Principles	<b>Business Management Foundations</b>		
	Current & Future State Assessment	6	2
	Sponsorship	5	1
	Communication	2	0
	Ownership	5	1
	Smart Goals	3	4
	Expertise	3	0
	Continuous Improvement	2	1
	<b>Process Governance</b>		
	Clear Process	6	3
	Inventory Policy	4	1
	Business Complexity	7	0
	Transparency	5	0
	Data Accuracy	2	0
	Siloed Structure	4	0
Legal Obligations		1	
Integrated Decisions	<b>Collaboration</b>		
	One Source of Truth	2	2
	Cross-functional Process	3	2
	Prioritization of Scope of Work	2	3
	<b>Decision-Making Process</b>		
	Better Informed Decision	4	3
Metrics Alignment	4	3	
Flow of Information	<b>Meetings</b>		
	Meetings\Frequency	8	4
	Meetings\Meeting Inputs	12	5
	Meetings\Meeting Outputs	8	2
	Meetings\Meetings Process	7	5
	<b>Team's Structure Strategy</b>		
	Functional	8	1
	Integrated	5	3
	<b>Tools for Governance</b>		

	Automated	11	4
	Manual	12	3
The Stakeholders	<b>Who Are Engaged</b>		
	Commercial	9	1
	Executive	6	4
	Finance	7	1
	Marketing & Brand	9	2
	Operational Production	2	
	Suppliers	4	4
	Supply Chain	8	4

In the following sections, each of the findings identified and their essential attributes were analysed and discussed in detail.

#### 5.4.1 Principles

Principles is the first key factor influencing effective management practices in any organization's supply chain and sustainability processes. As demonstrated in Figure 5.2, during the thematic analysis, two attributes were uncovered that constitute Principles: business management foundations and process governance.



## **Figure 5.2 NVivo Coding Tree—Attributes of Principles Influencing Implementation of Management Practices (NVivo)**

### ***5.4.1.1 Business Management Foundations***

The first attribute which emerged from the principles that influence effective management practices is the Business Management Foundations. Specially, seven business management foundations were uncovered in the thematic analysis as follows: assessment of the current and future state, sponsorship, communication, ownership, smart goals, expertise, and continuous improvement.

The emphasis on these business management foundations was significantly influenced by the experience level and educational background of the senior leadership participants interviewed. Considering that 58% of supply chain/S&OP senior leadership participants have 11 to 20 years of experience, and a significant proportion hold Head/Director roles (92% for supply chain/S&OP and 75% for sustainability), the data reveals that their mature and extensive understanding of the need for strong business management foundations underscores the value of experienced leadership in implementing effective management practices within organisations. The educational diversity, particularly the higher predisposition towards Master's degrees (50% in Supply Chain/S&OP) and Doctoral degrees (38% in sustainability), reflects a strong theoretical foundation that supports the practical application of these business management principles.

Assessment of the current and future state refers to the need to understand existing processes, flaws and goals, and what actions are required to bridge the gap to achieve the business plans.

*SC6: What I've learned over time is what's really valuable is doing kind of an S&OP readiness assessment to understand what current state is today and how far want to reach into S&OP.*

*SC3: ...understand your weaknesses and strengths, first of all. And with that then decide on what model and principles you think will work.*

Another relevant aspect raised by participant SC5 is that a solid business management foundation is built upon streamlined processes divided into two streams people and process and data and system.

*SC5: ...break initiatives down into two major pillars to drive the S&OP area - one is data and system, and the other one is people and process.*

From the sustainability point of view, participant SU3 stated that mapping current and future state is the first step to determine the sustainability strategy. That is, identify areas at risk along with the root cause analysis and potential solutions to address them.

*SU3: The first basic step is to understand where your hot spots are, environmental, ethical sourcing, human rights risks, and where they lie in your business. So, you cannot begin to have a sustainability strategy unless you know where your impacts are coming from. And then the second step is to go and analyse and develop initiatives to address top ten hotspots at risk.*

Sponsorship refers to the critical role of executives in ensuring the success and sustainability of any new way of working implementation. This especially applies to practices which require cross-functional collaboration, which includes overseeing the alignment and unification of various objectives and business directions.

*SC10: If one function tries to implement S&OP without the full support of the other or without executive backing up, it will not actually work. It won't implement properly.*

Participant SU3 echoed the significance of leadership commitment in the implementation journey of the sustainability practices.

*SU3: The key leaders need to be motivated to put that in place, and back you up for doing that.*

Following sponsorship and commitment of the executive group, the next attribute influencing effective management practice is investing in clear communication.

Communication, as referred to by participant SC3, is important to ensure that stakeholders involved in the new practice cycle are informed about the implementation progress status and their roles in this new process. When fully informed throughout the implementation journey, stakeholders feel heard and relevant to the business transformation hence increasing their readiness to collaborate and deliver improved results.

*SC3: Communicate lots of communication, make a big deal of the launch. S&OP is a huge commitment and it's a big discipline for all functions. So, be really clear when you go to launch, be clear on what your KPI and your metrics are to manage the success.*

Another important element to build solid implementation baseline is ownership. Ownership refers to bringing the right people into the implementation journey. That encompasses determining who owns what, including people responsible and accountable for each stage of the process, who brings the inputs, who makes the decisions, and who escalations go to.

*SC3: ...bringing people on the journey, bringing them into the development, understand your key stakeholders, and get them on board from the start so that they will be champions.*

Along with clear ownership comes defining smart goals. Smart goals attribute refers to setting clear, realistic, and actionable targets, in line with business visions and long-term strategic plans. In order to be smart, goals need to be discussed and developed alongside who owns them, as per the example shared by participant SC9:

*SC9: ...because it is quite scary when you're having the comfort of six months of stock on the floor and then you challenge them to pull it back. So, we brought the key stakeholders on the journey over a period of time and set a realistic target of what we should be working towards.*

Smart goals need to be monitored regularly to check whether the results fall within or deviate from acceptable parameters. Action should be taken accordingly, ensuring the business can achieve its desired targets as per the stabilised business plans. Participant SU4 explained:

*SU4: ...by setting some hard target into it we can start monitoring where we are today, how far we are from this target and then from there start listing some action plan to bridge the gap.*

Expertise refers to stakeholders' understanding of the purpose and fundamentals of management practices, as well as their knowledge of business plans and processes. It encompasses an awareness of the potential outcomes that can be achieved through the proposed management practice.

*SC6: I also think there needs to be a high degree of expertise of understanding of what goods look like and what are the principles of the process and how we get to the outcome, which it can come from internally if that exists within the organisation, and if it's not, then it should probably come from external.*

The analysis revealed that in cases where the existing expertise level is insufficient to support the implementation and management of a new practice, external consultancy serves as an alternative support, which can accelerate the learning curve process.

Continuous improvement refers to the ongoing maintenance and enhancement of the management practices. Thematic analysis revealed the importance of measuring the effectiveness of implemented practices, emphasising the collection of stakeholder feedback and the implementation of auditing programs.

*SC3: ...don't launch and walk away. Make sure that you've got that ongoing process and know that it's not going to be right the first time. Phase One is Launch, Phase two is seek feedback and continually improve.*

Participants additionally discussed that before implementation, it is fundamental to pilot the process to thoroughly test and make necessary adjustments.

Furthermore, participant SU3 from the sustainability field emphasised that continuous improvement plans need to be flexible and agile, capable of incorporating emerging new factors into the business.

*SU3: ...it's a continuous improvement process. Even though you may have the best structure in place today, in a couple of years' time, that may not serve the business. So, you need to have a dynamic sustainability plan because things change at a fast pace.*

#### **5.4.1.2 Process Governance**

During the interviews, 13 of the 20 participants identified Process Governance as a key factor influencing effective management practices in supply chain and sustainability processes. This insight was predominantly supported by participants located in the Asia-Pacific region, accounting for eight of the 13 endorsements. This finding underlines the significant role that the Asia-Pacific plays in the global landscape of supply chain and sustainability initiatives.

Moreover, it suggests that incorporating cultural and regulatory frameworks into the governance of processes could significantly enhance the decision-making process.

Looking for shared patterns between supply chain and sustainability, the analysis revealed lack of clear process as a main attribute impacting management practice, as discussed by nine participants.

*SC8: We kicked off the S&OP flow to ensure that we have better controls over our decision-making processes.*

The maturity level of a business planning model serves as a key indicator, highlighting the vital need to either implement new or revise existing management practices, as explained by participants SC8 and SC9:

*SC8: The business compared to what I'm used to, it didn't have maturity and planning. So, they decided that they needed a proper planning model.*

*SC9: When I started, they didn't know what good looks like from a supply chain perspective because they were so used to just running after all of the issues as they came up, so it was a real challenge.*

Misalignment across functions is an additional signal of unclear process, which creates inconsistency in the formulated plans, as the following participant stated:

*SC6: We have supply planners split by categories. But I wouldn't say the supply planning is consistent across all categories.*

Another aspect highlighting the significance of transparent processes as a key factor in management practices is linked to inconsistent communication. This inconsistency arises from unclear processes. When communication fails to consistently reach stakeholders, the effective discussion and actioning of risks and opportunities are hindered, leading to poor business performance, as participant SC3 explains:

*SC3: ...there weren't a lot of people from supply chain and even then, there was a lack of communication for the leaders of our business to understand what was coming and what was happening and why it was happening. I think they realised that their supply chain was broken.*

In addition, participant SU3 comprehends the adoption of sustainability practices as a continuous journey, acknowledging the rapidly evolving nature of the sustainability agenda. This underpins the importance of establishing clear processes throughout the business, which involves incorporating regular reviews and revisions, enabling the anticipation of potential risks and the formulation of solutions that directly influence the effectiveness of sustainability plans.

*SU3: To be honest, you need to have a dynamic sustainability plan because things change at pace so that you need to have the right processes, understand the impacts, see what initiatives you can do to mitigate them and make sure you have the right people in the business, the right decision-makers.*

Another shared pattern discussed by the participants is inventory policy. Five participants acknowledged the significance of inventory policy in balancing cost efficiency with service quality in supply chain management. Furthermore, participants explained that inventory policy refers to the clarity and comprehension of its influence on business decisions in terms of managing customer demand and business cash flow, through a cohesive alignment and integration of goals throughout the organisational hierarchy.

*SC4: Something that we realised is we are having overstocks of product that we don't need so that we had to prioritise the space of supply and inventory area to be able to have a clear view of our inventory holding, and therefore project our strategic planning execution in a vertical manner.*

From a sustainability point of view, inventory policy additionally refers to the management of its impact on waste production and source of gas emissions. This was outlined by participant SU7, who has over 20 years of experience in the field:

*SU7: A clear picture of the inventory is the baseline for identifying the main sources of emissions, but also you can understand if the plans in place are enough to deliver the strategy.*

Business complexity is another aspect influencing process governance effectiveness, which was discussed by seven supply chain/S&OP. It is associated with extensive business lead time, business size, and whether business growth is compatible with current structure and strategy.

In fact, participants explained that such aspects can indicate whether the business model is agile enough to action the challenges arising and meet customer demand.

*SC8: The supply chain lead time was so long from Italy to the US, we had to plan a lot better and a lot tighter. So, the challenge was to ensure that whatever demand the sales team would give us, we had enough supply to fulfil.*

Additionally, the analysis uncovered that when a business is growing at a fast rate, the complexity of the business often increases accordingly. This can impact the decision-making ability and the execution of plans, especially if the existing processes and models lack agility to respond to such changes.

*SC9: It's been a big six months just getting the basic visibility for ourselves and for our suppliers so that we can help them be ready for our growth rather than reacting to what we're doing.*

Another business complexity aspect is associated with the extension of the supply chain network and its ability to anticipate restrictions that can impact on the demand plans, as stated by SC11.

*SC11: Our biggest operation is in Latin America. Given the way that the supply chain is organised even though we are operating in six different countries, the challenge is to have the view of the demand and the supply restrictions all integrated.*

Data accuracy and transparency are the also attributes influencing effective management practices. The participants referred to the correlation between access to accurate data and the ability to make better decisions.

*SC4: We need correct data but in this current climate is so hard to predict the numbers to have a little bit of accuracy.*

*SC5: The current model would not allow us to have a full clarity of our data and effectively run a very quick and agile dashboard at our fingertips. So, we could enable right decision-making.*

Additionally, according to the participants, decision-makers do not have full visibility to what happens cross-functionally, and therefore they become disconnected from the overall impact on business strategy.

Despite siloed structure being discussed by a minority of the experts (4) as a key factor influencing effective management practices, it was presented as an attribute that creates misalignment across processes. Various functions make different decisions based on their own goals, thereby affecting the overall business performance results.

*SC10: [An] organisation would need to start thinking about S&OP when there's enough separate functions, when sales are far enough away from operations and away from the financial planning.*

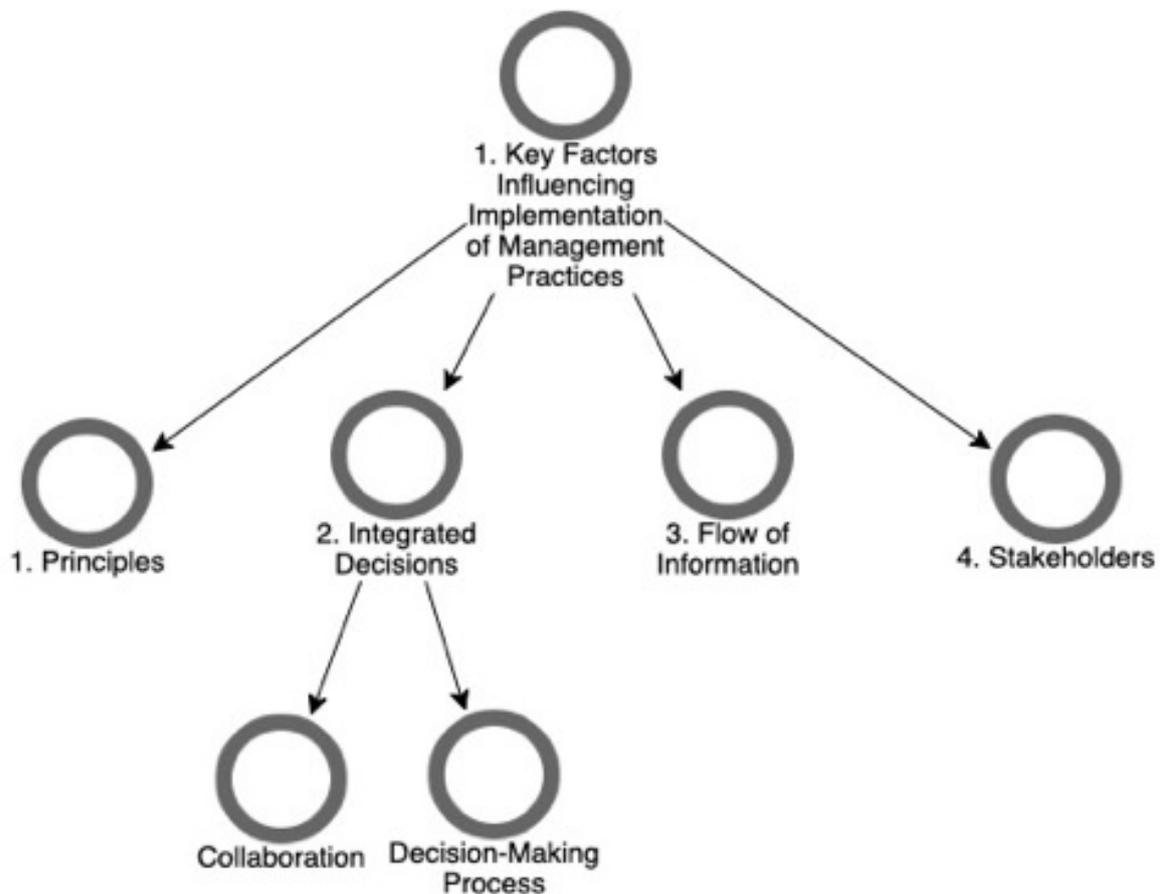
Finally, legal obligations was identified by participant SU4, who is in the Asia-Pacific region, as a factor influencing effectiveness of process governance management in the sustainability area. This attribute challenges organisations to adjust their end-to-processes to fulfil customer requirements while complying with market obligations where customers are based.

*SU4: To contribute to the environment and ensure we can trade with some large retailers; we are led by internal objectives but also many obligations to comply with. So, this is also another additional element we need to push forward and push it far faster in a journey of transforming into a sustainable business.*

#### **5.4.2 Integrated Decisions**

The second key factor which emerged in the analysis as influencing effectiveness of management practices in organisations' supply chain and sustainability processes is Integrated Decisions. This refers to process integration, where stakeholders and functions can collaborate with one another through a clear decision-making process.

As demonstrated in Figure 5.3, two attributes were uncovered during the thematic analysis that constitute influencing factors to determine implementation of management practices: collaboration and decision-making process.



**Figure 5.3 NVivo Coding Tree—Attributes of Integrated Decisions Influencing Implementation of Management Practices (NVivo)**

#### **5.4.2.1 Collaboration**

To effectively implement management practices, ten participants highlighted the role of Collaboration as a key influencing factor. The emphasis on collaboration resonates deeply with the diverse educational backgrounds and geographical distributions of the senior leadership participants. The presence of senior leadership from different continents, predominantly Asia-Pacific, underscores the global perspective inherent in supply chain and sustainability challenges. The 67% representation of supply chain/S&OP and 75% of sustainability leaders from Asia-Pacific highlights a trend towards cross-functional and cross-continental collaboration, reflecting the global nature of these sectors. Furthermore, the mix of education levels enhances the depth of cross-functional collaboration, combining practical experience with academic insights to foster integrated decision-making processes.

The common factors attributed to collaboration as referred to by all ten experts, involve considerations regarding one-source of truth, cross-functional process and prioritisation of

scope of work. These considerations entail the establishment of a reliable business plan that integrates cross-functional goals and processes, resulting in one common plan.

*SC1: The final number confirmed is the one that you're going to use to plan the inventory, and it's the same number that is going to be the sales target.*

Moreover, the analysis revealed that organisations need to implement a management practice that breaks down silos, enabling the integration of cross-functional teams to collaborate, as SC3 discusses:

*SC3: S&OP breaks down silos. Importantly, breaking down silos creates one narrative. Helps you have one voice. It helps people collaborate.*

Regarding the establishment of one common plan, the thematic analysis indicated that decisions need to be integrated into one plan and consistently shared between key stakeholders. This includes evaluation and approvals from the executive team before going to operations for execution.

*SC1: The suggested purchase volume, how much that looks like from a cost perspective so they can budget accordingly as well for the next five months. And we have a conversation basically the CFO and I on some of these volumes if there are any questions that she may have, we go ahead and look at that together. So, I think the worst thing you can do is leave it all up to one person. You need at least two sets of eyes across things.*

Prioritisation of scope of work is the third attribute that enables business functions to collaborate by determining the right focus and horizon, aligning with the current business scope and strategy.

*SC6: We only focus on large scale projects, so not only continuous improvement type of work that sits within business-as-usual activities, but also anything six to 12 plus months out is the kind of the scale of work that can address our teams' strategy.*

What became clear throughout the analysis, specifically about the S&OP process, is that it is built upon cross-functions inputs so that various and distinct business needs are considered and revised in the plans over time. SC10 emphasised the importance of ensuring its relevance to all functions:

*SC10: S&OP is a process that actually has multiple functions, so it often needs to change it. It is a tool that multiple functions use.*

In turn, S&OP becomes the forum where stakeholders can actively address latest risks and decide on solutions through a collaborative discussion:

*SC3: One of the key principles of S&OP is to try and make decision-based meetings. If there's something to be discussed, we should be taking it to these forums so that everybody in the room that has an impact on a decision can be part of the conversation, decide together and commit together.*

Additionally, collaboration emerged as an influencing factor for effective management practices. It impacts on empowering teams to make independent decisions without direct interference and approval from the organisational hierarchy due to the readiness of available information from cross-functional teams, as emphasised by SU7 in the sustainability area:

*SU7: If we want to embed sustainability into the daily decision, I think that we should empower the areas to collaborate between themselves and do that without the support from the sustainability team.*

Sustainable business ensures that the sustainability elements are independently introduced into the team strategy and goals, as supported by other participants and outlined by SU7.

*SU1: My main aim is to ensure that these goals are disseminated to heads of departments, and they review the strategy, and they also break down our responsible business goals into their own teams.*

Although integrating sustainability goals into functions' strategy is key to improve sustainability performance, the findings of this analysis additionally indicate that ambitious goals need to be broken down into realistic and feasible goals in order to be achievable. As such, determining initiatives through cross-functional collaboration that deliver results to meet the short, medium and as a result, the long-term visions are essential:

*SU3: There are targets that have been set and we need to achieve those, but some of them are quite nebulous, so they cover a lot of ground. So, it is now our job to make sure how we actually achieve that. The pathway and metric indicators to make sure that all teams deliver that. Sustainability doesn't work in isolation.*

In addition, prioritising initiatives that go beyond the conventional process and in fact, contribute to an overarching achievement of such goals, is important. Such initiatives encompass incorporating streams that challenge the current business ways of working and create better solutions that support ongoing business growth.

*SU5: A work stream that I'm kicking off right now is to try and find a platform that meets our needs because we absolutely care about carbon, and I think a lot of the platforms really focus on carbon, but we want to track water as well. So, we are focusing on finding a system that fits our overall needs.*

#### **5.4.2.2 Decision-Making Process**

The second attribute contributing to effective integrated decision in the management practice is a clear Decision-Making Process. The senior leadership participants (11 out of 20) emphasised the importance of a robust decision-making process when managing initiatives in the supply chain and sustainability space. Specifically, two elements were uncovered in the thematic analysis: better informed decision and metrics alignment. These elements were predominantly identified by participants in Head/Director roles, coupled with substantial experience—58% of supply chain/S&OP participants with 11 to 20 years of experience—reinforcing the significance of robust, informed decision-making in leadership positions. These experienced leaders play a crucial role in establishing clear, transparent decision-making processes that consider diverse perspectives and insights, aligning with strategic objectives across functions.

Better informed decision refers to the transparency and agreement on a plan based on clear insights into risks and opportunities. Furthermore, the transparency of risks and opportunities allows anticipation and proactive measures, even in cases where any have a low impact on the business plans. Participants SC10 and SC3 explained:

*SC10: By having S&OP in place that means that everybody's in agreeance of the plan and that all functions and processes kind of have visibility on what we are doing and what we are constrained by.*

*SC3: So, S&OP will help bring that conversation to the table and have the foresight to make change.*

Similar to the attribute of collaboration, better informed decision is achieved through cross-functional discussions, in which the entire group is aware of the scenarios. This contributes to a secure commitment to the proposed decision, as SC3 stated:

*SC3: One of the key principles of S&OP is to try and make the decision-based meetings and if there's something to discuss, we should be taking it to these forums so that everybody in the room that has an impact on a decision can be part of the conversation and decide together and commit together.*

In the instance of unprecedented events, SC7 stated that the decision-making process enables better informed decisions, allowing for quick reaction and the incorporation of such changes into the plan.

*SC7: We review trends that will influence the demand forecast as of a certain period. Our agreement with S&OP is to ensure that the demand forecast is 100% aligned with the whole business plan and to guarantee that trends are captured and incorporated into the plan.*

Another central component of how an informed decision based process influences sustainability management practice, for instance, is the ability to embed business values and policies within new initiatives across the entire value chain. Participant SU1 explained:

*SU1: To ensure humans are not being exploited, we need to apply our Code of Conduct across our entire value chain. This is not just come up with our material assessments and our targets, but also enable our executive board to review and approve the strategy based on the assessment outcome.*

Additionally, SC5 emphasises that informed decision provides business functions with visibility on changes that have been made in processes and products business-wide, ensuring that all decisions required are effectively undertaken.

*SC5: As we design a new product to comply or to improve our sustainable target, this flows through immediately visible to the operational business. For example, when there is a new idea for a new packaging, the change needs to be signed off by myself in the first place and by the supply chain to really make sure this is also contributing positively to the business targets and only then is passed to execution.*

Finally, better informed decision empowers stakeholders and functions with greater autonomy to make daily decisions precisely, without demanding escalations.

According to the inputs from experts, another attribute influencing the decision-making process is metrics alignment.

Metrics alignment refers to setting and managing clear goals, which are shared and committed between various functions. This enables business functions to track results, understand trends, and make bold decisions to manage operational excess or deficiency. SC4 explained:

*SC4: If you don't measure anything, you cannot see the business results and therefore, you cannot take action.*

Additionally, tracking metrics aids business to keep plans up to date, reflecting the trends accordingly ensuring customer requirements are satisfied. Experts SC7 and SC8 stressed:

*SC7: Several revisions of the plan happen in the cycles because a lot happens during this period.*

*SC8: Tracking our metrics ensures that we're managing our cash and the stock we have, and that makes sure we have the right product on hand to satisfy what our customers want.*

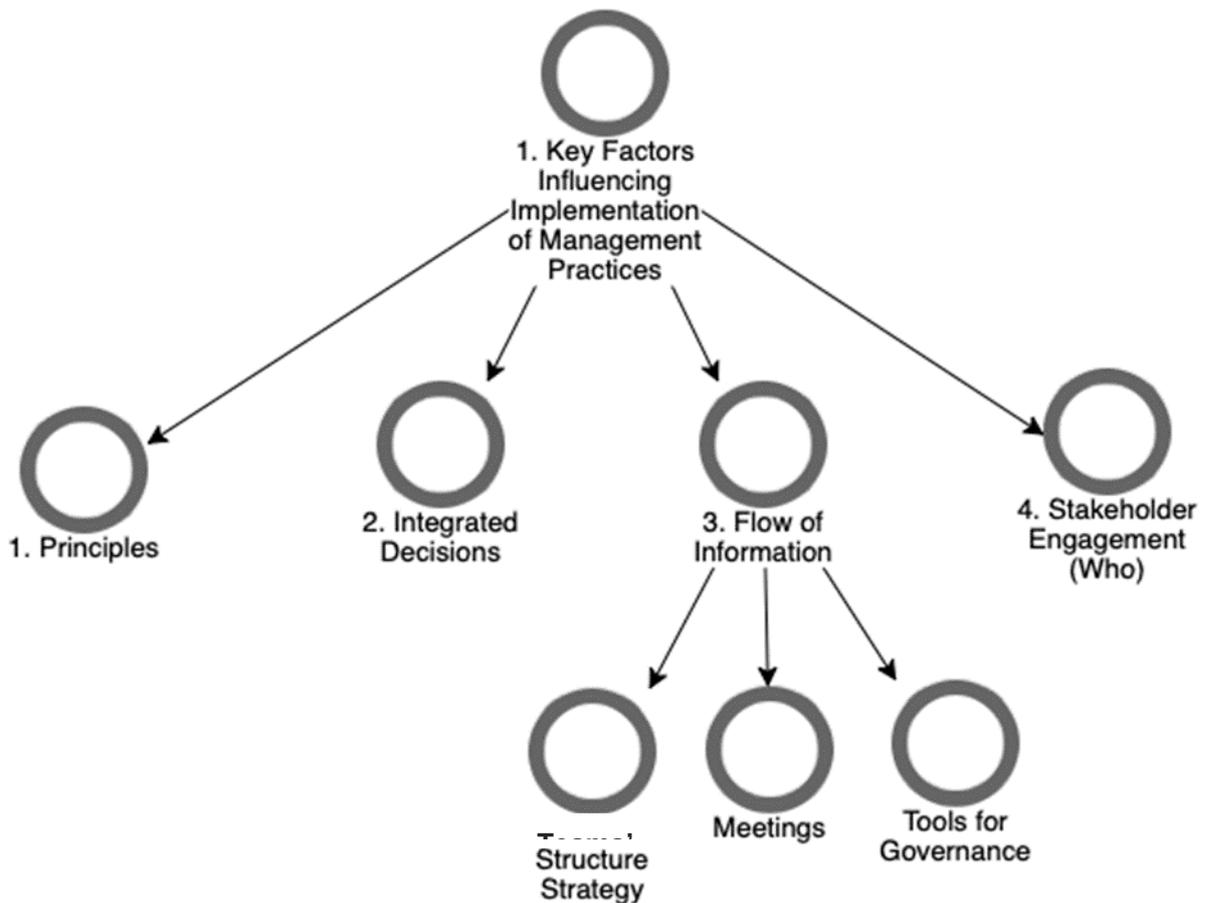
The sustainability senior leadership participants SU5, SU1 and SU3 made important contributions associated with metrics alignment. According to them, alignment of metrics is a key attribute in the decision-making process as it ensures business-wide incorporation and manages common goals, which do not diverge from business visions and have been appropriately approved.

*SU5: We have a companywide strategy and its OKRs. We also have everyone's OKRs which ladder up to the companywide OKRs. My purpose is to make sure that they align with our sustainability goals because if they're inherently in conflict with them, we're not going to be the sustainable company that we want to be.*

### **5.4.3 Flow of Information**

The third key factor influencing effective management practices that emerged during the data analysis is Flow of Information which refers to the elements associated with the decision-making process management.

As detailed in Figure 5.4, the attributes defining Flow of Information are meetings, team structure, and tools for governance.



**Figure 5.4 NVivo Coding Tree—Attributes of Flow of Information Influencing Implementation of Management Practices (NVivo)**

#### **5.4.3.1 Teams’ Structure Strategy**

To implement management practices in organizations’ supply chain and sustainability processes, Teams’ Structure Strategy has been identified as the first important factor influencing the flow of information process. As discussed by 13 participants, the teams’ structure is identified under two streams: integrated (established) teams and functional (siloe) teams.

Integrated (established) teams' structure refers to a well-defined process with appropriate ownership assigned to every task. Stakeholders are accountable and aware of what they need to bring into the conversations as well as escalate them, when required.

*SC1: That allows us to take on more demand insights that influence our plans, and also, we can communicate better with other teams.*

*SU7: Some of our brand within the group already embedded the sustainable sourcing department inside procurement, and instead of having the support from the sustainability team, they manage it within their own structure. So, they pull the information through into a consolidated view and bring that into the forums to be communicated and escalated to the executive board.*

Moreover, considering insights from senior leadership participants located in both Latin-America and the Asia-Pacific regions, it became evident that organisations manage the S&OP and sustainability initiatives differently. Nevertheless, irrespective of the management practices in place, an integrated team structure ensures that information flows cross-functionally. This is achieved by involving various business functions in the same decision-making process, facilitating the sharing and discussion of common risks and opportunities across the network. Participant SU7 explained:

*SU7: The group has a centralised operations where the headquarters are based. But then they have a dedicated team in each of the geographic locations they operate. So, basically, this team is part of a working group to manage all activities related to each aspect of sustainability within each business function. This supports not only the internal working groups inside sustainability, but also external to other departments, guaranteeing all actions introduced enclose sustainability elements.*

In contrast, functional (siloes) team structure refers to a non-holistic view of the business operations strategy. Decisions are made separately on a case-by-case basis, reacting to solve each functional scenario in isolation. SC3 explained:

*SC3: There're kind of two hierarchies within one leadership group, and what I would be used to more is either we go one way or the other. That is, regions that are responsible for full delivery or channels responsible for full delivery, whereas in here we've got both.*

From a sustainability point of view SC2, based in North America, outlined that the sustainability function is not present in their organisational structure. Instead, it is managed individually through nominated champions.

*SC2: No one leads our sustainability activities. We have champions of sustainability, but we don't have a sustainability head.*

The participant SU5, located in the Asia-Pacific, highlighted that the sustainability function has only recently been established in their organisation, and there are still opportunities for expansion.

*SU5: I am five months into this role, and this is the first official Head of Sustainability role that we've had in the company. I report to the executive team, the VP of supply chain, and I'm a team of one right now, but hoping to grow the team in the near future.*

Despite the absence of dedicated sustainability teams in organisations across various global regions, there is a clear and increasing emphasis on sustainability, evidenced by enhanced senior management directives and the implementation of empowering decisions throughout the business.

*SU2: The business didn't use to have a sustainability leadership seat and that was a challenge. But it's growing in importance and also having a louder voice.*

In conclusion, the analysis revealed that integrated and functional team structures are the approaches used to manage the Flow of Information process across organisations. However, the influence of both factors on the effectiveness of the management practices depends on the maturity and strategic plan of each organisation.

#### **5.4.3.2 Meetings**

The second attribute influencing effective management practices with the Flow of Information is Meetings. Thematic analysis has revealed that once the organisation has established the Team Structure strategy, meetings emerged as the focal point. Each meeting forum is characterised by a specific agenda encompassing inputs, outputs and frequency. The participants explained that the factors influencing implementation of flow of information management vary based on the maturity level of the organisation's processes.

Analysing the thematic data, it became apparent that each attribute within the Flow of Information factor revealed the presence of more than one similar code. This reflects the variations in organisational structure and how information navigates through their processes. For instance, although 12 participants in the supply chain/S&OP field were interviewed, 21 references were coded in the attribute meetings/frequency, as demonstrated Table 5.4. Given all the 13 sample organisations of this thesis maintain more than one forum for bringing and discussing information, and these forums occur in different frequencies, each meeting forum was coded separately and repeatedly based on its respective time frame.

The intertwined nature of these attributes makes it challenging to completely separate one code from another. However, the following section delves into the participants’ experiential factors that influence the flow of information management.

**Table 5.4 NVivo Coding—Attributes Influencing Meetings in the Flow of Information Factor**

Key Factors	Sub-themes - Attributes Influencing Key Factors	Supply Chain/ S&OP Senior Leadership Participants	Sustainability Senior Leadership Participants
Meetings forums	Ad-hoc	1	3
	Drumbeat	5	4
	Structured	7	1
Meeting inputs	Forecasts	9	2
	Sales plans	9	1
	Inventory policy	8	
	Marketing initiatives	8	
	Supply constraints	8	1
	Financials	7	1
	Metrics, KPIs	4	2
Meeting outputs	Action plans	2	2
	Clear informed decisions	6	1
	Integrated plans	6	1
	One-common sense	4	2
	Action plans	1	0
	Monthly	10	2

Meetings frequency	Weekly	7	3
	Quarterly	2	2
	Fortnightly	2	2
	Daily		1

After reviewing the data, the meeting forums were consolidated into three streams: ad-hoc, drumbeat, and structured.

Ad-hoc refers to fragmented forums, when stakeholders meet and discuss the scenarios as required. This approach was the least-discussed meeting forum among the participants, predominately present in the field of sustainability management. The participants revealed that this type of forum is often utilised when there is lack of transparency and understanding of the assumptions that make up the business plans. In such cases, teams meet on an ad-hoc basis to track project progress and make quick decisions. Participant SU5 explained:

*SU5: A lot of the sustainability work has been done in a tight group of folks that are really connected to getting the work done, but then one of my key focuses in this role will be to outline a sustainability strategy.*

Drumbeat meetings, on the other hand, refer to a more regular forum. Nine participants explained that in this type of forum, the meeting frequency is more consistent. People are invited to attend, contribute inputs for discussion, and track KPIs performance. This meeting approach ultimately provides other functions with visibility into recent facts. SC9 participant discussed:

*SC9: We've got a structured leadership meeting on a fortnightly basis, when the whole team meets in a Stand-up one. It keeps everybody in the team up to date on what's happening at a high level and gives them the opportunity to provide input on what they've been working on or celebrate wins.*

A negative perspective on this meeting approach was shared by SC9, indicating that in some instances, it can lead to micromanaging and overload individuals with an excess of meetings, potentially not yielding best outcomes.

*SC9: There used to be a lot of regular weekly meetings in my previous job because I had a manager who managed by meeting, but we did not always end up with the best decision.*

Structured meetings were identified by eight participants that experienced a more solid and steady cycle. In these forums, information is consistently shared and reviewed to support better informed decisions. The inputs are discussed in the most appropriate forums, with the right decision-makers in the room. Participant SC3 explained:

*SC3: We have a global and regional demand review process, that feeds into a supply review, that feeds into a financial outlook, and then an overall sign off by the GM group. The regional meetings have the responsibility and accountability to look into the regional business result, and each of these meetings will feed into a global meeting as well. That loops back through a cycle flow.*

Furthermore, the participants discussed that these forums create a unified, consensus-based business plan that enables organisations to control their metrics and goals. This, as explained by SC5, significantly improves their overall performance.

*SC5: The purpose of this cycle is to sign off on a consensus demand and supply plan with an executive review. Basically, this consolidates at group level how demand and supply look like and then how inventory and working capital are projecting in the next future 12 months.*

Meeting inputs refer to the drivers that are influenced by all parts of the business functions, impacting the performance of the business plans, including actual sales, forecasts, financials, metrics and KPI performance, as well as trends, risks and opportunities. The thematic data revealed that meeting inputs influence decisions in the development of both long-term strategic plans and short-medium term actions to achieve the targets set in the referred plans. Thus, the quality of meeting inputs is a key attribute influencing effectiveness of management practices.

Moreover, the management practice influencing the long-term strategic plan is often developed following a top-down approach, as SC10 explained:

*SC10: The process starts with a long-term financial forecast and that long term financial forecast is then broken down into a 5-year plan, broken down into a one year plan, and then that year plan is broken down into monthly plans.*

In contrast, a bottom-up approach is applied to capture inputs that contribute to achieving the targets set in the business plans, as SC10 explained:

*SC10: When we're building the assumptions to meet the inventory targets, we are talking about a bottom-up supply plan. It is taking in and measuring the levers we could trust and build the future operational plan from that.*

From a sustainability management perspective, the thematic analysis revealed that meeting inputs enable the understanding of areas at risk. Consequently, they support the establishment of clear priorities in terms of initiatives required to bridge the gap between the current and future state, aiming to achieve the determined business sustainable goals.

This approach has been observed across participants located in diverse global regions, encompassing various education level and hierarchal positions within the organisational structure. Notably, participants SU7 and SU3 provided examples illustrating a top-down approach:

*SU7: We face situations in which the wrong demand signal is uploaded and because of that there are delays in releasing the products whenever we are sending from one country to another. So, the earlier it is identified, the quicker an action plan can be in place to avoid any impact on the business KPIs.*

*SU3: We present a business case of what is needed to hit the targets for the year, and then in the meetings we question about, what additional funding and resources do we need? what's the cost benefit analysis? how much carbon are we going to reduce? Those are the type of things that happen in those meetings and then you are held accountable to it once it goes on the business scorecard as a KPI, which helps us internally to make sure we're heading in the right direction.*

Sharing the same demographic profile as SU7 and SU3, participants SC8 and SC5 strongly emphasised other fundamental aspects of meeting inputs that pose additional challenges for development of a cohesive plan. These include the clarity of the marketing initiatives, as well

as the management of risks and opportunities. Thus, they discussed that by incorporating these inputs into the flow of information meeting agenda, the accuracy of the plans put forward can be significantly improved.

*SC8: I've got some challenges that I face with some marketing campaigns. When we push some promotion to customers without pre-aligning it with the supply chain team, we struggle to plan correctly and that affects the stock. So, what we usually do for example, is we bring it for discussion in meetings with the marketing team, and I call out the product stock turn-over which is in red. And then, we address actions and strategies to work this out.*

*SC5: Event management is another element that I'd add into it. So, a marketing campaign signal is plugged on the top of the demand forecast baseline to understand how and this will impact the overall consumption of the business.*

SC2 supports the above claims by sharing some key questions to investigate the marketing and growth initiatives, which play an important role in developing the business plans.

*SC2: The biggest need for us is to understand, what it is going to look like from the finance and growth marketing perspective? What is the plan to activate that? how many dollars will be invested in those initiatives? which sales channel are we targeting? are we going to see a dip or a spike? and therefore, what are we going to look at with the overall business?*

SC3 and SU7 assert that risks and opportunities management is a crucial influencing factor in business process management to be discussed in the flow of information meetings. They revealed that through incorporating this element into discussions during meetings, business management gains the ability to become more agile, anticipating events not yet realised in the business plans.

*SC3: Any risks and opportunities that have popped up throughout the supply chain or from commercial, but especially from compliance, logistics, manufacturing perspectives, all those insights need to come in so that we can understand our ability to deliver against an unconstrained plan.*

*SU7: We've noticed that whenever we have any unplanned higher demand, there is an air freight disclosure. So, this triggers us to understand the root-*

*cause of the increase in air freight for the period, and what action plan needs to be implemented, as a result.*

Subsequently, meeting outputs refer to the outcomes of decisions made in the meeting forums, ideally published through the business as an integrated plan. This includes clear decisions on risks and opportunities, financial alignment, such as a unified sales forecast plan and cash flow availability, as well as trends in actual KPI trends, action plans, and other management metrics.

SC3 and SC7 discussed the key common outcomes observed in the S&OP meeting forum. These outcomes include transparency regarding risks and opportunities that can constrain the achievement of the business plans, as well as clear communication on the decisions made to a broader audience within the business. This ensures that action plans can be executed accordingly.

*SC3: The expected output simply is clearer communication, foresight, visibility so that we can mitigate risks and experience optimisers, opportunities ahead of time. It should make us stop being reactive and help us to change the strategy to make sure that we do achieve budget and full-growth potential.*

*SC7: The main output is to leave the meeting with everything agreed upon and that it is not a surprise for any area, and that everything agreed upon is executed. So, all the constraints/risks that we agreed on, have to have the same vision between planning systems to ensure the accuracy of the plans.*

SU5 outlined that the fundamental outputs from the sustainability management forums, which include a clear outlook on how the sustainable targets are trending and what the consensus assumptions required to meet the sustainable plans.

*SU5: The final output is we have an outlook of how much carbon we think we might save and how that compares to our total carbon footprint.*

Finally, frequency refers to the frequency at which each meeting forum takes place. As revealed earlier in this section, meeting forums where the flow of information is managed vary according to the maturity level of the processes in place across the organisations, and the same occurs with frequency management. Essentially, the meetings' frequency mainly occurs in four rhythms: weekly, fortnightly, monthly, and quarterly.

The most suitable frequency for a meeting is determined based on the process complexity and business strategy. Twelve participants pointed to monthly meetings as the most suitable for their flow of information forums, followed by weekly frequency, as indicated by 12 participants.

Through the thematic analysis, irrespective of geographical location, it was clear that monthly meetings predominantly influence supply chain/S&OP management practices, as discussed by ten participants, while weekly frequency is commonly observed in sustainability management, as mentioned by four participants (Table 5.5).

**Table 5.5 NVivo Coding—Attributes Influencing Meetings Frequency**

Key Factors	Sub-themes - Attributes Influencing Key Factors	Supply Chain/ S&OP Senior Leadership Participants	Sustainability Senior Leadership Participants
Meetings\Frequency	Monthly	10	2
	Weekly	7	4
	Quarterly	2	2
	Fortnightly	2	2

Moreover, based on participant experiences, it was observed that weekly meetings are mostly suitable for Drumbeat forums, which are those used to manage the short-horizon operational plans.

*SC5: We got the weekly check in meetings with each of the main manufacturing plants to track how we are progressing with the current orders and plan ahead.*

Fortnightly, on the other hand, is often useful for checking performance and making quick decisions upon request, as in Ad-hoc forums.

*SU1: As a sustainability team, we usually do a Work in Progress check-in every two weeks.*

In contrast, a monthly cycle is perceived as suitable for more regular and established forums, foreseeing a more strategic approach, as seen in structured forums.

*SC10: We measure the performances monthly and adjust the tactical financial plan accordingly.*

*SU3: We have what we call a consensus meeting, which happens every month.*

Finally, quarterly frequency is appropriate for re-budgeting the overall business plan, including a review of the portfolio strategy.

*SC10: At the moment, we come together in a quarterly cycle to reforecast the total business.*

In summary, meetings are a central attribute influencing the management of business plans and involve the consolidation of key inputs for discussions and decisions in regular forums, determined based upon the maturity level of the business process.

#### **5.4.3.3 Tools for Governance**

The third attribute that has emerged influencing effective flow of information management is Tools for Governance. The data revealed two approaches to govern the flow of information throughout the processes. as described by 12 participants:

- Automated through systems and dashboards
- Manual through spreadsheet

Regardless of geographical location, participants identified that organisations envision investment in better systems and reporting frameworks to ensure transparency and accuracy of the data. SC6 and SC8 explained:

*SC6: We have a new demand and replenishment system that we just put in at the start of this year. So, it's still flushing out and becoming a stable tool to support the conversations and bring that transparency.*

*SC8: We used to run our planning on Excel spreadsheets, and not a long time ago we introduced a planning system to help understand what the baseline business is versus what the market intelligence is, considering trends and marketing insights that we put in.*

Other participants emphasised that systems and tools alone do not ensure the successful implementation of management practices. While data may be exported from more than one system, the key focal point is to ensure data accuracy and integration across the business. Participant SC11 explained:

*SC11: We have a process that is good, but not ironclad yet. We are still Excel-based for part of the process, which is pretty difficult. The tool helps a lot, but there's a lot of opportunity to get more maturity out of the process that we are running.*

SU5 shared similar experiences from the sustainably lenses.

*SU5: My mentor used to say "it's fine, we can do this in Excel for a while. That way we'll get to know the data and what we want out of a system". So, now that I do understand our requirements and the work streams, I'm kicking off to try and find a platform that meets our needs.*

In addition to systems and reporting dashboards, participant SC6 outlined the importance of guidelines and templates to ensure clarity on roles and responsibilities, as well as consistency in the principles of management practices.

*SC6: Besides the templates and PowerPoints, a clear RACI would be great. We've struggled sometimes with clarity and who's supposed to be doing what in the process.*

Although most of participants demonstrated that they are on the journey of using or implementing automated tools across their business, two participants with over 20 years of experience and located in the Asia-Pacific region explained that many parts of their management processes are still manual, relying on spreadsheets for planning and internal messaging systems and emails for communicating decisions. SC9 noted:

*SC9: We pull the data out of the ERP system into Excel for some really crazy planning documents which is then pulled into Power BI dashboards and other reporting.*

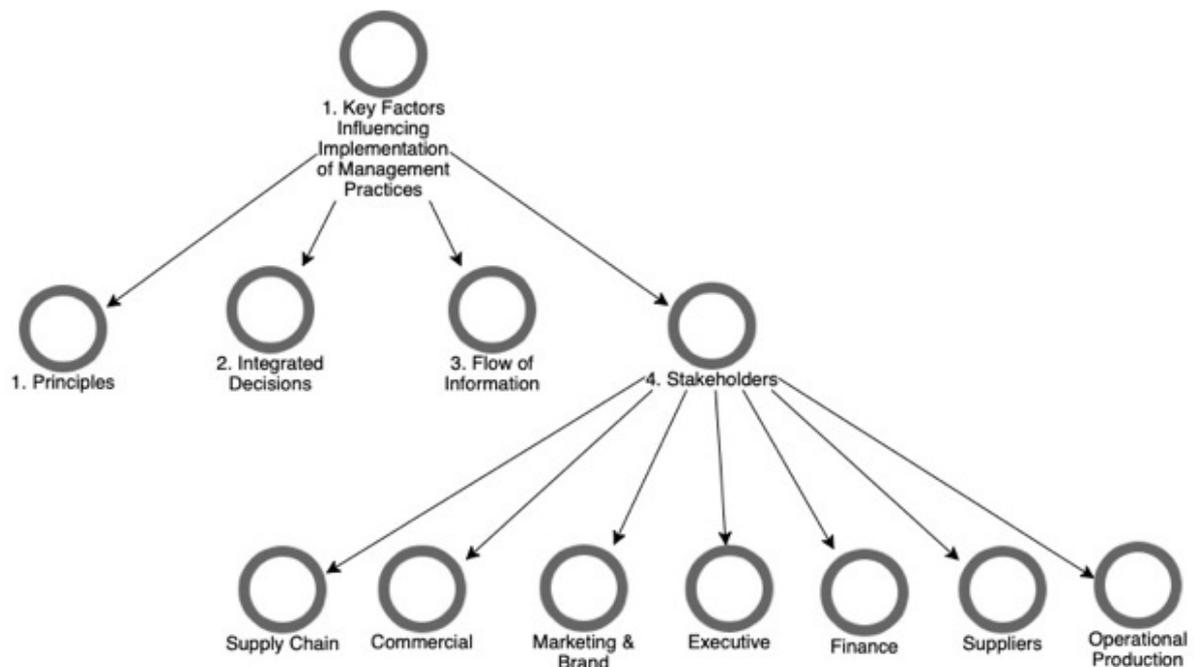
Their sentiment was that they could be more agile and efficient if they had better systems in place. SC8 claimed:

*SC8: What's really hard is that we're Excel based. It's amazing how much more efficient you can be with planning systems. You can see things months out, whereas Excel is a human that's typing in formulas that could be littered with errors right through it.*

The analysis discovered that in addition to meeting forums managing the flow of information process, tools and systems are fundamentally important to support governance, thus sustaining the effectiveness of the flow of information management, regardless of the geographical location of the business and employees' years of experience.

#### 5.4.4 Stakeholders

Stakeholders refer to functions and teams required to be engaged in management practices within and outside the supply chain function, regardless of geographical location. The thematic analysis revealed that the stakeholders involved in the processes are the ones who own and influence the drivers required to manage the business plans, as revealed by participants in the Asia-Pacific and Latin-America regions, for instance (Figure 5.5).



**Figure 5.5 NVivo Coding Tree—Attributes of the Stakeholders Influencing Implementation of Management Practices (NVivo)**

The stakeholder data summarised in Table 5.6 was identified by the 20 senior leadership participants with diverse experiences, tenure and educational background during the interviews. It illustrates all the stakeholders engaged in S&OP and sustainability management practices, as well as their respective top-level influential drivers.

**Table 5.6 NVivo Coding—The Stakeholders Engaged**

The Stakeholders	Supply Chain/ S&OP and Sustainability Senior Leadership Participants	Top-level Influential Drivers
Supply Chain	12	Supply constraints & Inventory positions
Commercial	10	New customers/ channels and Sales Strategies
Marketing & Brand	10	Marketing campaigns
Executive	10	Sponsor and drive the right mentality across the business
Finance	8	Pricing movements and financial plans
Suppliers	8	Strong business relationship to manage end-to-end process
Operational Production	3	Capacity constraints

It is important to note that the associated list of stakeholders is only a sample provided by the participants during the interviews; therefore, it does not comprehensively cover the full list when compared with the literature detailed in Section 3.4.3 (Figure 3.15).

In addition to internal stakeholders, external business partners play a significant role in the supply chain's success. SC5, who has a Head/Director role in the Asia-Pacific, emphasised the importance of having strong business relationships with external partners like manufacturing plants and raw materials vendors to ensure the end-to-end supply chain operates effectively. Similarly, SU4, with a Manager role in the Asia-Pacific, highlighted the integral role of the supply chain team in executing plans accurately and the finance lead in monitoring these plans from a financial perspective.

*SC5: We've got a lot of stakeholders which are actually external business partners, like our manufacturing plant and our raw materials vendors, which we just need to really have a strong business relationship with and make sure the full supply chain end-to-end is working out properly.*

*SU4: The supply chain team is heavily involved to ensure that we execute the plans correctly, and the finance lead as well because the plans need to be tracked and monitored from a financial standpoint.*

These insights into stakeholder involvement reflect the complex interdependencies within supply chain/S&OP and sustainability processes. Understanding these relationships is crucial for implementing effective management practices that can adapt to and leverage both internal capabilities and external opportunities. The significant influence of stakeholders on strategic decision-making accentuates the need for a holistic approach to stakeholder engagement in sustainability initiatives and operational planning.

By deepening our understanding of how stakeholders impact and are impacted by management practices, this research contributes to a more nuanced comprehension of supply chain dynamics. This perspective not only informs theoretical discussions but also serves as a practical guide for organisations aiming to enhance their supply chain sustainability and operational efficiency.

## **5.5 Summary**

In summary, this chapter presented a detailed investigation into the factors that influence the effectiveness of management practices in supply chain and sustainability processes within organisations. Constructivism forms the philosophical backbone of the research, emphasising the significance of participant experiences to construct knowledge. Through manual notetaking and NVivo coding, the researcher analysed interviews with 20 senior leadership participants in supply chain/S&OP and sustainability to answer the research questions focused on background experience, roles, challenges, and opportunities.

Demographic analysis revealed a rich diversity of experience and leadership within the sectors, with a significant proportion of participants holding Head/Director roles located in the Asia-Pacific region. This demographic composition offered a substantial empirical basis for examining representation across various professional categories.

The research identified four main categories affecting effective management practices: Principles, Integrated Decisions, Flow of Information, and Stakeholders. These categories emerged from an exploratory analysis of broad themes informed by the literature and refined by participant input.

Principles emerged as foundational elements of business management, emphasising the necessity for a strong framework for successful implementation of practices. This includes assessment of current and future states, executive sponsorship, clear communication, ownership, SMART goals, expertise, and continuous improvement.

Integrated Decisions emerged on the importance of collaborative processes and the alignment of decision-making across functions, ensuring that decisions are made based on a unified and informed perspective.

The Flow of Information factor emerged to address the strategic management of inputs and outputs in decision-making forums, stressing the importance of meeting frequency and effective communication channels to enhance transparency and informed decision-making.

Lastly, Stakeholders emerged highlighting the crucial role of various parties involved in the process, identifying the need for engagement from multiple functions to address end-to-end challenges in supply chain and sustainability initiatives effectively.

The findings suggested that these factors are pivotal for organisations aiming to effectively integrate sustainability into their supply chain practices. The rich insights provided by the diverse group of senior leadership participants contribute significantly to both theoretical frameworks and practical applications, highlighting a strong alignment between empirical findings and literature.

The following chapter reports on the thematic analysis of the second research question of this thesis.

## CHAPTER 6 ANALYSIS - RQ2

### 6.1 Objective

The goal of this chapter is to shed light on the second research question (*RQ2 How do current key internal and external challenge factors impact organisations supply chain and sustainability processes performance?*) by presenting the analysis of the qualitative data gathered. Section 6.2 provides insights into the key challenging factors impacting an organisation’s supply chain and sustainability performance. It outlines the attributes they originate from and explains how they impact business performance.

### 6.2 Key Challenging Factors Impacting Organisations Supply Chain and Sustainability Performance

This chapter elaborates upon the uncovered existing key challenging factors impacting organisations and it answers the second research question of this thesis as to how such key challenging factors impact the supply chains and sustainability processes performance of organisations.

As demonstrated in Table 6.1 produced in NVivo, 13 out of the 26 challenging factors overlap between the two functions.

**Table 6.1 NVivo Coding—Key Internal and External Challenging Factors Impacting Supply Chain and Sustainability Performance**

Challenging Factors	Supply Chain/ S&OP Senior Leadership Participants	Sustainability Senior Leadership Participants
<b>Internal Challenges</b>		
Collaboration & communication	10	3
Rapid business growth & business complexity	9	2
Siloed structure and roles & responsibilities	8	1
Integrated decision-making process	9	
Tools for governance	9	
Business performance management	6	
Data transparency	6	
Business understanding	6	

Ranging management (product & customers)	4	1
Volatile demand	3	3
Cash flow & inventory management	2	1
Manufacturing constraints	2	1
Marketing strategy	2	1
Outsourcing processes	2	
Goals and directions	1	1
Employee retention		1
Business travels		1
<b>External Challenges</b>		
Geopolitical turmoil	10	3
Supplier dependency	5	2
Freights lead time & costs variability	3	1
Labour shortages & management	1	
Compliance, legislation requirements	1	2
Digital transformation		1

Considering the diverse background of the senior leadership participants, specifically in terms of the predominance of Head/ Director roles (85% across both supply chain/S&OP and sustainability) and vast years of experience (90% over 11 years across both supply chain/ S&OP and sustainability), the following sections suggests a deep analytical and strategic approach to identifying and addressing internal and external challenges due to their extensive exposure to the dynamics of supply chain and sustainability across different market cycles and geographical regions.

### 6.2.1 Internal Challenging Factors

The first key Internal Challenging Factors discussed by 13 participants from both the supply chain and sustainability functions, is collaboration & communication. Predominantly, 77% of the participants, who hold Head/Director roles, revealed that lack of collaboration and communication impacts the ability to anticipate risks and make appropriate changes to plans. Participant SC4 stated:

*SC4: Lack of communication doesn't anticipate issues to make changes that are going to be attractive for the final customer.*

In addition, experts SC6 and SC3 provided examples on how lack of collaboration and communication impact the effective execution of the established action plans:

*SC6: Regional centres had a dependence on getting allocated supply to fulfil the demand of their country. So, it really didn't matter how well they planned and whatever they did internally, if they weren't linking up to the international body, then they were never going to get what they needed.*

*SC3: We had challenges with supply, excess inventory due to lack of communication for the leaders of our business to understand what was coming and what was happening and why we didn't have stock.*

Moreover, lack of collaboration and communication contributes to unreliable assumptions in the development of sales plans. This issue is particularly evident in the context of introducing new products, where the baseline for demand forecasting remains unsteadily established. Participants located in the Asia-Pacific and Latin-America regions revealed:

*SC9: NPD team was previously doing all the forecasting for new products, and we've broken off to start getting the proper input from sales and marketing on what needed to happen in the NPD space. So, it's really been a push in the last two months trying to get some visibility of it.*

*SC11: Usually, it is difficult to get all the stakeholders on board because everyone is doing their best to pursue their own KPI, whereas they are not really sure how those KPIs come together and how they interface between each other.*

Another challenging factor arising from lack of collaboration was shared by participant SU5 who thought that some stakeholders lack interest in leading initiatives that extend beyond their day-to-day responsibilities. Considering SU5's extensive 20 years of experience and doctoral educational qualifications, they underscore the critical importance of collaborative efforts that contribute to the long-term strategic goals, rather than just focusing on short-term operational tasks.

*SU5: There were some people that just were not helpful. They just didn't want to do it. They didn't want to do anything more than their job and they weren't helpful.*

Similarly, participant SU3 supported the above claim arguing that sometimes people are not inclined to offer assistance due to lack of direct correlation between the benefits of implementing specific projects and their own roles and functions. Consequently, there seems

to be a misunderstanding of cross-functional impacts. Managers, especially those with considerable experience and high qualifications, such as SU3, are often acutely aware of the need for initiatives to align closely with their operational objectives and KPIs

*SU3: We often face hurdles to get sustainability right, driven by lack of communication. So, the first barrier to that is for people to be able to see why what they're doing is important.*

The second Internal Challenging Factor found in the data is rapid growth and business complexity. The level of complexity in business operations corresponds to the pace of its growth. This increased complexity can lead to network disruptions, primarily caused by the high data pressure and the need for systems capability and integration required to implement business plans. Participants SC4 and SC6 explained:

*SC4: The pain of the model is really because of the amount of component. Every single product has a different type of formulation and that results in an absurd quantity of data.*

*SC6: We were a small company that grew very quickly, and our systems are catching up from both the scale and integration and capability perspective.*

Another challenging aspect for supply chain/S&OP resulting from rapid business growth is associated with the ability to capture the appropriate data insights from multiple business units and stakeholders. This factor is predominantly perceived by senior leadership participants in Head/Director roles in the Asia-Pacific region, in which present significant economic growth in global supply chains. SC10 discussed this aspect:

*SC10: The weakness in our plan is as we're growing and we regionalise even further, the sales and the financial assumptions have really been done in a strategy/finance, sort of cadence and there's not a strong commercial team to say these are the activities that are driving the commercial growth of our business.*

*SC9: It's been a big six months just getting the basic visibility for us and for our suppliers so that we can help them be ready for this growth rather than reacting to what we're doing.*

Finally, the experts in both fields sustainability and supply chain/S&OP, SC5 and SU7, who are in the Asia-Pacific and Latin-America, discussed that rapid business growth triggers the business to frequently review and revise the current management practices to sustain its growth, irrespective of its geographic location.

*SC5: Business has been growing very fast and we are changing the operating model into the S&OP.*

*SU7: The growth of the business is increasing year on year and because of that there is this challenge not only in the implementation of reduction projects but also in achieving reductions that goes beyond the growth. So far, the growth has been larger than the reductions achieved through our implemented projects, which results in a net increase in total emissions.*

The third significant Internal Challenging Factor was siloed structure which refers to lack of cross-functional integration and impacts on the clear visibility and ownership of the business processes. As a result, participant SC10 and SC3 explained that decisions are often made based on incoherent assumptions and are not addressed to the appropriate owner. They identified the lack of clarity in roles & responsibilities as the root cause of this challenging factor.

*SC10: At the moment in our journey, that's quite fragmented, and it's a little bit siloed and mysterious the assumptions that go in the financial and sales plan.*

*SC3: The management structure has been a big challenge because through the S&OP, it's really important to know who is accountable for what step and stage, and for the financial delivery. And as we go further into this process, we will face more challenges with the capabilities for delivery of the final numbers, which means who has decision rights at an overall perspective.*

This challenging factor is caused by not having the right people at the right function, as SC1 claimed:

*SC1: Lack of resources has at times been very real and people wearing many hats is normal here. So, that's a challenge because the more balls you're juggling, the more chance you have of dropping one.*

Additionally, participant SU3 highlighted that a lack of clear roles and responsibilities throughout the organisation significantly affects the workload of the employees.

*SU3: Given that supply chain is very data and numbers driven, governance is the biggest challenge that I face in this space. So, by making sure that the roles and responsibilities don't overlap, you don't end up doing someone else's job or wasting people's time. So, it's very important to have the right people for the right job.*

The fact that 67% of female senior leadership participants identified siloed structure as a significant internal challenge suggests that these female leaders are acutely aware of the issues arising from a lack of cross-functional integration. Their experiences suggest that they value coherent communication and well-defined roles and responsibilities to ensure efficient decision-making.

The fourth Internal Challenging Factor that impacts the performance of a business process is the absence or weakness of an integrated decision-making process. Some of these impacts claimed by nine participants, of which eight hold Head/Director supply chain/S&OP roles, include poor costing projections, low process efficiency due to a lack of deliberate cross-functional analysis, and unclear decision-makers. Their identification is indicative of the critical role that a structured, integrated approach to decision-making plays at the senior leadership level, advocating for clear lines of decision-making authority to ensure accountability and maintain operational tempo.

Participants SC10 and SC11 explained:

*SC10: In an ideal situation the cause of cost of goods would loop back to the decisions made during the S&OP cycle. But at the moment, they're separate and they're more supply chain cost measures rather than linking to decisions we made.*

*SC11: There is no clear path of decision-making in this business. From a general leadership perspective without supply chain having a seat at the table, it's very unclear on how to escalate and influence and get decisions of major change.*

Altogether, these factors ultimately impact the business performance and undermine the overall trustworthiness of the business directions:

*SC6: Some might think that making decisions is a straightforward activity, but it's not, and I think it gets underestimated. When decision-making isn't done well, the process starts to fail and then people lose trust and faith in the overall management process.*

Tools for governance was discussed by nine participants, located in diverse global regions, as a key challenging factor that adds complexity to the performance management in organisations.

It seems that some organisations, irrespective of geographic location, do to not have the appetite to invest in the right technology that would enable the flow of information to be more agile, coherent, and accurate. Participant SC10 commented:

*SC10: One of the prerequisites of a good process is being able to compare the current plans to a fixed plan. So, whenever the plan shifts, the baseline shifts. Our tools don't really have the ability to have a steady baseline, and it's just because we run a lot of the business on spreadsheets.*

Yet, despite having sophisticated systems in place, some organisations still rely on manual tools throughout their process management. This constrains business from making agile decisions. SC11 revealed:

*SC11: We have some tools as part of the SAP/APO, but we still use a lot of Excel and a lot of manual work, which kind of limits our ability to be more flexible and respond faster to the commercial side of the business.*

Although the following six internal challenging factors were not the most frequently discussed by senior leadership participants, they represent areas of convergence between supply chain/ S&OP management and sustainability management. This consensus is reflective of a wide-ranging leadership demographic, represented in Table 6.2. Their collective experiences and academic backgrounds offer a rich diversity to the interpretation and prioritisation of these challenges, emphasising the multifaceted nature of obstacles that extend across both operational and strategic realms within their respective fields. The Internal Challenging Factors are: ranging management, volatile demand, cash flow & inventory management, manufacturing constraints, marketing strategy, and goals and directions.

**Table 6.2 NVivo Coding—Subsequent Key Internal Challenging Factors Converging Between Supply Chain/ S&OP and Sustainability Management**

Senior Leadership Participants	Years of Experience	Role Level	Education	Gender	Geographical Job Location (Continent)
SC1	11 to 20	Head/Director	Diploma Degree	Male	Asia-Pacific
SC2	11 to 20	Head/Director	Bachelor Degree	Female	North America
SC4	11 to 20	Head/Director	Master Degree	Female	EMEA
SC5	11 to 20	Head/Director	Master Degree	Male	Asia-Pacific
SC8	Above 20	Head/Director	Diploma Degree	Female	Asia-Pacific
SC10	Above 20	Head/Director	Bachelor Degree	Male	Asia-Pacific
SC11	Above 20	Head/Director	Master Degree	Male	Latin America
SU1	0 to 10	Head/Director	Bachelor Degree	Male	Asia-Pacific
SU3	11 to 20	Manager	Doctor Degree	Male	Asia-Pacific
SU7	Above 20	Head/Director	Master Degree	Male	Latin America

Ranging management refers to the challenges associated with establishing a coherent portfolio segmentation strategy, involving the management of a large range of product introductions, transitions, and discontinuations, along with addressing customer requirements. According to insights shared by participants SC11 and SU7, with over 20 years of experience, tackling these challenges becomes particularly difficult within the realms of supply chain and sustainability when processes lack cross-functional integration.

*SC11: We didn't have a clear segmentation in terms of portfolio and how we can have different strategies for that portfolio. We wanted to have a different set of protection for our A products. So, this is something that can become very problematic.*

*SU7: Our business launches to the market around 1500 new products annually, which means that it's going to be impossible to guarantee that 100% of the portfolio has a controlled carbon footprint without an integration of people, systems and processes.*

Volatile demand refers to challenges in managing variations in product demand forecasts, encompassing rapid changes and unpredictable market dynamics. Participants in EMEA and Latin-America, SC4 and SU7, discussed that these challenges typically arise from unexpected

growth and trends, changes in portfolio strategy, and the absence or irregularity of a demand review cycle.

*SC4: The fast moving between the products transitions is an example we have right now. We just launched the fourth version of a product and even though we planned it in forecast, the retailers are not interested because they don't find a difference between versions. So, it's something that I could not anticipate in the demand plans, and we now have much more stock than we need.*

*SU7: We need to improve the planning process, then we would be able to predict better and avoid any kind of surprises.*

Participants SC11 and SU4 emphasised that the challenging factor cash flow & inventory management is one of the main focuses in many organisations. However, it is difficult to manage on its own, especially in instances where business is not integrated, leading stakeholders to make siloed decisions.

*SC11: Sometimes we had a lot of out of stocks and other times excess of stock, and that roller coaster helped us to discuss with the commercial teams: 'look guys, doing a good plan is not enough to hit the sales targets.' We have to hit the sales target, but we also have to have a balanced service to our customers, and an optimised inventory.*

*SU4: One of the most challenging areas is making sure that all sustainability initiatives are viable financially speaking, because sometimes there might be some very good ideas, but unfortunately you cannot just implement something that puts the business at a financial disadvantage; otherwise, the business will fall apart.*

Manufacturing constraints refers to suppliers' capacity restrictions to deliver the operational plans within the required quantity and timeframe. This limitation, in turn, has a significant impact on the ability of businesses to meet strategic plans and targets. SC11 and SU7 explained:

*SC11: If I look into the capacity of my provider, for instance, I might get a capacity of a million pieces per week. But if they restrict the supply by 50%, I need to look at the extended bottleneck and be able to understand where this*

*restriction sits in the overall assessment of the supply chain for the medium-term.*

*SU7: One of challenges is that when the productions of the finished good is delayed because of several issues with some of the raw materials, for instance, we face higher demand on air freight, which ends up affecting our carbon emission targets.*

The marketing strategy challenging factor concerns marketing initiatives implemented to draw customers' attention without following the cross-functional decision-making process. In turn, SU7 revealed that this lack of alignment affects the management and performance of other functions.

*SU7: Because of the business marketing strategy, the physical product is used to communicate with the consumer, and it represents 10% of our inventory, which is very significant.*

The goals and directions challenging factor refers to the ability to have clarity on business focus and priorities and whether business has the capability to meet such goals. SU3 explained:

*SU3: From a sustainability point of view, my team and I look after the ethical sourcing in the procurement space, and environment supply chain wise. However, there's a bit of a gap in terms of where we want to be. We have our targets, we have our commitments, but we do need to be more specific about it. Also, in our business we have not yet measured biodiversity impacts in any great detail. That is a thing which we want to put on a KPI, but the first thing is to be able to measure it and then we start reporting it as a KPI.*

Finally, the remaining six internal challenges: business performance management, data transparency, business understanding, outsourcing processes, employee retentions, and business travel, do not overlap, however, from the data analysis, it is evident their presence impacts on business performance.

For instance, SC3 explained that business performance management is intricately associated with measuring and tracking of metrics, including KPIs, as well as analysing trends and historical results. These factors significantly influence the ability of business to make informed and strategic decisions. Participant SC3 noted:

*SC3: If we get bias wrong, we won't know really the direction of our business and we won't be able to make strategic decisions. And we might react to things quicker than we need to, or not react to things. It's kind of without it, we wouldn't have that compass of how we're performing.*

Participants SC2 and SC12 discussed the challenges associated with gathering insights in a dynamic environment to develop the most appropriate demand forecast. SC2 additionally shared an example that illustrates the impacts resulting from the lack of data transparency, specially focusing on how it affects the performance of inventory policies.

*SC12: Even though we have some tools and processes, it was not easy for the teams to provide the right forecast because the situation changes frequently, especially in the cosmetic industry. Customer behaviour is very different.*

*SC2: I need to know from the marketing team the fact that we're going to be featured on a national TV show which it is nationally broadcasted. So, last time we were featured, it doubled our business week over week for two months. We had this huge spike, and no one was prepared for it. We ran out of stock.*

Finally, business understanding refers to lack of stakeholders' knowledge of how business functions operate. Participants SC3 and SC2 commented that this challenging factor predominately impacts business performance when the appropriate team structure is not present. This absence results in poor cross-functional collaboration and engagement.

*SC3: Definitely people's understanding of supply chain, how it all hangs together, and the impact it can have up the line.*

*SC2: When you have a very young company, you have a lack of understanding and appreciation for what this process is and what you can accomplish by it. So, it's very hard to get engagement with people.*

### **6.2.2 External Challenging Factors**

Discussed by 13 participants, of which 100% hold Head/Director roles across diverse global regions, the first key External Challenging Factor uncovered from this thematic analysis is the significant distress faced by supply chain and sustainability functions across their processes due to the impacts of geopolitical turmoil. These senior leaders, from different corners of the globe, revealed how the ongoing global crisis demanded a closer management of various areas

and metrics of their operations previously not viewed as critical to the business. Participant SC6 supported this claim:

*SC6: Supplier fulfilment has been an issue for us. It probably was never really a metric that I thought about before COVID. But with all the international disruptions, supplier fulfilment is an issue.*

Moreover, participant SC10 explained that the Covid-19 pandemic significantly increased the demand for their organisation's products. However, while this surge in demand could be perceived as positive from a profitability perspective, the challenge lay in the fact that the pandemic additionally had a detrimental effect on the business. Specifically, it led to an increase in the costs of ocean freight and transit lead times. These aspects posed a considerable risk to the business margin as the company struggled to anticipate risks and opportunities in this unprecedented environment.

*SC10: Our supply disruptions have been massive during the pandemic. We don't sell our products to supermarkets and with the supermarkets not having enough supply, it drove customers to us. And in rapid moments we've had massive costs changes to ocean freight, lead time variability because of that kind of ocean disruption and big things, such as macroeconomics are being quite disrupted and unpredictable. During a moment in the world that's quite unpredictable.*

In addition, participant SC5, who is in the Asia-Pacific region, argued that besides the tangible supply chain disruptions caused by the Covid-19 pandemic, certain sectors of the macroeconomy may have been experiencing speculative pressures. Some entities were capitalising on the global crisis to rationalise increased costs and shortages.

*SC5: I really think that there are some speculating elements as well. I think that now it is becoming also a very convenient topic for some of the producers to just adopt costs or complications, so they can justify higher prices, and we got probably little say in this.*

Participant SC3, who is also in the Asia-Pacific region, argued that during times of significant supply disruptions as a result of a global crisis, management practices such as S&OP help anticipate and promptly react to the plan, aiming to mitigate any issues that may arise.

*SC3: S&OP helps because we're all talking about and predicting it. So, the example of the war in Ukraine, we were able to discuss and decide about what inventory or what things we purchase from those areas of the world might become constrained and buy up or add extra lead time for some of these channels that are affected with fewer ships being available. S&OP helps bring that conversation to the table and have the foresight to make changes.*

A participant from the sustainability sector in the Asia-Pacific region, who has less than 11 years of experience yet holds a senior position as Head/Director, discussed how the Covid-19 pandemic has introduced additional complexity to business management. This has led to a realignment of priorities, relegating strategic initiatives to a secondary position.

*SU1: Supply chains have been very dynamic and at the moment, things change very, very quickly. So, the business is operating on a survival mode, and it has been hard to keep sustainability at the forefront, sometimes it gets pushed to the side.*

The second external factor impacting the supply chain and sustainability functions is supplier dependency. This concern is particularly pronounced in the Asia-Pacific and Latin-America regions, where the senior leadership participants indicate a heightened risk associated with over-reliance on suppliers. The data reveals that such occurrences are noteworthy. For example:

When a supplier does not have the ability to continuously meet business growth:

*SC6: We are in a very fortunate industry where it's experiencing growth where a lot of other industries are declining right now during the pandemic, so as a small business, we've grown quite quickly. So, our suppliers' ability to keep up with that growth I think has been challenged.*

When a business relies heavily on one supplier.

*SC8: Some of our amber bottles come from overseas, Europe, and we only use amber glass for our products. So, our supplier has just not been up to the quantity standard to keep the product stable.*

When only a tier 1 supplier is considered in the business plans.

*SC11: Because the current supply chain is so complex right now with all the restrictions that we have globally, we're trying to get the second tier of suppliers of restriction into our model, given that at the moment, we only assess the first-tier supplier, which is not enough.*

Another instance of supplier dependency, which closely links to the geopolitical turmoil aspect, was outlined by participant SU1 from the sustainability area:

*SU1: It feels like we're almost at the whim of geopolitical macro level structures. It's really dynamic and that is also inclusive of China, which ultimately, we as a nation, we procure a lot of packaging from. In order to diversify that, our demand and supply chain insights come into play, but also, we're hamstrung by the fact that most of technology comes from that region as well.*

Lack of data transparency is another attribute within the supplier dependency challenging factor, that some participants have experienced impacts from.

*SU8: Our supplies just do not feel comfortable in providing us with information or they don't have really great information of data to begin with, and that's also a massive issue where most of the carbon, waste and water footprint come from that part of the supply chain. So, that lets alone the seven, eight or nine tier that we don't have access to as well.*

SU7 additionally discussed challenges in negotiating and influencing suppliers depending on the business size.

*SU5: Another massive thing is the size and scale of our business which is miniscule compared with some big corporations, even though we are the leading hand wash provider. So, it is very hard to influence and get data visibility of some key ingredients that we need to procure and make better informed decisions.*

Additional external factors challenging business performance were collectively discussed by nine senior leadership participants, with 89% of them located in the Asia-Pacific region and encountering similar challenges. These include variability in freight lead time and costs, labour shortages and management issues, compliance and legislation requirements, and the ongoing

process of digital transformation. While these aspects were initially coded separately, they were later recognised as interconnected outcomes resulting from the geopolitical turmoil factor.

In terms of compliance and legislation requirements, the primary focus is on challenges arising from globalisation. As numerous organisations express a willingness to engage in international trade, local governments have instituted regulations to manage market competition as well as ensure community welfare.

This situation poses challenges for both the supply chain and suitability functions, necessitating frequent revisions of their strategies and processes to ensure product compliance of products with specified requirements. Participants SC8, SU4 and SU3 explained:

*SC8: HR used to be a global function and it has recently shifted to be in each market because of the employment requirements around legality and laws. For example, we can't pay the staff member in China from an Australian banking entity, they have to be paid through a Chinese bank. Also, China's registration is complicated and sometimes that registration takes eight months to come through. So, we'd shift a transition for the rest of the world, depending on what our stock position is, and only later for China.*

*SU4: Trading with a global footprint, unfortunately there are many intricacies and complexity in the compliance and regulation of each single country, and it varies tremendously from country to country. So, sometimes you develop a very solid standard to comply with the country, but a product cannot be certified in the same way for other countries, so this might be a little bit of a difficult dilemma to unfold and get right, to be honest.*

### 6.2.3 Stakeholders Engagement

The third key challenging factor impacting on an organisation's supply chain and sustainability processes performance is Stakeholders Engagement.

**Table 6.3 NVivo Coding—Why Stakeholders Are Engaged**

Why Stakeholders Are Engaged	Supply Chain/ S&OP Senior Leadership Participants	Sustainability Senior Leadership Participants
To focus on achieving business goals	7	3

To access data	6	2
To get approvals	4	2

As detailed in Table 6.3, the lack of Stakeholder Engagement adversely affects business performance for three primary reasons. Therefore, it is imperative to involve stakeholders in the journey: to focus on achieving business goals, to access data, and to get approvals.

The senior leadership participants SC9 and SC11, who have over 20 years of experience in supply chain/S&OP, began by emphasising that when key stakeholders are not actively involved in the decision-making process, certain aspects of the business lack complete and transparent visibility regarding the key drivers influencing discussions and decisions required to achieve the business goals.

*SC9: The very first challenge is making sure that all of the stakeholders know what they are accountable for and what the impacts are.*

*SC11: I think the key is to get people in all levels from the top down to the bottom up really engaged and understanding how those metrics interlace. So, in the case of marketing, how they can understand the requirements of the market, but also understand the current restrictions of the supply chain and inventory levels, and what we have to do and how we can balance innovation and trade marketing with everything that we're doing. For finance, it is to make sure that they are really getting a full view of what we're referring to as a good plan. So, how we can really balance out all KPIs to make sure that everyone is seeing the same thing, and we are hitting the good trade-offs.*

In the sustainability domain, the concept of stakeholder accountability emerges as a pivotal theme from the analysis of engagement challenges. For instance, sustainability senior participant SU1 emphasises the complexity of distilling overarching business objectives down to functional units while maintaining individual stakeholder responsibility. This challenge highlights the critical need for transparent and aligned goal-setting within sustainability strategies, ensuring that every stakeholder is clearly aware and accountable for their role in the collective mission.

*SU1: The challenge is to ensure that these responsible business goals are embedded within the teams from an objective key results perspective, and then hold each other accountable or just like a mutual goal.*

Data gathering for extracting insights and identifying key drivers influencing the development of business plans was revealed through this thematic analysis as a challenging factor attributed to stakeholder engagement. Nine participants discussed the significance of involving the right people in the decision-making process. Specifically, participants SC6 and SC4 provided detailed explanations.

*SC6: It's great to have all inputs from all other parts of the business, what's going on in retail activations, what's going on in marketing and all that.*

*SC4: Sometimes the struggle to access the information we need is because the commercial team only shares part of the information because they didn't have the full picture, and to have the complete sales data I need to get deeper and deeper with other contacts globally, with the global director for example.*

Participant SU1 additionally discussed the engagement with external stakeholders as a crucial attribute influencing data gathering. The emphasis of this attribute centred on establishing strong relationship among stakeholders, was seen to be playing a critical role in overcoming the challenges associated with data gathering.

*SU1: We actually have a matrix type structure that we pull everyone in together. But most of the obstacles are external stakeholders who do not like to provide information and that's due to a multitude of reasons. One could be they're very nervous about what they will reveal, and because we are the final goods manufacturer, and we don't own any suppliers or factories ourselves.*

Moreover, from a sustainability point of view, senior leadership participants with over 20 years of experience are supported by the idea that engaging with cross-functional stakeholders contributes to translating the collected data into focus areas. Participant SU5 explained:

*SU5: We collaborate and get the data from the supply chain team in order to build all the analysis and then use that information. So, I can help work with the team to identify the opportunities which would have the greatest environmental wins.*

Additionally, SU1 asserts that business encounters challenges in collecting wastage data from external suppliers, given the fact that certain suppliers are not actively involved in business as usual (BAU) operations throughout their end-to-end network. Consequently, this lack of involvement leads to a deficiency in data transparency and trustworthiness.

*SU1: Our supplies are not part of the entire operations' decisions and they do not feel comfortable providing us with information, and they sometimes don't have really great information.*

Another attribute driving stakeholder participation in the decision-making process is obtaining approval, getting sign-off, of the plans from those who were part of the decision. The senior leadership participants with diverse background experience but predominately located in the Asia-Pacific region, revealed that when stakeholders are excluded from the decision-making process, it compromises their commitment and the effective execution of business plans. Participants SC1 and SC5 noted:

*SC1: By putting the stakeholders together, the finance team know the commercial results going forward and if there are any changes there. So, we're all aligned on what the changes are with the sales team, and they can confirm if they agree with the plans. It's about collaborating with the wider teams.*

*SC5: Whenever we have a decision, let's say to increase safety stock, we drive financial reviews to check into margin and profitability as well.*

Participant SU5 supported the above claim, outlining the significance of executive sign-off on the sustainability strategic plan:

*SU5: The key things we care about are what we want to do over the next five to ten years, and that approval has to come from the executive team. The overall strategy for sustainability has to get a sign-off from the Exec team.*

### **6.3 Summary**

This chapter examines the internal and external challenges impacting the performance of supply chain and sustainability processes within organisations. Through data from senior leadership participants across supply chain/S&OP and sustainability, the analysis presented an

intersection of thirteen key challenges affecting both functions, revealing the complexities of modern organisational operations.

Internally, the lack of collaboration and communication emerged as a principal challenge, undermining the anticipation of risks and adjustments in plans. Another prominent challenge is rapid business growth coupled with increased complexity, straining systems and data management capabilities. Siloed organisational structures additionally emerged as a significant challenge, with unclear roles and responsibilities leading to incoherent decision-making and operational inefficiencies. This issue is particularly resonant among female leaders who advocate for coherent communication and defined roles to ensure decision-making efficacy.

Externally, geopolitical turmoil emerged presenting substantial challenges, disrupting supply chains and necessitating agile management to navigate unpredictable markets. The Covid-19 pandemic accentuated this turmoil, prompting shifts in cost and supply that challenge the margins and strategic aims of businesses. Supplier dependency was identified as another external challenge, exposing the risk of over-reliance on limited sources for key materials.

Stakeholder Engagement was revealed as a critical factor affecting both the access to data and the alignment of business goals. Senior leadership participants stressed the importance of inclusive decision-making processes to ensure all stakeholders understand their accountabilities and the interconnections of their roles within broader business objectives.

The following chapter reports on the thematic analysis of the third research question of this thesis.

## **CHAPTER 7 ANALYSIS - RQ3**

### **7.1 Objective**

The goal of this chapter is to shed light on the third research question (*RQ3 How could the Sales and Operations Planning process model contribute to mitigating the challenge factors impacting on supply chain sustainability performance?*) by presenting the analysis of the qualitative data gathered. Section 7.2 provides insights into the key S&OP attributes that can improve supply chain sustainability performance.

### **7.2 How the Sales and Operations Planning Process Can Contribute to Mitigating the Challenging Factors Impacting the Supply Chain Sustainability Performance**

When senior supply chain/ S&OP and sustainability leaders were asked their views, based on their experience, on how the S&OP process could contribute to mitigating the sustainability performance, the key four factors uncovered in the thematic analysis were Performance Metrics Management, Stakeholders Engagement, Risk Management and Integrations.

To achieve success in implementing both the S&OP and sustainability practices across organisations, the manual analysis undertaken identified additional key relevant criteria and enablers.

The following sections will analyse in-depth each of the key criteria and enablers. Additionally, the correlation between these criteria and enablers will be explored in relation to the key factors influencing sustainability management practices, along with the existing challenging factors. These sections are essential for addressing research question 3, making the analysis relevant and comprehensive.

#### **7.2.1 Key S&OP Contributors to Supply Chain Sustainability Performance Management**

##### ***7.2.1.1 Performance Metrics Management***

Performance Metrics Management, commonly referred to in both industry practices and literature as Key Performance Indicators (KPIs), plays a critical role in evaluating the

effectiveness of the Sales and Operations Planning (S&OP) processes, as well as sustainability management.

Senior leadership participants with over 11 years of experience and holding Head/Director roles, particularly those with high degrees, who represent 65% of the sample used in this thesis, demonstrate a keen understanding of the strategic importance of Key Performance Indicators (KPIs). Their rich experience in the diverse economic conditions and markets, particularly in the Asia-Pacific and Latin America regions, informs a nuanced approach to sustainability metrics.

These metrics provide valuable insights into the success of these processes, facilitating the identification of areas for improvement. From a sustainability point of view, managing sustainability effectively involves the meticulous tracking and measurement of key performance metrics to evaluate environmental, social, and economic impacts. These metrics provide a comprehensive overview of sustainability performance, enabling organisations to establish targets, monitor progress, and make informed decisions aimed at minimising their environmental and social footprint, all while ensuring long-term economic viability.

The supply chain/S&OP senior leadership participants revealed 12 key KPIs measured within the S&OP process. They outlined demand forecast accuracy, stock availability, customer service level, COGS (cost of goods sold), DIFOT (delivery in full on time) and demand forecast bias as the most influential metrics. Simultaneously, the sustainability participants identified eight primary KPIs for measuring sustainability performance. Among these, carbon footprint, diversity & inclusion, waste and costs of operations were identified as the most critical metrics.

According to the participants' inputs, these KPIs are typically assessed on a monthly basis, with their ownership predominantly delegated to functional teams rather than being individually managed. Despite the fact that functional teams assume ownership of the KPIs, participants revealed that incorporating individual goals into each employee's performance management is crucial. This serves as a fundamental element for holding employees accountable and, consequently, ensuring the successful achievement of the set targets for each KPI.

The following Table 7.1 represents the results of the data uncovered in the thematic analysis associated with the performance metrics management (KPIs) in the S&OP process and sustainability.

**Table 7.1 NVivo Coding—Performance Metrics Management KPIs in the S&OP Process and Sustainability Management**

<b>Performance Metrics Management KPIs</b>	<b>Supply Chain/ S&amp;OP Senior Leadership Participants</b>	<b>Sustainability Senior Leadership Participants</b>
Demand forecast accuracy	7	
Stock availability	6	
Fill rate	6	
COGS	5	
DIFOT	4	
Demand forecast bias	4	
Financial, sales performance	3	
Cost of freight	2	
Obsolescence	2	
Lead times	2	
Working capital	2	1
People engagement	1	1
Carbon footprint		5
Diversity & inclusion		4
Waste		3
Costs of operations		2
Ethical sourcing		2
Life cycle assessment		2
Trees and forests protection		1

As detailed above, demand forecast accuracy, stock availability, fill rate, COGS, DIFOT and Demand forecast Bias are the primary KPIs measured in the S&OP process. According to the participants, measuring metrics KPIs significantly enhance overall business performance by streamlining operations, improving customer relations, and optimising cost structures. This, in turn, leads to improved business competitiveness and performance as these KPIs collectively contribute to more precise business planning.

SC3 and SC7 outlined the relevance of measuring forecast accuracy, stock availability and forecast bias metrics:

*SC3: If we can't get forecast accuracy right, we are going to hold way too much inventory and waste cash flow, or even write off the inventory, which are all very bad for sustainability wise. Also, if we decide not to hold the inventory or have the wrong inventory and just do not service our customers' sales orders, it will impact on the customer experience.*

*SC7: If we get bias wrong, we won't really know the direction of our business and we won't be able to make strategic decisions.*

The participants in sustainability management debated the importance of establishing a set of informed KPIs along with a clear baseline. This approach can effectively guide business decisions, considering both the current and desired future state.

*SU5: We're just trying to baseline and gather understanding of where we're at so we can see how much we're increasing, and how much we're decreasing and then try and set some informed KPIs.*

Managing KPIs such as carbon footprint, diversity & inclusion, waste and costs of operations supports business in achieving successful sustainability performance from a triple-bottom-line perspective – planet, people, and profit. According to inputs from five participants, monitoring the carbon footprint through a clear baseline enables organisations to track and reduce their environmental impact, thereby contributing to climate change mitigation. Additionally, four participants outlined the importance of prioritising diversity & inclusion metrics, a means to promote a more equitable and inclusive workplace. This approach requires a diverse range of talents and perspectives for sustainability innovation, aligning with the people pillar aspects of the business. Furthermore, two participants highlighted the significance of waste and costs of operations metrics in ensuring efficient resource allocation. This optimisation not only contributes to financial sustainability, but additionally minimises negative environmental and social impacts. Collectively, these KPIs drive holistic sustainability by addressing environmental, social, and economic aspects, ultimately ensuring long-term success in the face of a rapidly changing global landscape.

The appropriate KPIs measurement frequency often varies, depending on the specific KPI and business context. While some critical KPIs benefit from more frequent tracking, the thematic analysis of this thesis revealed that a monthly measurement frequency is the approach that

promotes a balance between data accuracy and operational efficiency, as demonstrated in Table 7.2.

**Table 7.2 NVivo Coding—Performance Metrics Management Frequency in the S&OP Process and Sustainability Management**

Performance Metrics Management Frequency	Supply Chain/ S&OP Senior Leadership Participants	Sustainability Senior Leadership Participants
Monthly	3	2
Daily		
Weekly		
Quarterly		1
Annually		

Assigning the appropriate ownership to each of the metrics KPIs is not always an easy task, but it helps address accountability and clarity in achieving targets. When teams are designated as owners of specific KPIs, they become responsible for driving the actions and decisions needed to meet those KPI goals. Therefore, it is crucial to break down top-level KPIs into supporting functional KPIs to ensure that all functions have a responsible role in managing the actions required to deliver the business targets.

*SC11: The end KPI is inventory levels or days of cover. But we break it down into four or five or six supporting KPIs that really address accountability.*

*SU1: The ultimate aim is to ensure that top-level goals are disseminated to heads of departments so that they can review their strategy and also break down our responsible business goals into their own. So, each different department would have sustainability as its own goal versus a separate department, which would enhance collaboration between departments.*

Therefore, the analysis revealed that ownership not only promotes a sense of accountability but additionally streamlines communication and coordination within the organisation. This, in turn, allows for a focused effort in optimising various aspects of the S&OP and sustainability, including supply and demand alignment, profitability, and performance optimisation.

Ultimately, assigning ownership to KPIs enhances the likelihood of meeting targets, improving overall operational efficiency, and achieving strategic business objectives.

Another crucial aspect of meeting KPI targets through accountability, as discussed by the eight participants, is associated with incorporating the functional supporting KPIs into each employee’s performance management review, as demonstrated in Table 7.3. Although employee performance management review is often managed differently depending on the company’s structure and policies, the majority of the participants outlined that incorporating KPIs into these reviews benefits individual employees by providing recognition and rewards, thus offering incentives to excel in their roles. Moreover, this practice contributes to the overall success and effectiveness of the organisation by driving alignment, accountability, and continuous improvement.

*SC3: The business has a structure set up linking the KPIs to our bonuses. If we don't perform to our revenue expectations, to EBITDA, sustainability performance, cash flow for instance, then people will be impacted personally from a financial perspective. So that helps with accountability.*

**Table 7.3 NVivo Coding—Performance Metrics Management Through Employee Performance Management Criteria in the S&OP Process and Sustainability Management**

<b>Performance Metrics Management through Employee Performance Management Criteria</b>	<b>Supply Chain/S&amp;OP Senior Leadership Participants</b>	<b>Sustainability Senior Leadership Participants</b>
Individual goals	4	4
Not managed	3	2
Functional goals	1	2
Business goals	1	2

Additionally, SU3 outlined that the performance management review approach enables the establishment of baseline and stretch targets. This approach serves the purpose of challenging both functions and individuals to excel and innovate. Simultaneously, it provides a practical starting point for improvement and measurement. Balancing these two types of targets can contribute to business growth and enhanced performance, thereby encouraging the credibility of individuals.

*SU3: You need to be sure that what you're putting in is also a fine balance between being overambitious and being easy about it. So, there's a stretch target that we have, and then there's the target that we need to achieve no matter what, to make sure you meet the expectations from a performance review perspective.*

### **7.2.1.2 Stakeholders Engagement**

Engaging Stakeholders emerged as the second factor, as identified through the thematic analysis of this thesis, aimed at mitigating the challenging factors impacting supply chain sustainability performance. As demonstrated in Table 7.4, the analysis revealed five approaches to effectively engage stakeholders in the process: common value and clear priority, active listening, meet stakeholders needs), communication and transparency, and training and standardisation.

The senior leadership participant data revealed that female Heads/Directors, who represent 40% of the thesis' sample, are especially aware of the importance of engaging stakeholders. Their perspectives suggest that inclusivity and clear communication are dominant in aligning cross-functional teams and ensuring that sustainability goals are integrated at every level of business operations. Their insights point to the necessity of fostering a culture where every stakeholder is empowered and aligned with the sustainability vision of the company.

These approaches are vital in the realm of supply chain and sustainability. They leverage expertise, mitigate risks, drive innovation, ensure compliance, enhance reputation, and ultimately contribute to the long-term success and resilience of the supply chain in a rapidly changing and sustainability-focused business landscape.

**Table 7.4 NVivo Coding—Engaging Stakeholders Through the S&OP**

<b>Approach to Engage Stakeholders through the S&amp;OP</b>	<b>Supply Chain/S&amp;OP Senior Leadership Participants</b>	<b>Sustainability Senior Leadership Participants</b>
Common values & clear priority	7	5
Active listening	6	1
Meet stakeholders needs	6	1
Communication & transparency	5	
Training & standardisation	5	

The first two approaches experienced by the supply chain/S&OP participants to engage stakeholders in the S&OP process overlay with the strategies employed by the sustainability participant. These shared approaches are common values and clear priority and active listening.

The common values and clear priorities approach is essential as it establishes a shared purpose and direction. When stakeholders are in alignment regarding common values, it fosters trust, collaboration, and a sense of belonging. Clear priorities further ensure that efforts are directed toward achieving specific goals, thereby enhancing efficiency and effectiveness in stakeholder engagement. This shared alignment on common values and priorities not only promotes agreement and clarity but additionally increases the likelihood of successful outcomes across various endeavours, from sustainability initiatives to strategic planning. This approach ensures that everyone is working towards a common vision and objective, promoting synergy and cohesion in the pursuit of organisational goals. Participants SC11 and SU5 explained:

*SC11: So, it's really important to have clear guidance and a directive from the senior leadership, but that is not enough. We have to make sure that everyone is involved in every piece of that process and so they understand the impacts on the whole business and therefore, focus on the right process improvement.*

*SU6: You need to increase literacy so that people are empowered and encouraged to make more sustainable decisions in every part of their role, that it's not just coming from the sustainability team, but you're actually embedding this within the culture of the business.*

According to seven participants, active listening is central in effective stakeholder engagement by cultivating open communication, trust, and understanding. By attentively listening to the concerns, ideas, and feedback of stakeholders, organisations demonstrate respect for their perspectives and needs. This approach not only helps anticipate potential issues or misunderstandings but additionally enables informed decision-making.

In practicing active listening, organisations can build stronger relationships, enhance stakeholder satisfaction, and ultimately achieve more successful and collaborative outcomes in mitigating the challenging factors impacting on the supply chain sustainability performance.

*SU1: ...try and understand their point of view versus just imposing something. So, it's one-on-one communication, it's listening, learning, and influencing rather than advocating.*

*SC3: I always understand where they're coming from so that you can tailor your language and the way that you present. There are a lot of people that don't know supply chain, so to be able to influence any of our stakeholders we cannot start with technical jargon about how the supply chain works, as it is never going to help influence anybody. So, most of the time with the stakeholders I always start with connecting to something that's important to them.*

Ensuring the fulfilment of stakeholder needs and aligning engagement strategies with their intended purpose is vital for effective stakeholder management, as discussed by six participants. When organisations prioritise the comprehension and fulfilment of diverse stakeholder needs, they promote trust, encourage collaboration, and increase the likelihood of achieving successful outcomes. By modifying engagement approaches to what is most relevant and meaningful for each stakeholder group, organisations can establish authentic connections and ensure that their initiatives address key concerns and expectations.

This approach not only improves overall stakeholder satisfaction but helps organisations adapt to evolving circumstances, facilitating a more effective pursuit of their strategic goals. SC9 summarised:

*SC9: I'm very conscious with what meetings and projects my team take on. It has got to be that you're getting value out of it, for them and for the business.*

Communication and transparency serve as the approach to engage stakeholders in addressing challenging factors across the supply chain and enhancing sustainability performance. This approach involves providing clear information about business goals, actions, and decisions, thereby fostering credibility and confidence. When stakeholders are well-informed and feel included, they are more likely to actively participate and support initiatives. Furthermore, transparency helps prevent misunderstandings and potential conflicts, creating an encouraging environment for constructive engagement.

*SC2: The hook is making sure that we do evolve the data and the information that we share in the meetings so that people can start to use these meetings as their central point of information about what's going on.*

SC11 added:

*SC11: The message from the senior leadership has to be crystal clear with no room for doubts and questions so that we can make sure that we face and tackle dilemmas and trade-offs.*

Finally, training and standardisation refer to providing stakeholders with the knowledge and skills required to understand complex issues and methodologies. This promotes their active participation and informed decision-making. Subsequently, the standardisation of processes ensures consistency and clarity in communication and processes, reducing confusion and misunderstandings among stakeholders.

*SC3: Because there's a lot of people that touch the process in each market it's important to set up kind of templates and training and feedback loops so that helps with the standardisation.*

Therefore, through training and standardisation, stakeholder capacity and confidence are enhanced, promoting more successful and coordinated efforts to overcome complex challenges that impact supply chain sustainability performance.

### **7.2.1.3 Risk Management Strategy**

Risk Management in the S&OP process refers to proactively identifying and mitigating potential risks and uncertainties related to demand and supply and strategic objectives through communication and scenario planning.

*SC1: Any business is going to have a lot of unplanned events. I've been being able to react to that quickly and get all the right people into the room swiftly and make quick decisions. So, it's just about trying to get the outlook and a constant review of that and then sharing any communications as a result of that decision with internal and also external stakeholders.*

It is therefore important to employ an approach that covers the majority of the risks encountered in the business.

The core risk management approaches discussed by the 20 senior leadership participants through this thesis, promotes minimising the negative impact of uncertainties, enhances decision-making, improves resource allocation, and ensures the successful achievement of projects and business goals. Particularly, the assertive approach to risk management is informed by the collective experiences of male Heads/Directors with over 11 years of

experience from Latin America and the Asia-Pacific, who understand the interplay between market dynamics and operational risks. Representing 35% of this thesis' sample, they advocate for a proactive stance in identifying and mitigating risks, leveraging their substantial experience in navigating the complexities of global supply chains.

Table 7.5 demonstrates the attributes uncovered in this thesis analysis.

**Table 7.5 NVivo Coding—Risk Management Strategy Through the S&OP**

<b>Risk Management Strategy</b>	<b>Supply Chain/S&amp;OP Senior Leadership Participants</b>	<b>Sustainability Senior Leadership Participants</b>
Reporting and communication: influence with clear communication	9	2
Risk mitigation: demand and supply planning strategy	7	1
Priority plan	6	1
Risk monitoring and control: tracking KPIs and metrics	4	1
Teams' diversity	3	4
Supply chain diversification	3	1
Risk assessment: what-if scenarios	2	1

The first risk management strategy approach discussed by 12 senior leadership participants is associated with timely reaction, enhanced awareness, and adaptability to changing conditions upon emerging risks, and is thus influenced by clear communication. The emphasis needs to be on the reactivity of upstream management, facilitated by the retrieval of relevant information, thereby focusing on timely response to potential risks. It requires bringing team awareness of the situations arising across the business to identify, assess and mitigate such risks. Furthermore, reacting quickly and effectively to a situation is a key aspect of risk management. Participant SC12 stated:

*SC12: So not only having the right forecast signal is important, but the reactivity of the upstream is also supported by the retrieval of relevant information. So that means that having access to upstream data enhances the*

*team's awareness of the situation and enables them to react quickly and effectively.*

Another perspective on influencing through clear communication involves the importance of active listening to the concerns and needs of cross-functional stakeholders. This allows for a better understanding of various perceptives and the entire context, enabling the identification of the most appropriate solution to overcome potential risks.

*SUI: It involves one-on-one communication, listening. It's influencing versus advocating. So, it's having listening skills as an integral part of the issues retrospective stage.*

The analysis uncovered that managing risks impacting on demand and supply planning is another important element of a risk management strategy. In essence, the senior leadership supply chain/S&OP participants outlined risks and opportunities as a central and integrated metric tool employed in S&OP. By integrating R&O (risk and opportunity) management into S&OP, they can proactively address challenges such as demand fluctuations or supply disruptions while capitalising on opportunities. This strategy enhances overall business resilience, enabling effective decision-making to optimise inventory, finance projections, and meet customer demand in a dynamic business environment.

*SC5: R&Os get flagged into the supply reviews and that's where we understand if there are any shortages in our inventory projection. These get flagged up to both the regional and executive leadership team to trigger decision-making in the next S&OP meeting. So, we run a margin and revenue analysis to see the scenarios and decide what the most likely positive outcome is.*

A clear priority plan is another central element for effective risk management. Once scenarios and actions to mitigate risks are decided, the priority plan becomes essential for determining resource optimisation, aligning efforts with business objectives, proactively mitigating risks, building stakeholders' confidence in business directions, ensuring effective cost-efficiency, and thereby fostering continuous improvement in managing risks more effectively.

Tracking KPIs and metrics is fundamental for effective risk monitoring and control in a risk management strategy. According to supply chain/S&OP participants, it provides early identification of potential risks before they escalate. Furthermore, monitoring relevant indicators provides the teams with the ability to assess whether decisions align with business

directions, enabling proactive risk management. This, in turn, supports better decision-making and fosters an ongoing continuous improvement mindset within the organisation.

SC9 outlined the importance of having metrics to refer risks management back to.

*SC9: KPIs give us something to relate to and indicate if we are in balance across the supply chain.*

Finally, another finding uncovered through this analysis is the relevance of team diversity for risk management. Building a diverse team brings a variety of perspectives and experiences, which can be valuable in identifying and addressing risks that may not be immediately apparent, fostering a more comprehensive risk management approach. SU8 additionally outlined the importance of diverse teams in managing data insights and analysis to drive risk management across the business.

*SU8: To make sure that we have the good qualitative data to drive the decision we need to upskill the teams and that's easier when local teams have different background experiences.*

#### **7.2.1.4 Integration**

Integration is the fourth key existing factor revealed in this analysis, as promoted through the S&OP process. The diverse regional backgrounds of the participants highlight the universal importance of integration within the S&OP processes. Heads/Directors, who represent 85% of the total sample of this thesis, regardless of their tenure, understand that a seamless integration acts as the backbone of a robust supply chain and sustainability framework. It ensures cohesive decision-making and accountability, which is crucial in a landscape where the integration of sustainable practices is becoming a definitive aspect of business success.

The findings from this analysis support several benefits of Integration within the S&OP process for organisational success. As shown in Table 7.6, S&OP integration acts as the foundation for establishing a unified source of truth within the organisation. This, in turn, facilitates the review and tracking of business results, fostering informed decision-making, improving operational efficiency, and enhancing collaboration among teams. Additionally, S&OP promotes effective risk management, empowering organisations to anticipate and mitigate supply chain disruptions. Simultaneously, it aids in managing product profiles and reducing waste through optimised resource allocation and improved demand planning accuracy.

**Table 7.6 NVivo Coding—Integration Through the S&OP**

<b>Integration</b>	<b>Supply Chain/ S&amp;OP Senior Leadership Participants</b>	<b>Sustainability Senior Leadership Participants</b>
Setting one source of truth	3	5
Reviewing results	7	4
Improving efficiency and performance	5	3
Fostering collaboration	4	3
Anticipating and managing risks	2	2
Managing product profile	8	

Integration factors act as prerequisites for aligning an organisation's diverse functions and departments, including sales, marketing, finance, and operations. By harmonising these functions, S&OP ensures a cohesive approach to demand and supply planning, fostering efficiency, cost reduction, and optimised resource allocation. Moreover, these aspects enable organisations to rapidly respond to market dynamics and customer demands, enhancing competitiveness. Additionally, this integration aspects allow for better financial visibility, facilitating the translation of supply plans into financials – an essential step for informed decision-making.

The eight sustainability senior experts discussed the five key integration aspects promoted through the S&OP, which could enhance the sustainability performance within organisations. These aspects include establishing one source of truth, reviewing results, improving efficiency, fostering collaboration and anticipating and managing risks.

Promoting a single source of truth ensures that accurate and transparent data underpins sustainability efforts, enabling informed decision-making across all departments and precise tracking of sustainability initiatives. This integration improves efficiency by optimising resource allocation and reducing waste, thereby conserving resources and reducing environmental impact.

*SU3: When we are opening new channels and entering new markets, going through the S&OP process ensures that the strategy is effectively communicated*

*to people who will be delivering that, people who will be placing the orders for those who will be procuring those codes. So, if you're planning 200 new customers in the next ten years, for example, it's just ensuring that procurement knows to order those raw materials, logistics knows to ship those materials, R&D knows to formulate those, the CMs know, because if that is not done then that's where the air freight starts coming in.*

Fostering collaboration among teams not only enhances the sharing of sustainability goals but additionally encourages collective efforts towards achieving sustainability objectives.

*SU5: Regular conversation between planning and sustainability and the other part of the business together to discuss those volumes and the impact of increasing or reducing volume on sustainability [is vital].*

Finally, anticipating and managing risks enables businesses to proactively address environmental and supply chain challenges, thereby safeguarding their sustainability efforts from potential disruptions.

*SU7: We can improve the planning process, predict better and try to avoid any kind of surprises on direct sales.*

## **7.2.2 Key Success Criteria and Enablers**

### **7.2.2.1 In S&OP**

Determining whether or not integrating supply chain sustainability strategy management into the S&OP process can make a meaningful contribution to performance begins with understanding why S&OP is relevant to business planning management in the first place. The significance of S&OP in business planning and its effectiveness in integrating supply chain sustainability strategies are informed by the participants' years of experience. Notably, senior leadership in supply chain/S&OP, constituting 42% of the supply chain/S&OP sample and each possessing over 20 years of experience, contribute an extensive reservoir of historical insights and a capacity for long-term strategic planning, which is crucial for recognising the systemic impacts of S&OP. Their experienced perspectives underscore the importance of clear decision-making processes that take into account the complexities of business planning.

Table 7.7 demonstrates the key enablers to achieve business success through the S&OP.

**Table 7.7 NVivo Coding—Key Success Enablers in S&OP**

Key Enablers of Success	Supply Chain & S&OP Senior Leadership Participants
Reflected on business values	10
Endorsement and ownership	7
Embedded on process cycle & communicate outputs	7
Performance management indicator	6
Data transparency	5
Right people and responsibilities	4
Tools for governance	4
Knowledge management	4
Build baseline & long-term horizon plan	3
Risks & opportunities management	2
Map of current state	1

According to the supply chain/S&OP participants, the primary criteria for implementing S&OP in organisations comes from the need for a clear decision-making process. This process is underpinned by informed decisions that anticipate unforeseen events, ultimately leading to unified business plans supporting both business growth and customer satisfaction.

***SC3:** S&OP helps because we're all talking about and predicting it.*

Moreover, participant SC10 outlines why the S&OP benefits business of any size, emphasising its robust decision-making process. Essentially, the participant underscores the significance of visibility and accountability inherent in the foundations of S&OP.

***SC10:** In any size of business, the S&OP process helps with visibility and accountability. That doesn't necessarily mean it needs to be a rigid formal process, but it needs to be part of a decision-making framework.*

Following its relevance, 12 supply chain/S&OP participants discussed the key enablers to achieve success when implementing the S&OP process. These enablers encompass essential qualities and practices facilitating effective S&OP implementation. Collectively these

attributes create an environment that promotes successful S&OP execution, resulting in improved growth, profitability, and customer satisfaction.

Ten of the 12 senior leadership participants outlined that the success of S&OP is predominately dependent on whether the process changes are reflected in the business values and, consequently, in the strategic plans of the business.

*SC8: I think changing culture comes in a few levels. It's system related, process related, and behaviour related. So, the business needed a system, they then needed a process, and if you build those within the business, then you've got some part starting to get people thinking about planning.*

Participant SC11, in a Head/Director role with over 20 years of experience, discussed the importance of aggregating and monitoring KPIs to ensure the smooth progress of business operations. However, they emphasise that breaking down a primary KPI into supporting KPIs provides a more granular perspective on performance. This granular view facilitates the identification of specific areas requiring improvement, thereby enhancing accountability.

*SC11: We aggregate all those KPIs and address their responsibility to make sure that the operation is running smoothly. But how we break one KPI down into four to six supporting KPIs is really important to address accountability. For instance, for a balance of our safety stock, the forecast accuracy is its proxy.*

Moreover, attaining alignment and consensus across diverse functional areas within the organisation during the decision-making processes, and seamlessly integrating these decisions into the execution plan, ensures all relevant departments are well-informed and adequately prepared. This approach ultimately contributes to minimising unexpected challenges. Participant SC7 outlined the preferred success criteria:

*SC7: The most important thing for a great outcome is to ensure all decisions are aligned and agreed cross-functionally in the meeting and those decisions are reflected on the execution plan so that there is no surprise to any of the areas involved.*

Another critical success criteria, as discussed by five supply chain/S&OP senior leadership participants, conveys the idea of enhancing the quality and relevance of data and information shared during S&OP meetings. This criterion views these meetings as the primary source of

information for individuals involved. It underscores the importance of regularly updating and improving the content discussed in the sessions, with the ultimate goal of establishing them as a central hub for comprehensive and up-to-date information regarding ongoing activities.

*SC3: The other hook is making sure that we do evolve the data and the information that we share in the meetings so that people can start to use these meetings as their central point of information about what's going on.*

SC5 additionally outlined the importance of information transparency as a pivotal element for fostering collaboration within the upstream supply chain, particularly when engaging with external stakeholders. The ultimate aim is to empower organisations to ascend the supply chain hierarchy, enabling them to participate in broader discussions with primary sources that employ significant influence over business operations.

*SC5: Transparency of information is one of the key important parts to be able to partner up in the upstream supply chain with external vendors, not just in your first tier of vendors but also in tier 2 and tier 3 to climb up the chain and be able to have a larger conversation with the source that impacts the business.*

#### **7.2.2.2 In Sustainability**

While the analysis presented in Section 7.2.2.1 aimed to gain insights on the meaning of achieving business success through the S&OP process, the purpose of this section is to uncover measures of success from the sustainability management perspective.

Table 7.8 details the key factors that play a crucial role in achieving success in sustainability management. These factors encompass the idea that the success of sustainability management depends not only on why and what is implemented but, most importantly, on how it is executed.

Five of the eight (63%) sustainability senior leadership participants with substantial experience (above 11 years) bring seasoned judgment and a strategic outlook to the execution of sustainability policies. Their experience within the Asia-Pacific and Latin America regions, crucial hubs for global supply chains, provides them with a keen understanding of how to navigate complex sustainability challenges in diverse and dynamic environments. Their ability to execute sustainability initiatives effectively is further enriched by their educational backgrounds, with five of them holding Master's and Doctorate degrees, which contribute to a deep theoretical understanding and practical application of sustainability principles.

**Table 7.8 NVivo Coding—Key Enablers of Success in Sustainability**

Key Enablers of Success	Sustainability Senior Leadership Participants
Reflected on business values	6
Building collaboration	5
Targets embedded into performance management	5
Endorsement and ownership	4
Right people and responsibilities	4
Performance management indicator	3
Tools for governance	3
Risks & opportunities management	2
Map of current state	2

Firstly, six of the eight sustainability senior leadership participants, predominantly in the Asia-Pacific region, referred to the alignment of business sustainability strategies and processes with core business values. For them, this entails aligning the organisation's core principles, beliefs, and ethical values with its approach to managing sustainability. This integration signifies that sustainability is not merely a corporate strategy but an intrinsic aspect of the company's identity and culture.

By embedding sustainability in alignment with business values, organisations ensure that environmental and social considerations take a central role in decision-making. This synergy fosters a commitment to responsible practices and accountability in the pursuit of economic, environmental, and social objectives, establishing a holistic and authentic approach to sustainable business that resonates with stakeholder management and drives long-term success. As participant SU1 commented:

*SU1: The pathway to success, first and foremost was around combining business, particularly business practices and business models into a global development, funding mechanism. During the course of that, because we are values-led, both what we do with our profits and how we actually produce our products to gain profit are considered as impactful and that is our strategic*

*impact framework that we use, so we almost use an analogy of upstream impact and downstream impact.*

The second key driver for achieving success in sustainability, as discussed by five sustainability participants, is building collaboration. By engaging cross-functional stakeholders, organisations can create a collaborative environment that aligns goals and values with sustainability objectives. These relationships foster trust, transparency, and mutual support, enabling the exchange of ideas, expertise, and resources for sustainable practices. Moreover, by involving stakeholders in the sustainability journey, companies can tap into diverse perspectives and innovative solutions that drive environmental, social, and economic progress leading business towards long-term sustainability success and the creation of a more responsible and resilient business model.

*SU3: So, we have the sustainability targets, but to chart a pathway to achieve them we need other business teams, sustainability doesn't work in isolation, it can never work in isolation.*

*SU6: Collaboration is another important thing, but we need to have the right people in the right job, which means you need to have people who understand what is important and what is not.*

Moreover, in the realm of sustainable business practices, the establishment and cultivation of relationships are crucial, especially between leadership and business units, as well as across various organisational functions. This plays a pivotal role in cultivating a sustainability-oriented corporate culture and conveying the attitude of environmental responsibility to the end consumer.

*SU4: Honestly, this area needs to touch every single area of a business from the leadership to drive the right mentality into the business unit, but then also from all other functions in the business to convey the right message towards the end consumer. In other words, that we are a sustainable business, and we care about the environment.*

Finally, participant SU3 discussed the importance of fostering effective communication strategies to advocate collaboration and as a result, achieve organisation success. A comprehensive awareness of stakeholder's diverse backgrounds, competencies, and areas of expertise, forms the foundation upon which effective communication and collaboration are

built. That is, this awareness empowers organisational leaders to tailor their communication strategies to bridge the gap between complex numerical or data-driven information and individuals who lack subject matter expertise, and therefore enable stakeholders to contribute meaningfully, fostering a cohesive and productive working environment.

*SU3: When you're dealing with people, knowing your staff is super important. You have to be able to communicate complex numbers and complex data in a way that's understandable by people who are not subject matter experts.*

The third key enabler of success in sustainability involves embedding KPI targets into performance management. According to participants, the interdependent relationship between these elements, is emphasising the principle that what gets measured gets managed. By integrating sustainability targets into performance management, organisations can systematically and comprehensively track their progress toward sustainability goals, ensuring accountability and transparency.

This approach provides a structured framework for monitoring, assessing, and enhancing sustainability performance, thereby fostering a culture of continuous improvement. Furthermore, it serves as an incentive for employees at all levels to align their actions with sustainability objectives, driving behavioural change throughout the organisation.

*SU6: If you need to be very effective, then the key is linking people's bonuses to non-financial performance. Initially, 6% of their bonus was linked to the sustainably KPI, which I originally thought no one would care about, but people cared so much about that 6%, where everyone wanted us to succeed around sustainability [it was] very effective.*

The empowerment of business areas and stakeholders to autonomously integrate sustainability, coupled with strong leadership endorsement, is integral to successfully embedding sustainability into the ongoing decision-making process, as discussed by four of the seven sustainability participants. Furthermore, they refer to endorsement and ownership as an approach to incorporate environmental and social sustainability considerations into the existing economic and financial decision-making processes.

*SU7: If we want to embed sustainability into the daily decision-making, we should empower the areas to do that without the support from the sustainability*

*team, and it's very clear to me that leadership makes a lot of difference on this side.*

The transition from traditional top-down sustainability management to a decentralised model, where each department actively contributes to advancing sustainability objectives, was further discussed:

*SU3: Ensures that the strategy is effectively communicated to those responsible for placing orders, procuring codes, and manufacturing goods at the contract manufacturer.*

*SU6: You cannot have a sustainable transition for any business unless you have the absolute top and all other levels buy-in.*

The fourth key enabler supporting sustainability involves structuring the right people with the right responsibilities – this was discussed by four participants. Success is perceived to be established in the strategic alignment of an organisation achieved through a meticulous organisation structure of teams and individuals. Each individual is expected to possess the requisite capabilities and work in well-defined roles that incorporate sustainability objectives. Furthermore, this approach ensures that efforts are directed towards addressing complex sustainability challenges, as highlighted by SU5:

*SU5: I don't want people wasting their time and I also don't want to bring a bunch of people into conversations that have nothing to do with their job and they're not going to be the ones implementing it.*

The fifth key enabler of success discussed by three participants was the implementation of performance management indicators. Success from this perspective, is founded on an organisation's commitment to incorporating sustainability metrics into its overall performance evaluation framework and integrating them seamlessly with existing KPIs. According to the participant experiences, there is an organisational model shift where sustainability KPIs are given equal importance alongside conventional performance metrics, reflecting a holistic commitment to sustainable practices. To achieve success, sustainability KPIs are not only established but actively monitored, measured, and used to drive continuous improvement and decision-making as SU7 outlined.

*SU7: I think that success means that we have introduced the KPIs and we give the attention to the KPIs and the action plan as the way that we do with the other KPIs of the business.*

Three sustainability senior leadership participants in Head/Director roles and with diverse years of experience outlined tools for governance as the sixth top key enablers of success. According to them, adopting a structured and data-driven approach for KPI tracking through a robust reporting system significantly enhances an organisation's ability to navigate the multifaceted landscape of sustainability. This, in turn, fosters the integration of sustainability into the core framework of the business.

*SU5: A good system that can create automated reporting options would help us to track our KPIs over time and report back to the business.*

In contrast, a senior leadership participant in a manager position with over 11 years of experience acknowledges that while tools and methodologies are indispensable for gathering, analysing, and managing sustainability-related data, these resources alone cannot yield meaningful results. Achieving such outcomes demands human expertise and strategic decision-making.

*SU3: We have those tools but there's no software that you press a button, and you get a result. So yes, you need the tools, but more important is to have the people to do that.*

Despite being identified by a minority of senior leadership participants (two out of eight), the final four key enablers of success in sustainability — distinguished by their varied tenure of experience and advanced educational qualifications — were outlined as fundamental aspects for recognising and addressing environmental, social, and economic concerns. The integration of sustainability initiatives with the organisation's overall operational processes ensures that sustainability becomes an inherent part of ongoing activities. This integration should be coupled with transparent communication of sustainability outcomes and the leveraging of opportunities for sustainable growth.

*SU3: If we truly want to achieve our goals we need to be fully invested and deeply understand these concepts. It's important that we internalise a lot of these things.*

In addition, mapping the current business state supports an organisation in identifying risks and opportunities, while providing a framework for projecting a course for improvement.

*SU3: You need to understand your impacts, what initiatives you can do to mitigate them, and make sure you have the right people in the business.*

### 7.3 The S&OP Contributors Influencing the Sustainability Success Criteria

In order to gain deeper insights into the process of enhancing supply chain sustainability performance through the S&OP process, an additional analysis of the previous sections was conducted. This analysis focused on investigating the required integrations within the sustainability aspects, examining their presence in the S&OP space. Particular attention was dedicated to uncovering success criteria in S&OP and determining how these aspects contribute to the meaning of success in sustainability.

As demonstrated in Chapter 1, effective management practices in any organization’s supply chain and sustainability processes are influenced by robust principles, integrated decisions, flow of information, and stakeholders. Each of these factors is defined by several factor-specific attributes: an overview of the key factors and their foundational attributes is presented in Table 7.9.

**Table 7.9 NVivo—Summary of Key Factors and Their Founding Attributes Influencing Management Practices**

Key Factors	Attributes Influencing Key Factors
Principles	Business management foundations Process governance
Integrated decisions	Collaboration Decision-making process
Flow of information	Meetings Teams structure strategy Tools for governance

The stakeholders	Commercial Executive Finance Marketing & brand Operational production Suppliers Supply chain
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Chapter 6 uncovered the most significant internal and external challenging factors impacting organisational supply chain and sustainability performance. Moreover, it identified common challenges shared between the supply chain/S&OP and sustainability domains, providing insights into the complexity of enhancing supply chain sustainability performance.

Finally, Chapter 7 revealed the key S&OP elements that could contribute to improving the supply chain sustainability performance. It additionally highlighted the key criteria and enablers essential for achieving success in S&OP and sustainability.

To illustrate the findings from the analysis, the key S&OP contributors, and enablers to achieve success in supply chain sustainability performance were identified, as shown in Table 7.10.

**Table 7.10 NVivo—The Key S&OP Contributors to Contribute to Supply Chain Sustainability Performance, and Criteria and Enablers to Achieve Success in S&OP and Sustainability Management**

Key Elements	Attributes Influencing key Elements
Key S&OP contributors to supply chain sustainability performance	Performance management metrics Stakeholders engagement Risk management strategy Integration

Key criteria and enablers of success	Reflected on business values Building collaboration Targets embedded into performance management Endorsement and ownership Right people and responsibilities Performance management indicator Tools for governance Embedded on process cycle & communicate outputs Risks & opportunities management Map of current state Knowledge management Data transparency Build baseline & long-term horizon plan
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These elements are the criteria for organisations to adopt to improve effective management practice in S&OP and sustainability management.

## 7.4 Summary

Guided by the third research question of this thesis, this chapter presented the analysis outcomes uncovering key factors influencing the readiness of S&OP and its contribution to the enhancement of the supply chain sustainability performance. It synthesised the insights of senior leadership participants in supply chain/S&OP and sustainability, uncovering four key factors through thematic analysis: performance metrics management, stakeholders engagement, risk management, and integration.

Senior leadership participants with tenure and diverse experience background highlighted that performance metrics management, underpinned by Key Performance Indicators (KPIs), is essential for evaluating S&OP effectiveness and sustainability initiatives. The monthly tracking of these KPIs is integral for organisational transparency and strategic decision-making.

Stakeholder engagement was stressed as a crucial element, with common values and active listening forming the basis for successful collaboration. According to the senior leadership

participants, the inclusivity of stakeholder perspectives in S&OP processes enriches the dialogue around sustainability and ensures initiatives resonate across the business.

Risk management was recognised for its strategic value in navigating uncertainties. The data suggested a proactive approach to risk identification and mitigation, facilitated by comprehensive communication strategies and contingency planning.

Integration within the S&OP process emerged for creating a unified platform, enabling cohesive decision-making and accountability across various business operations, and fostering alignment with sustainability goals.

Finally, enablers of success in S&OP and sustainability were extensively discussed. These enablers include aligning S&OP and sustainability practices with core business values, fostering collaboration, integrating targets into performance management, securing endorsement and ownership, ensuring the right people are in responsible roles, and using effective governance tools. These enablers reflect a holistic view of what constitutes success in managing S&OP and sustainability performance.

In the following chapter the analysis results are discussed considering the relevant literature.

# CHAPTER 8 FINDINGS AND DISCUSSION

## 8.1 Objective

This chapter examines the results of the data analysis presented in Chapter 5, 0 and Chapter 7 in relation to the thematic literature introduced in Chapter 2 and Chapter 3.

The chapter is structured to discuss the core findings arising from the participants' experiences explored in the interviews. Consequently, it answers the three research questions which are informed by the extant literature on the factors influencing effectiveness of management practices in organisations, existing challenging factors impacting supply chain sustainability as well as mitigation management approaches through the implementation of the S&OP process. The research questions are:

**RQ1:** What are the key factors influencing effective management practices in organisations' supply chain and sustainability processes?

**RQ2:** How do current key internal and external challenge factors impact organisations supply chain and sustainability processes performance?

**RQ3:** How could the Sales and Operations Planning process model contribute to mitigating the challenge factors impacting the supply chain sustainability performance?

## 8.2 Research Question 1: Factors Influencing Effective Management Practices in Organisations' Supply Chain and Sustainability Processes

While different terms may be used, the available literature and organisational understanding highlight that Principles, Integrated Decisions, Flow of Information and Stakeholders are the key factors influencing effective management practices in organisations. The findings of this thesis support the validity of these factors.

### 8.2.1 Principles

The success of supply chain and sustainability management practices is fundamentally linked to a rigorous evaluation and a deep understanding of the current state of a business, forming the foundation for a strategic plan. This strategy supports both short-term and long-term objectives. It requires a detailed examination of the organisation's structure, including supply

chain structure, operational processes, and sustainability practices. This thesis defines that a business's sustainable supply chain management practices have a positive impact on their environmental performance, emphasising the necessity of a methodology for businesses to systematically evaluate their supply chain practices and strategic planning, thereby enhancing their environmental outcomes. This finding builds on the study from Mugoni et al. (2024) who advocate for a systematic approach and a thorough operational assessment to inform strategic planning.

This thesis presents an innovative contribution to literature by proposing the integration of business management foundations with process governance. This novel approach, not previously considered, emerges from the findings of the research undertaken as being pivotal for enhancing organisational management performance. It requires recognising existing gaps and resource needs for achieving the intended future goals. Contrary to traditional methods that handle these attributes in isolation, this thesis suggests a merged approach. Such integration cultivates an all-encompassing, adaptable framework that embraces the fluidity of the business setting, providing a more responsive strategy for addressing challenges and capitalising on opportunities, which is supported by Rodrigues da Silva et al. (2022).

Recent research identified two separate approaches to achieve successful management practice. Hundertmark (2021) exclusively focuses on driving awareness towards specific attributes including commitment, adherence to standards, and supplier engagement. Conversely Schlichter (2020) emphasises risk management, collaboration and transparency, as well as appropriate organisational structures as crucial factors for managing supply chain and sustainability practices effectively.

However, the interconnection of these attributes is vital for promoting continuous improvement and strategic coherence, advocating for management practices that are collaborative and leverage mutual strengths to bolster organisational agility and innovation. This finding is significant as it challenges conventional theories and highlights the importance of a combined attribute approach for a more responsive and effective supply chain and sustainability management strategy.

#### ***8.2.1.1 Building Baselines for Effective Management Using Business Management Foundations***

This thesis revealed that identifying weaknesses in business processes is a critical first step towards securing the future performance of the organisation. Forty per cent of the experienced senior supply chain leaders located in the Asia-Pacific region, with a predominance in Head/Director roles, discussed that it is imperative to establish a robust strategic foundation through establishing clear ownership, sponsorship, and communication channels to support the implementation and continued success of management practices. This finding revealed by detailed insights provided by these senior leaders from the Asia-Pacific—a region characterised by its dynamic business environment and swift adoption of innovative practices (Chin et al., 2021)—converge on the systems theory principle which advocates for a comprehensive understanding of the interconnections and mutual dependencies among various components and their collective influence on the total performance of an organisation (Wilden et al., 2022).

Moreover, another central finding collectively discussed by these Head/Directors supply chain/S&OP senior leaders is that in order to be successful, practices must be seen as highly impactful and relevant for the business functions. Hence, assessment, planning and communication of current and future state, alongside stakeholders, are important attributes to be considered throughout the development of the business strategies as a first starting point.

Furthermore, the diverse experiences and regions represented by the senior leadership participants of supply chain/S&OP considered that effective management practice emerges from the integration of people, process, and data and system. Such integration, as experienced by them, is underpinned by solid executive sponsorship and the establishment of cross-functional stakeholder collaboration, anchored by clear process ownership, structured forums to manage the decision-making process, and tools which accurately and efficiently facilitate the flow of information. In addition, informed by the sustainability senior leadership participants with considerable tenure and educational background, it is evident that motivation and alignment of key leaders are critical. Leaders must be stimulated to not only endorse but actively participate in the execution of sustainability strategies, ensuring that these strategies are intertwined with the organisation's core processes and systems. They must be strategically placed in roles where their expertise aligns with organisational needs; this is essential for fostering a culture of accountability and ownership that permeates the entire business structure (Piwowar-Sulej & Iqbal, 2023). Such a framework paves the way for transparent and informed decision-making, promoting a consistent and comprehensive approach to sustainability that is integrated into all facets of business operation (Liao, 2022).

The literature that commonly describes and supports the need of these resources is discussed in the resource-based view (RBV) theory, which focuses on key resources required to create sustainable competitive advantage in terms of integrating environmental management practices with operational, social, and financial performance (Arda et al., 2023). However, RBV theory lacks the ability to identify complexities and differences between resources, how to share information and integrate data across functions through a collaborative approach (Vitorino Filho & Moori, 2020). This thesis addresses RBV theory's gap, proposing detailed mapping of resources to understand their complexities and differences, as well as establishing clear ownership and communication channels across the end-to-end business processes.

Informed particularly by the senior leadership participants located in the Asia-Pacific region, this thesis additionally revealed the criticality of setting SMART goals—Specific, Measurable, Achievable, Relevant, Time-bound—that resonate with organisation's values and strategic direction. These goals sharpen the focus on business priorities particularly within the sustainability spectrum, which seeks a management approach that ensures that sustainability efforts are integrated and targeted effectively (Sensor et al., 2021). Although not explicitly grounded in management theory, the SMART framework is a widely-recognised tool in supply chain management for delineating clear objectives (Zekhnini et al., 2021). However, constant monitoring and recalibration of these goals are essential to adapt to evolving conditions and sustain improvement (Villena & Gioia, 2020).

These findings expand existing literature by asserting the essential role of a strategic baseline in management practices, rooted in a clear identification of business process weaknesses and the establishment of SMART goals. This approach not only aligns with systems theory but additionally transcends it, advocating for an integrated, resource-based framework that captures the complex interplay of people, processes, and data, introducing a dynamic, collaborative method for information sharing and integration across functions.

#### ***8.2.1.2 The Nuances of Process Governance for Effective Management***

This thesis identifies that robust process governance is vital for effective management within organisations. The importance of robust process governance is accentuated by the diverse experiences and perspectives of the senior leadership participants, particularly those from the Asia-Pacific region who accounted for a notable number of insights on this topic. Furthermore, a study from Hartmann (2022) suggests that this involves not just creating but additionally maintaining and reviewing processes to ensure they align with an organisation's aims and best

practices. This ensures that operations are conducted efficiently and are consistent with overarching strategic goals.

Processes, while fundamental to organisational operations, often fail to support the entire business network (Zekhnini et al., 2021). This gap is due to inconsistent execution and poor communication, posing risks to business efficacy (Ibarra & Hunter, 2007). Such risks arise from overlooking business management foundations when determining nuances to support the execution of business strategies (Ling et al., 2015). This finding is relevant and expands Section 8.2.1.1.

From a sustainability point of view, senior leadership participants who have more than 11 years of experience in the field, revealed that process governance must be adaptable due to the industry's rapid changes imposed by the global sustainability agenda. The literature suggests that while strategic models are key for integrating processes across the business (Ahi & Searcy, 2013; Popescu & Mandru, 2022), there is a gap in measuring and controlling these processes, which can result in inconsistent decision-making due to poor data quality (Salah & Rahim, 2019). This underscores process governance's significant role in shaping effective management practices.

The effectiveness of process governance is significantly determined by the complexity of the business, the alignment of growth with the current organisational structure and strategy, and the capability to manage risks and opportunities. Recognising the complexities and resource distinctions within the supply chain (G. F. Davis & T. DeWitt, 2021), and tailoring strategies, accordingly, plays a crucial role in enhancing management outcomes (O'Connor, 2012). Moreover, ensuring data accuracy and transparency is fundamental to effective management practices, influencing the organisation's capacity for making well-informed decisions, of which includes the need for precise and transparent data on business metrics, KPIs, trends, and forecasting (Roje, 2023).

Systems theory (Wilden et al., 2022), balanced scorecard practice (Pejić Bach et al., 2023) and risk management theory (Landi et al., 2022) recognise access to accurate data as a key driver to manage a business supply chain and sustainability processes effectively. However, expanding on these theories, research participants revealed that having access to accurate data on its own does not ensure effective management performance. It is the organisation's maturity in business management and its ability to gather and utilise data collaboratively across departments that truly enables informed decision-making, based on the evaluation of risks and

opportunities that affect the attainment of business objectives. This approach underlines the importance of a holistic and mature management framework that leverages accurate data in concert with strategic analysis and cross-functional teamwork.

This thesis additionally identifies legal obligations as a key factor influencing effective process governance, highlighting the need for adaptability in response to the ever-changing global market requirements. Particularly in the beauty and personal care industry, there is a significant push towards sustainability to safeguard both environmental and human well-being (Fortunati et al., 2020), prompting companies to integrate sustainable practices within their governance structures to uphold brand integrity and legal compliance (Rocca et al., 2022). This finding is consistent with Circular Economy principles, which challenge organisations to adjust their governance strategies to effectively navigate the dynamic regulatory landscape (Farooque et al., 2019).

Therefore, these comprehensive findings emphasise that effective process governance is intricately tied to organisational success. This connection relies on creating controls and standards while considering factors such as business complexity, adaptability to growth, risk management, data accuracy and transparency, and legal obligations in a dynamically changing global market. This emphasises the nuanced interplay between process governance, business management foundations and sustainable business practices (Joshi et al., 2022).

## **8.2.2 Integrated Decisions**

Integrated decisions play an important role in regard to influencing effective management practices. Robust practices integrate people and processes across the business operations through a solid decision-making process.

### ***8.2.2.1 Strategic Collaboration with a Focus on Integrating Sustainability and Customer-centric Views***

Collaboration in the supply chain context is enabled through an integrated decision process approach. Integrating environmental sustainability as a shared goal is crucial for fostering collaboration in the supply chain, as it aligns objectives and encourages a commitment to collaborate, and inclusive decision-making. Wang et al. (2023) confirm this finding advocating for Green Supply Chain collaboration as a proactive method to enhance environmental performance and achieve sustainable development.

The value of cross-functional teams and the integration of processes, systems, and tools within a customer-centric framework, fundamentally streamline decision-making and achieve collective goals, as collectively revealed in this thesis by most senior leadership participants in supply chain/S&OP and sustainability. This customer-centric strategy is viewed to align team efforts with customer needs and expectations, representing a strategic approach to creating a unified roadmap for action linked to clear objectives (Tuominen et al., 2023).

Moreover, management support, joint project involvement, establishing a common language, and focused training are identified by the Head/Director supply chain/S&OP senior participants in this thesis as the main pillars to foster successful cross-functional collaboration. However, stakeholder theory indicates a gap in the collaborative framework, where roles and responsibilities when not be well-defined, potentially diminishes the impact of these collaborative efforts on decision-making processes (Siems et al., 2023). Similarly discussed by Head/Director sustainability senior leadership participants, this emphasises the need for organisations to address and clarify stakeholder roles to maximise the impact of collaborative endeavours.

While acknowledging the crucial role of collaboration, this thesis presents a novel perspective bringing the focus on customer-centricity and operational coherence. By integrating sustainability into cross-functional collaboration and advocating for a strategic, unified planning process that aligns with customer needs, organisations can unlock new avenues for value creation and elevate their performance. This broader understanding deepens awareness of the complex dynamics necessary for effective collaboration, which is pivotal in influencing management practices within the realms of supply chain and sustainability.

#### ***8.2.2.2 Integrating the Decision-making Processes with Business Principles and Values***

Decision-making process towards influencing effective management practices refers to the ability of a business to effectively make informed decisions through identifying risk and opportunities events, collect background information associated with it, and assess alternative solutions to realise such events into the business plans. Simchi-Levi and Timmermans (2021) emphasises the complexity of decision-making, necessitating consideration of multiple factors for optimal supply chain performance.

Expanding on the above, informed by supply chain/S&OP senior participants with a Masters degree, this thesis revealed that effective integration leads to better informed decisions and

alignment of metrics. Considering the same context, sustainability participants with a Doctoral degree considered that transparency in process and data, along with consistent decision-maker sign-off, are facilitated by robust business principles. The assessment of the current business state as a baseline for building foundations to integrate sustainable practices into business practices, discussed in Section 8.2.1.1, further enriches planning by addressing challenges and capitalising on opportunities in the dynamic business landscape (Q. Wang et al., 2022).

Recent research has highlighted the complexities involved in integrating sustainability within logistics systems, emphasising the necessity for strategic alignment across diverse business operations (Mohsin et al., 2022). This research promotes a model in which sustainability is integral to the supply chain, not merely an add-on, facilitating seamless integration that bolsters both environmental stewardship and operational efficacy (Sánchez-García et al., 2023).

Thus, integrating sustainability values and policies into decision-making underpins effective supply chain sustainability practices. It involves developing material assessments and targets for incorporation into the strategic plans, enabling the business executive board to endorse strategies based on the assessment results for better overarching decisions (Gupta & Soni, 2021).

Although existing research acknowledges the influence of organisational values and policies on effective management practices (Sumanasiri, 2020), empirical evidence on integrating these into decision-making processes is limited beyond general principles on corporate sustainability such as implementing a Code of Conduct (de Oliveira et al., 2023). Thus, this finding expands current literature and holds significant implications.

### **8.2.3 Flow of Information**

This thesis has identified that effective flow of information is crucial in developing and managing strategic business plans. The success of this process depends on the accuracy and integrity of the data employed in the decision-making process, as well as the maturity and intricacy of the business processes. The primary purpose is to influence the appropriate stakeholders through activities such as data gathering and analysis, scenario-planning, and the decision-making process itself. This influence yields a cohesive decision-making environment, in which key inputs are collaboratively discussed, evaluated, and approved, and subsequent outputs are coherently integrated and communicated, thus contributing to a consolidated business strategy.

### ***8.2.3.1 Integrated Teams and Cross-Functional Champions for Optimal Information Flow***

The right team composition, either for supply chain/S&OP or sustainability, is critical to effectively manage the flow of information across organisations. The diverse experiences of senior leadership participants predominantly in Head/Director roles considered that the diversity in organisational goals, communication requirements, culture, and other unique needs, necessitates a flexible approach to team structuring for information flow and decision-making. Kozlowski and Ilgen (2006) support this finding suggesting that the optimal team structure is contingent upon these organisational characteristics.

This thesis advocates for an integrated team structure. This model is characterised by a balanced process in which teams report to clear lines of leadership, and each agenda item during meetings is allocated an owner. Such a framework ensures that stakeholders are not only accountable but also fully prepared for the discussions at hand. They are empowered to contribute to the decision-making process and encouraged to escalate issues as needed, thereby enhancing the effectiveness of management practices within the organisation's supply chain and sustainability processes.

Regardless of the managerial methods employed and the geographic location which the organisation is in, implementing an integrated team structure by engaging multiple business functions in a unified decision-making process, was found to ensure cross-functional information sharing. This fosters the exchange and discussion of shared risks and opportunities throughout the network, which is supported by Zhong et al. (2023).

The importance of roles and functions defined on a business organisational chart was additionally identified by participants. Organisations rely on this chart to manage the functional flow of information. When a function is absent, it retards the flow of information (Santa et al., 2010). From a sustainability management practices perspective, nominated cross-functional champions play a crucial role in influencing effective process performance (Taylor et al., 2011). Specifically, these champions are appointed to lead decisions in situations where a sustainability function is not present in the organisational structure, which is inherently experienced by senior leadership participants located in diverse geographic regions, such as North America and the Asia-Pacific.

The literature reviewed in Section 3.2.3.1 addresses the internal challenges organisations face with maintaining high-quality and transparent information sharing, which is pivotal in

managing the flow of information effectively (Dussart et al., 2021). Overcoming these challenges necessitates the deployment of collaborative strategies and actions that unify stakeholders throughout the organisation (George & Pillai, 2019). Hence, integrating teams and designating champions are crucial for facilitating optimal information flow. Such an approach not only reinforces transparent information exchange but additionally unifies disparate organisational functions (Albu & Flyverbom, 2019). Furthermore, this approach cultivates a shared sense of responsibility towards information dissemination, simplifying the intricacies of both internal and external communication channels and fostering a unified, effective decision-making framework.

The implementation of an integrated team structure resonates significantly with the resource-based view (RBV) theory by leveraging unique organisational resources—particularly human capital and collaborative know-how—to gain a competitive advantage (G. Davis & T. DeWitt, 2021). It underscores the RBV assertion that strategic resources are not uniformly distributed across firms and that the assortment of these resources, when effectively integrated, drives sustained organisational performance (Gerhart & Feng, 2021). Simultaneously, the role of cross-functional champions in fostering information flow and decision-making aligns with stakeholder theory, advocating that an organisation's success is dependent on the management of its relationships with all stakeholders, ensuring that strategies are inclusive and considerate of diverse interests and inputs (Kujala et al., 2022).

#### ***8.2.3.2 Structured Meetings for Enhancing Effective Decision-Making in Information Management***

The research identified that structured meetings are pivotal in managing effective information flow. Head/Director senior leadership participants with diverse tenure, experience and educational background, considered that these meetings serve as platforms for cross-functional decision-making based on shared data. This thesis identified that irrespective of geographical location, organisations utilise three types of meetings—ad-hoc, drumbeat, and structured—with the selection dependent on the maturity of business processes.

Business process maturity correlates with data and process transparency, facilitating informed decision-making and ensuring access to vital information. Thomas et al. (2019) suggest that such transparency fosters consistent cross-functional communication and a comprehensive understanding of risks and opportunities, thereby influencing business performance.

Ungureanu et al. (2021) emphasises that forums promoting cross-functional collaboration can significantly enhance teamwork and communication among diverse team members, driving innovation and adaptability across the organisation. Additionally, process maturity is indicative of an organisation's ability to manage scenarios and make decisions effectively (Woschank, 2017).

Consequently, as suggested in Figure 8.1 Low-Level vs High-Level Process Maturity, a mature business process is instrumental in addressing challenges and capitalising opportunities, with agility being fundamental for sustained success and growth (Eby, 2022).

Low-Level	High-Level
<ul style="list-style-type: none"> <li>Teams create processes on an ad hoc basis.</li> </ul>	<ul style="list-style-type: none"> <li>Processes are mapped, approved, and documented.</li> </ul>
<ul style="list-style-type: none"> <li>Teams create processes on an ad hoc basis.</li> </ul>	<ul style="list-style-type: none"> <li>Teams consistently follow documented procedures.</li> </ul>
<ul style="list-style-type: none"> <li>Processes include time-consuming steps that could be automated but aren't.</li> </ul>	<ul style="list-style-type: none"> <li>All process steps that can be automated are automated.</li> </ul>
<ul style="list-style-type: none"> <li>Processes are rigid and unchanging.</li> </ul>	<ul style="list-style-type: none"> <li>Processes are innovative, and teams update them regularly.</li> </ul>
<ul style="list-style-type: none"> <li>Employees are reactive and prone to firefighting and heroics; they are slow to respond to market changes.</li> </ul>	<ul style="list-style-type: none"> <li>Employees are proactive; they anticipate problems and market changes and use them to their advantage.</li> </ul>
<ul style="list-style-type: none"> <li>Teams sacrifice quality in order to meet quotas.</li> </ul>	<ul style="list-style-type: none"> <li>Management officially supports processes.</li> </ul>

**Figure 8.1 Low-Level vs High-Level Process Maturity** (Eby, 2022)

While various meeting types are recognised, the valuable inputs from Head/Director senior leadership participants indicated that structured meetings have been identified as the most conducive to making well-informed decisions. This approach facilitates a unified business plan, ensuring that decisions are deliberated on and approved by the appropriate experts, thereby improving overall organisational performance metrics and goals (van de Ven et al., 2023).

Building on the selection of the appropriate meeting type, Kreuter et al. (2021) identified that it is crucial to develop the meeting agenda with key inputs that drive effective decision-making and influence both the short and long-term performance of the business plans. Furthermore, this thesis revealed KPIs performance reviews, such as sales achievement and forecast accuracy, as well as risks and opportunities metrics as integral to these decision-making forums. These elements are pivotal in achieving the objectives laid out in the business plans (Ramon-Jeronimo et al., 2019).

While commonalities exist in the inputs for supply chain and sustainability forums, this thesis reveals a distinct approach within supply chain management in diverse geographical regions. Informed by senior leadership participants in the Asia-Pacific, a top-down method is typically employed to establish strategic long-term goals, with a bottom-up approach, supporting actionable short-to-medium-term measures to realise the strategic vision. This aligns with literature that advocates for such a dual approach as instrumental in shaping a robust supply chain strategy that balances strategic vision with operational requirements (Ramaswami, 2021).

In contrast, sustainability senior leadership participants in Latin-America, consider sustainability predominantly embraces a top-down approach, concentrating on mitigating unprecedented factors affecting plan performance. The discussions tend to focus on business cases and priority initiatives to bridge the current-to-future state gap to achieve sustainability targets. Yet, the management of short-medium-term drivers impacting on the plans is often reactive, undertaken as unique situations arise from cross-functional activities.

As in line with readiness literature, this thesis outlines that a top-down methodology in sustainability management encompasses rapid implementation of targets and policies into the business strategy (Gotsch et al., 2023), whilst a bottom-up approach drives individual behaviours conducive to policy adoption (Cairns, 2003). Additionally, Hundertmark (2021) indicates that a modular organisational design is pivotal in addressing specific sustainability issues, allowing for the integration of expertise from relevant business units.

Therefore, this thesis contributes new insights to the literature by revealing a gap in the adoption of bottom-up strategies for the management of short to medium-term sustainability targets in supply chain contexts. It additionally gives emphasis to the need for a Structured Meeting framework in the decision-making process, which is key to embedding sustainability considerations into the supply chain strategy. This approach significantly enriches the narrative on effective information management.

### ***8.2.3.3 Robust Conversations Underpin the Value of Tools for Governance***

Building on the concept of structured meetings, this thesis identifies that systematic structures are the foundation for collaborative and integrative management practices. Systems and tools are vital for the governance of information flows, reinforcing the indispensable principles and integrated decisions attributes for effective management, experienced by senior leadership participants. As extensively discussed in Sections 8.2.1 and 8.2.2 of this thesis, robust conversations established on business management foundations, are pivotal for inaugurating baselines that guide process governance (Hartmann, 2022), enhancing the strategic integration of sustainability with a customer-centric focus. These conversations are integral to aligning decision-making with business values, reinforcing the significance of tools to simplify effective information governance (Siltaloppi et al., 2021).

Automated tools provide decision-makers with precise and consistent data, expediting the decision-making process. In this context, Vickery et al. (2022b) outline the importance of evidence-based decision-making and emphasises the need for robust frameworks to guide rapid reviews and manage risks especially during crises such as global disruptions. Alahmadi and Jamjoom (2022) also stress the value of processes that allow for the assimilation of data into actionable insights, essential for informed decisions.

However, sustainability senior leadership participants based in the Asia-Pacific stated that beyond systems and technological simplification, the efficacy of information management hinges on the strength of robust conversation. Ensuring seamless data integration requires cross-functional transparency and team alignment (Gil-Doménech et al., 2021).

By emphasising the role of communication, this thesis extends the narrative on information governance, establishing a link between the practicality of structured meetings and the broader context of effective information governance through advanced management tools.

### **8.2.4 The Power of Collaborative Stakeholder Commitment**

The essence of collaborative stakeholder commitment, as uncovered by the diverse senior leadership participants in this research, is the shared responsibility driving effective management practices. Stakeholder theory suggests that diverse groups influence an organisation's actions and outcomes, with a collaborative approach yielding a holistic understanding of the drivers behind business plans (Menke et al., 2021). This thesis expands on literature by emphasising not just the stakeholders' roles in decision-making but the critical

nature of their shared commitment, which strengthens cross-functional connections and reinforces robust information management strategies.

Stakeholders collaboration and integration is still perceived as rather disconnected (Siems et al., 2023), challenging the importance of engaging stakeholders through different frameworks and models (Kujala et al., 2022). Section 8.2.3.1 of this thesis discusses the concept that effective engagement of pertinent stakeholders is achieved when those who possess ownership and exert influence over the drivers of business plans are actively involved.

Incorporating key stakeholders from various business functions into a cohesive decision-making framework is imperative for effective flow of information management. However, expanding on this finding, reliable business plans occur when data is provided by those who own and impact the respective processes, affirming that shared commitment reinforces genuine collaboration and integration beyond functional boundaries (Barker Scott & Manning, 2022a).

### **8.3 Research Question 2: How Do Current Key Challenging Factors Impact Organisations Supply Chain and Sustainability Performance?**

As discussed in the literature review Section 3.2.3, organisations have become more and more exposed to external and internal challenging factors due to globalisation. Such factors are critical strategic drivers and can constrain the ability of the business to achieve higher performance.

This thesis reveals that supply chain and sustainability functions face similar challenges arising from both the internal and external environment, and the impacts of such challenging factors are experienced by both functions.

The subsequent sections examine the commonalities and consequential impacts of these challenging factors across both functions, which support the approach to addressing research question 2.

#### **8.3.1 Internal Challenging Factors**

Key internal challenging factors are associated with elements that interfere in the integrated decisions and flow of information processes, hence impacting on the ability to make effective, informed decisions.

##### ***8.3.1.1 The Crucial Link Between Collaboration and Communication***

The connection between collaboration and communication emerges as a pivotal internal challenge impacting strategic performance success, as revealed by the Head/Director senior leadership participants. Deficiencies in these areas compromise the foresight needed for risk anticipation and strategic adaptability, as noted by the senior leadership participants in EMEA. Furthermore, senior leadership participants in Asia-Pacific revealed that this synergy is not just beneficial but critical for navigating the complexities of supply chain sustainability processes.

Ineffective communication of challenging factors impacting business performance leads to a diminished capacity for prompt and preventive action, ultimately affecting customer satisfaction due to overlooked supply limitations. Patel (2020) supports this finding arguing that transparent and efficient communication is essential to pre-emptively identify and address issues within the supply chain. Moreover, supply chain senior leadership research participants with over 20 years of experience revealed that regardless of how a detailed business plan is developed, it needs to be cross-functionally integrated with all hierarchy levels. This will ensure to the plan achieves high performance, suggesting that reluctance among specific stakeholders to engage in initiatives requires broader and more proactive involvement.

Gyarmathy (2018) underpins this finding suggesting that seamless collaboration and communication are indispensable for information sharing within supply chain and sustainability management. Furthermore, collaboration and communication significantly influence data collection and customer ordering processes, with any disruption leading to ineffective business performance. According to Blanchard (2021), the complexity of contemporary supply chains, with their numerous stakeholders, amplifies these challenges, underscoring the imperative for cohesive actions across diverse functions.

Just as integrated teams and cross-functional champions ensure optimal information flow, as identified in Section 8.2.3.1, effective collaboration and communication are indispensable for proactively addressing risks and ensuring strategic adaptability (Griffiths et al., 2020). Thus, without open, cross-functional communication, even the most comprehensive business plans cannot reach their full potential, echoing the importance of robust conversations on tools for governance (Gil-Doménech et al., 2021), as discussed in 8.2.3.3.

These findings contribute to existing literature, emphasising the essential link between collaboration and communication in mitigating challenging factors impacting strategic performance management.

### ***8.3.1.2 The Roadmap to Effectively Overcome Challenges Imposed by Rapid Business Growth***

This thesis delineates a strategic roadmap for overcoming challenges that impede supply chain sustainability during rapid business growth. As businesses expand, operational complexity multiplies, frequently disrupting networks due to increased data pressure. Such complexity requires robust systems and seamless integration to underpin business initiatives effectively (Mikalef et al., 2019). Senior leadership participants in Head/Director positions in Asia-Pacific revealed that acceleration of business growth further complicates the capture of data insights across various functions and stakeholders, presenting intricate challenges to the efficacy of supply chain and S&OP processes performance.

Concurrently observed in the Latin-America region, rapid business expansion requires continuous improvement of management practices to ensure sustainable business growth and, by extension, effective supply chain sustainability performance. This demands a dual investment in the evolution of management practices and in agile tools for their integration, thereby strengthening business strategies (Feizabadi, 2022).

In the current volatile business landscape, business process management struggles with rapid adaptation and consistent value delivery. This finding is observed in both diverse economy landscapes—Latin-America and EMEA. Traditional process management frameworks often lack the agility required for dynamic markets (Walter, 2021), emphasising the need for an expansive evaluation of organisational management to navigate modern business complexities (Badakhshan et al., 2020).

In today's rapidly evolving business landscape, business process management encounters significant challenges in adapting promptly and consistently delivering value to customers. These challenges emphasise the limitations of traditional process management approaches, which frequently lack the required flexibility to adapt to changing environments (Beerepoot et al., 2023). This suggests a need for a more comprehensive exploration of the organisational management components to address the ever-increasing dynamics of modern business environments (Badakhshan et al., 2020).

Moreover, this thesis revealed that by integrating business process management capabilities, organisations can ensure that process management remains agile and adaptable, capable of rapidly and inherently accommodating change. The ability to learn from change is critical to

maintaining consistent outcomes and enhancing overall performance, which in turn, maximises customer value in terms of cost, quality, and simplicity. Achieving this requires a continuous cycle of gathering requirements and taking action at every stage of business processes (Kerpedzhiev et al., 2021).

Considering the above, while rapid business growth leads to organisational success, it demands nuanced comprehension to mitigate adverse impacts on supply chain sustainability. Organisations experiencing rapid expansion need to evolve beyond traditional management approaches, adapting to the complexities arising from changing business landscapes, this finding is significant for future success.

### ***8.3.1.3 Clarity on Roles and Responsibilities as a Pathway to Break Down Siloed Functions***

Building on the strategies required to navigate complexities identified in the previous Section 8.3.1.2, this thesis highlights the importance of defining roles and responsibilities to break down siloed functions within organisations. This finding was predominantly revealed by the female senior leadership participants, which speaks to the growing body of literature suggesting that female leaders often bring unique perspectives to organisational integration and collaboration. Women in leadership positions have been shown to foster inclusive work environments and encourage participatory decision-making, which can be essential in breaking down siloes and driving cross-functional collaboration (Kulkarni & Mishra, 2021).

Siloed business structures severely compromise visibility, decision-making, and employee workload management. Cross-functional teams often remain unaware of activities in distinct areas of the organisation, which obstructs comprehensive understanding and cooperation, thereby fostering inconsistent and fragmented decision-making, undermining costing projections, process efficiency and business trustworthiness, in turn, resulting in poor performance (Clark et al., 2002), which is a challenging factor accentuated in Section 8.3.1.1.

Furthermore, ambiguity in roles and responsibilities poses significant obstacles in assigning ownership of processes and tasks (de Waal et al., 2019), ending in inefficiencies and redundant efforts (Peterson et al., 1995). To overcome these issues, Head/Director senior leadership participants suggested that clear delineation of who is responsible, accountable, informed, and consulted within the decision-making framework can drive cross-functional integration and establish a more collaborative work attitude.

The literature suggests that siloed structures not only impede operational transparency (Casciaro et al., 2019) but additionally cultivate a culture of internal competition as opposed to cooperation (Barker Scott & Manning, 2022a). Such competition can result in misalignment with the organisation's overall objectives, fostering a silo mentality that favours departmental priorities over the collective success which can lead to reduced innovation and operational disruptions (Lantto & Makslahti, 2023). Moreover, enhancing role clarity is shown to promote a collaborative workplace and shared objectives, prompting cross-functional teams to unite towards a shared mission (Vantrappen & Wirtz, 2021).

This thesis extends on literature, which suggests that value creation is maximised when organisations consider the interests of all stakeholders. By defining roles and responsibilities clearly, organisations can mitigate the silo effect, which typically leads to suboptimal outcomes due to misaligned objectives and reduced cooperation (de Waal et al., 2019).

#### ***8.3.1.4 Advanced Tools and Their Limits in Information Agility and Decision Accuracy***

The findings of this thesis have identified that advanced tools enhance the swiftness of information flow but do not inherently guarantee effective collaboration or the accuracy of decisions. Senior leadership participants, irrespective of geographic location, have indicated that even in organisations equipped with sophisticated systems, dependence on manual processes can impede agility in decision-making. In practice, for organisations to leverage the full potential of their advanced systems, a cultural shift towards integrating these tools into the decision-making process is required.

Within the scope of supply chain sustainability management, the value of advanced tools is contingent on additional factors such as organisational culture (Morrison-Smith & Ruiz, 2020) and communication protocols (Harman, 2008). Moreover, the accuracy of decision-making extends beyond technological solutions, being significantly shaped by the quality of the information, established decision-making procedures, and the active engagement of key stakeholders (Lopes et al., 2015). Stakeholder involvement is crucial as it offers varied perspectives and augments the depth of the decision-making process (Feng et al., 2022), which connects back to the importance of strong conversation concerning the value of tools for governance, as discussed in Section 8.2.3.3.

Ultimately, these findings expand literature underscoring the imperative for an integrated framework that synergises technological, organisational, and human facets to strengthen

collaboration and ensure the precision of decision outcomes (Shan et al., 2020). This integrative strategy is pivotal in enhancing the supply chain and sustainability performance of businesses. Furthermore, this holistic perspective is not merely an operational recommendation but a strategic element that aligns with the overarching goals of enhancing organisational efficiency and stakeholder value in the context of supply chain sustainability.

#### ***8.3.1.5 Unravelling Complexities Among Challenging Factors in Successful Business Network Dynamics***

Building upon the findings from previous sections, this thesis builds on the inputs shared by mostly Head/Director senior leadership participants with diverse experience, geographic location and educational background, that managing business performance is not a linear task but a multifaceted interaction of various elements that define an organisation's trajectory. The interaction among internal challenging factors such as Range Management, Volatile Demand, Cash Flow and Inventory Management, Manufacturing Constraints (Jones Sr, 2021), Marketing Strategy, and overarching Goals and Directions is complex and extremely influential (Durugbo & Al-Balushi, 2022).

These factors are interconnected, especially those that extend across diverse regions such as Latin America and its partnership with other global areas, creating a dynamic environment where changes in one aspect reverberate across the organisation, as revealed by senior leadership participants in Latin-America, the Asia-Pacific and EMEA. For instance, in Latin-America efficient management of the range of goods aligns product variety with market demands, directly impacting inventory levels and demand forecast variability. Volatile demand in Latin-America and EMEA, in turn, affects cash flow and inventory management, requiring adaptive strategies on both supply chain and sustainability performance management, which aligns with research from Pap et al. (2022). Manufacturing constraints in Latin-America, however, are inseparably linked to these fluctuations, affecting an organisation's capacity to meet market needs, which as supported by research from Engidaw (2021). Finally, marketing strategies in Latin-America and the Asia-Pacific critically influence demand forecasting and product range decisions, with significant repercussions for inventory control and financial management, thereby impacting sustainability considerations. Ultimately, the organisation's strategic objectives provide the framework that steers these diverse elements towards a unified goal (Wilson, 2021).

This thesis contributes to existing literature outlining that managing business performance exceeds a simple assortment of internal factors. It requires understanding and navigating the intricate correlations among the internal factors, which are further influenced by the intricate dynamics of geographical location., This understanding aligns with the transaction cost economics theory, which posits that the intricacies of conducting business across borders compound the interdependencies of internal operational elements. Such a nuanced view recognises the significance of contextual and locational synergies in shaping organisational strategies and performance outcomes (Cuypers et al., 2021). Additionally, it highlights that not only the explicit costs but the hidden expenses of coordination, product range management, and volatile demand, which Lean Six Sigma practices strive to minimise (Ali et al., 2020), are crucial for enhancing efficiency and sustainability in organisational performance.

### **8.3.2 External Challenging Factors**

Previously it was identified that key external challenging factors significantly affect business performance by causing uncertainty in various aspects of business supply chain and sustainability operations. Key external challenging factors create further complexities and vulnerabilities, thus influencing the need for adapting its strategies.

#### ***8.3.2.1 Rethinking Management Strategies for Success in the Face of Unprecedented Global Crises***

Global crises require the adoption of more resilient management strategies, underlining the need for a meticulous examination of diverse business areas and metrics, as revealed by Head/Director senior leadership participants. Such examination typically does not arise as a critical concern under normal circumstances. Thus, this shift emphasises the imperative for organisations to develop contingency plans and the ability to promptly respond to unprecedented challenges. For instance, while the Covid-19 pandemic initially appeared to grow profits through increased demand, it concurrently triggered unexpected rises in shipping expenses and delays which threatened profit margins. This risk was exacerbated by the inability of businesses to precisely forecast unforeseen risks and opportunities, thereby highlighting the vulnerability of profit margins in the face of uncertain conditions, as suggested by Arriola et al. (2022).

Moreover, beyond the direct effects on supply chains from unforeseeable events resulting from pandemics and other global crises, speculation poses potential pressure across various sectors

of the macroeconomy. Senior leadership participants in the Asia-Pacific revealed that certain organisations use such global crises to rationalise increased costs and scarcity, potentially causing economic disequilibrium and posing threats to fiscal stability.

In times of massive global disruptions, the importance of effective management becomes even more apparent. The findings from this thesis agree with those of (Permatasari & Mahyuni, 2022) that being able to foresee and quickly address new challenges can limit the damage they might cause. Crises force businesses to focus on immediate, practical actions rather than long-term strategies, changing how they operate to maintain performance (D'Auria & De Smet, 2020). This thesis contributes to this claim, outlining how the business decision-making process needs to be flexible and quick to change when faced with unforeseen global events.

### ***8.3.2.2 Managing Supplier Dependence: Strategies for Enhancing Supply Chain Sustainability Performance***

In addition to adapting management strategies to promptly overcome global crises challenges, the implementation of comprehensive risk management practices is pivotal to mitigate the vulnerabilities associated with supplier dependence, which otherwise can significantly impact on supply chain sustainability performance. This finding was specifically revealed by senior leadership participants in the Asia-Pacific and Latin-America regions, who outlined the intricacy of their supply chain networks and the complexity inherent in their market dynamics.

When organisations depend heavily on external suppliers, operational disruptions can ripple through the supply chain. This fact highlights the critical need for suppliers to be scalable and adaptable, in their attempts to meet any organisation's growth and evolving requirements (Katsaliaki et al., 2022). Furthermore, reliance on a single supply source amplifies these risks; a potential disruption impacts not only the immediate supply chain but resonates across production and finance dimensions, affecting the entirety of business operations (Novoszel & Wakolbinger, 2022).

Literature supports this finding suggesting that supplier dependence introduces complexities and risks affecting transparency (Sharma et al., 2022), material procurement, product conversion, and reputational and strategic concerns within the supply chain (Bryce, 2022). The importance of implementing a diverse supplier base, conducting thorough supplier evaluations, and establishing comprehensive contingency plans strengthen resilience against such uncertainties (Lund et al., 2020). Serpa and Krishnan (2018) further elucidates that efficient

supply chain management not only enhances operational performance but also boosts firm-level productivity through improved resource allocation and risk management strategies. Thus, it suggests that effective risk management practices are a key in successful business performance (Lang, 2023b).

Expanding on existing risk management theory reviewed in Section 3.3.4.7, it is crucial to integrate supplier dependence intricacies into a comprehensive risk strategy to mitigate potential impacts on achieving successful supply chain sustainability performance (Landi et al., 2022). Ensuring supplier diversification, coupled with rigorous evaluation and contingency planning are essential to preserve operational integrity in the face of supply disruptions, thereby underpinning organisational performance success.

### ***8.3.2.3 Addressing Globalisation: Aligning Strategies with Legal Requirements***

Beyond the challenges posed by global turmoil and supplier reliance as discussed in Sections 8.3.2.1 and 8.3.2.2, most of the senior leadership participants located in the Asia-Pacific revealed that globalisation drives organisations in this region to engage in international trade, precipitating a set of regulatory and legislative measures from local governments to maintain fairness and protect public interests. Such circumstances add to operational complexities, demanding ongoing strategic and procedural adaptations to ensure regulatory compliance.

Embracing globalisation demands a proactive approach, compelling organisations to synchronise their strategic initiatives with the evolving landscape of legal mandates, as revealed by this thesis. The imperative for ongoing revisions is not merely about product compliance with existing standards but additionally on competently navigating through the intricacies of global marketplaces (Sharma et al., 2022). In line with Seyffarth and Kuehnel (2022), a Head/Director participant with prominent experience, indicated that organisations often experience delays while adjusting to these requirements, which in turn, impacts business performance.

The initial literature reviewed did not prominently feature compliance and legislation as a key external challenge; however, this aspect was highlighted by experts in sustainability as critical. This insight aligns with ongoing academic and regulatory discussions, enriching this thesis contribution to understanding the legal intricacies associated with globalisation. It underscores the importance of integrating robust compliance measures within supply chain sustainability management practices to ensure not only environmental stewardship but also adherence to

international standards and practices (Schilling-Vacaflor & Gustafsson, 2023). Thus, this finding is significant.

### **8.3.3 Stakeholder Engagement**

Business stakeholders' engagement is the third key challenging factor impacting organisations supply chain and sustainability performance. Essentially, lack of stakeholder engagement impacts on the ability to access essential data and obtain fundamental approvals, thereby achieving business goals.

#### ***8.3.3.1 The Impact of Passive Stakeholder Involvement on Business Performance***

The negative impact of insufficient stakeholder engagement on business effectiveness, extends beyond limitations in gaining insights and upholding responsibilities. Senior leadership participants with extensive experience and in Head/Director roles revealed that such disengagement is marked by poor communication, insufficient involvement in key strategic conversations, and limited input into supply chain and sustainability initiatives. This lack of vigorous participation compromises the comprehensive understanding essential for informed decision-making (Lyulyov et al., 2023) and hinders the ability to navigate through business challenges effectively (Vickery et al., 2022a).

Sedmak (2021) emphasises the need for engaging stakeholders thoroughly, which is crucial for a well-rounded understanding of the business environment, encouraging teamwork, and ensuring that decision-making is in line with the broader company goals. Active engagement with stakeholders needs to be a deliberate process, involving clear identification of key players, transparent communication, and customised engagement strategies that consider the unique needs of each stakeholder. Moreover, revealed by sustainability Head/Director senior leaders, such engagement includes robust plans for risk mitigation, setting achievable targets, and implementing a process for gathering feedback, all of which foster a positive and cooperative relationship between the organisation and its stakeholders, ultimately enhancing performance.

Accountability among stakeholders emerges as a critical challenge resulted from engagement inadequacies. From a sustainability perspective, Góes et al. (2023) accentuate the significant role that employees play in driving corporate sustainability efforts. Concurrently, it is posited that organisations need to achieve consensus on prioritising the environmental concerns raised by influential stakeholders. Senior leadership participants in Asia-Pacific explained that this challenge requires individual stakeholder accountability towards specific targets and highlights

the necessity for support of explicit delineation of roles to fulfil business objectives. This challenge further accentuates the importance of synchronising individual stakeholder efforts with the collective business goals (Arootah, 2023), promoting a sense of ownership and responsibility at every organisational tier, which includes translating business objectives down to all functional levels (Lastiri, 2023).

This finding is significant as it brings together the need to transition from a passive approach to stakeholder engagement towards adopting strategies that invigorate active participation and maintain open communication with stakeholders. It expands on stakeholder theory, which identifies the significance of stakeholder engagement as a dynamic process that requires ongoing and proactive strategies rather than static, one-way interactions (Freeman et al., 2010).

#### ***8.3.3.2 Decentralised Decision-making: Empowering Stakeholders and Enhancing Autonomy***

Engaging stakeholders in the decision-making process as a promoter for enhanced accountability and collective commitment within an organisation emerges as the final challenging factor uncovered. Senior leadership participants with diverse background experience predominately located in the Asia-Pacific region were the major contributors to this understanding. They revealed that when stakeholders are not integral and owners of the decision-making, it impacts transparency, introduces a lack of responsibility, and therefore impacts on effective execution of strategies. Furthermore, participants agreed that granting stakeholders the autonomy for decentralised, cross-functional decision-making promotes business alignment and enhances teamwork. This approach also equips teams with a forward-looking view on organisational outcomes and forthcoming changes.

The significance of this finding lies in its elucidation on the needs for comprehensive approval mechanisms that permeate beyond the upper levels of executive decision-making to encompass process owners within the organisational structure (Radomska & Kozyra, 2020). This holistic approach facilitates swifter, more responsive decision-making dynamics by distributing authority more broadly (Schäfer, 2023). Empowering individuals who are directly involved with business operations enables organisations to leverage the knowledge and agility of their employees (Shukla et al., 2018), thereby shortening the decision-making loop and enhancing organisational flexibility (Taibah & Ho, 2023).

Moreover, this decentralised approval framework not only broadens perspective for strategic discussions but additionally ensures that decisions are in sync with the practical aspects of operations, fostering an organisational environment that is both agile and adjusted to evolving business demands (Torgaloz et al., 2023). This contribution extends to stakeholder theory advocating for a broader conceptualisation of value creation that is inclusive of all stakeholder contributions. This contribution underscores the shift from hierarchical to more consensus decision frameworks, aligning with contemporary calls for agility and inclusivity in organisational strategy and operations (Nnadi & Mutyaba, 2023).

### **8.4 Research Question 3: How Can the Sales and Operations Planning Process Contribute to Mitigating the Challenging Factors Impacting Supply Chain Sustainability Performance?**

This thesis has identified that effective supply chain sustainability performance management relies on key contributors and enablers of success, as will be discussed further in Section 8.4.1. This section answers the third research question of this thesis: *How can the Sales and Operations Planning process contribute to mitigating the challenging factors impacting the supply chain sustainability performance?*

The key contributors and enablers of success, which encompasses the process of gaining insights to improve supply chain sustainability performance through the S&OP process, are discussed in Sections 8.4.2 and 8.4.3. Thereafter, Section 8.4.4 discusses the Relationship Between the Key S&OP Enablers of Success and the Key Criteria to Enable Success in Sustainability Performance Management. Finally, Section 8.5 brings all findings together in a revised conceptual framework.

#### **8.4.1 S&OP Process Towards Contributing to Mitigating Challenging Factors Impacting Supply Chain Sustainability Performance**

The key S&OP contributors uncovered in this thesis, specifically the S&OP principles and fundamentals, which can improve supply chain sustainability performance. It accentuates the critical nature of these identified factors in contributing to the management of supply chain sustainability performance through the S&OP process.

##### ***8.4.1.1 Strategic Impact of S&OP Performance Metrics on Sustainability Performance Outcomes***

S&OP performance metrics are the first pivotal contributor in evaluating the efficiency of both the S&OP process and sustainability performance. Senior leadership participants with extensive experience in Head/Director roles, particularly those with higher degrees, revealed that these metrics can provide insights into current successes and areas for improvement, while tracking the Triple Bottom Line of environmental, social, and economic impacts, essential for sustainability management. Furthermore, participants indicated that through these metrics, organisations set benchmarks, monitor progress, and steer informed strategic decisions for effective management practices.

Historically, supply chains have utilised S&OP processes for managing KPIs, yet process integration often falters without a robust implementation of the S&OP model. A mature planning model bridges tactical and strategic planning, linking short-term actions with long-term strategic aims (Giannetto, 2023).

A strategically informed set of Key Performance Indicators (KPIs), alongside established baselines, is critical for effective sustainability management practices, as revealed by a senior leadership participant with rich experience in sustainability in Latin-America. This strategic approach is invaluable for steering organisational decision-making and evaluating current standings while aligning with long-term objectives (Asih et al., 2020). Establishing such a process underpins the management of each of the Triple Bottom Line (TBL) aspects—environmental, social and economic—sustaining the achievement of business long-term goals even in an ever-evolving global landscape. Risk management theory supports this finding, as detailed in Section 3.3.4.7, highlighting the need for integrating sustainability considerations with the supply chain's long-term economic performance, environmental impact, and social responsibility for a more overarching risk management profile within the realm of the supply chain (L. Wang et al., 2022).

However, accountability is a critical aspect in achieving effective KPI targets. It requires clear ownership intertwined with individual objectives into the broader employee performance management, which is a common aspect revealed by senior participants located in diverse global geographical locations. This ownership fosters accountability and enhances organisational communication and coordination, thereby optimising operational efforts and realising strategic ambitions (Gadekar et al., 2022).

In line with this thesis, the literature emphasises the role of performance metrics as a multipurpose organisational tool. It establishes a fundamental connection between an

organisation's core values and everyday activities (Edwards, 2014), provides a benchmark for assessing performance and continuous improvement (Titu et al., 2023), and enables comparison with historical data to add value (Twin, 2023). Moreover, performance metric management supports the setting of indicators and targets at both organisational and individual levels, driving motivation and positive behaviour through a system of rewards and consequences (Setiawan & Purba, 2020).

Hence this finding endorses the influence of S&OP performance metrics management in contributing to enhanced sustainability performance management, as reflected in the literature, and supported by empirical evidence from this thesis.

#### ***8.4.1.2 Unifying Business Visions: The Power of Stakeholder Engagement***

The second S&OP contributor identified in this thesis is that effective stakeholder engagement in the context of improving supply chain sustainability performance through the S&OP process involves the establishment of shared values and objectives to promote effective collaboration, ensuring a cross-functional consensus on the organisation's direction. Revealed predominantly by female Heads/Directors participants, active engagement, characterised by diligent listening to stakeholder needs, fosters a comprehensive appreciation of diverse insights, creating an inclusive culture receptive to all inputs shared, thereby building trust and commitment towards achieving effective performance.

Enhancing communication and transparency in stakeholder engagement through the S&OP process contributes to improved business performance achieved by establishing a single, open channel for information sharing. Young (2023) supports this finding identifying that this openness not only deepens the collective understating of business operations but additionally promotes stakeholder accountability, creating a robust foundation for ongoing diverse venues for improvement.

Additionally, this thesis supports the value of equipping stakeholders with essential skills and standardising processes as pivotal elements through S&OP. In line with literature, training stakeholders ensures that their collective expertise is effectively applied (Shukla et al., 2018), risks are proactively managed, and innovative solutions are developed from a wide range of ideas (Singh & Rahman, 2022). Emphasising standardisation, experienced sustainability senior leadership participants in the Asia-Pacific revealed that it entails aligning business processes with ethical and regulatory benchmarks. This alignment strengthens the organisation's

reputation, which is foundational for sustaining growth (van der Ven, 2022), fostering customer fidelity, and enabling adaptability in a rapidly evolving business landscape (Villena & Gioia, 2020), thus supporting the long-term success and resilience of the supply chain sustainability performance (Roscoe et al., 2020).

By bringing these findings together, this thesis defines the significant role of S&OP in engaging stakeholders towards achieving effective and robust business performance outcomes. It extends stakeholder theory by specifying tangible actions to influence stakeholder involvement, yielding beneficial outcomes from such management practices (Nonet et al., 2022). Crucially, this thesis emphasises the importance of exceeding traditional collaborative paradigms, advocating for deeper trust and commitment to unify efforts towards sustainability goals.

#### ***8.4.1.3 Risk Management Strategy: Enhancing Awareness and Adaptability in an Ever-changing Sustainability Landscape***

Risk management strategy within the S&OP process is instrumental in empowering organisations to respond to and navigate the complexities in a dynamic sustainability management landscape. According to Dittfeld et al. (2021), such a strategy is predicated on a comprehensive evaluation of potential risks and opportunities, with organisations actively engaging in scenario planning to anticipate future contingencies that can influence business trajectories. This brings together the third S&OP contributor towards improving supply chain sustainability performance.

The comprehensive framework from Aljoghaiman and Sundram (2023) addressing risks in manufacturing and supply chains emphasises the importance of integrating robust risk management strategies within S&OP processes. Their insights reveal that managing these risks goes beyond technical solutions, addressing strategic dimensions that are crucial for the resilience and sustainability of supply chains. By adopting these principles, organisations can strengthen their operational integrity and ensure that their sustainability objectives are safeguarded against a range of potential disruptions.

According to participants in Latin-America and the Asia-Pacific, who recognise the interplay between market dynamics and operational risks, managing risks impacting supply chain sustainability performance requires process transparency, collaboration from both internal and external stakeholders, diversification of the supplier portfolio, and the implementation of a structured risk management framework, which can be additionally reinforced by leveraging

technology and data analytics. Landi et al. (2022) and Yun and Ülkü (2023) support this finding recognising the importance of diversifying and developing a structured risk management framework to mitigate supply chain sustainability vulnerabilities, thereby enhancing responsiveness and precision in risk mitigation efforts (Zhao et al., 2023).

Focusing on timely responsiveness, effective communication, and the integration of risk and opportunity management, this thesis reveals that the S&OP process serves as a channel for achieving informed decisions and meeting business goals in a dynamic environment (Kreuter et al., 2022). It involves not just the performance metrics management and prioritising clear, strategic planning (Giannetto, 2023), as guided through the first contributor discussed in Section 8.4.1.1, but additionally the cultivation of diverse teams that bring a wealth of perspectives and experiences (Young, 2023), as revealed in Section 8.4.1.2. This diversity is key in uncovering and mitigating risks that may otherwise remain hidden from view.

The readiness literature on risk management in S&OP, as reviewed in Section 3.4.4, supports this approach, suggesting that a mature S&OP framework guides organisations in converting the assessment of risks into consensus-driven decisions (Noroozi & Wikner, 2017). These decisions are then disseminated to all relevant parties, ensuring a unified approach to managing the demand-supply equation (Dittfeld et al., 2020).

Thus, these findings contribute to the rich risk management theory, suggesting that effective management of risks in the context of supply chain sustainability entails actively identifying, planning (Han & Um, 2024), and mitigating sustainability-related risks (Syed et al., 2019), through a clear risk management framework supported by process transparency, stakeholders collaboration and diversification of the supplier portfolio.

#### ***8.4.1.4 Strategic Contributions of S&OP: Resource Optimisation and Integrated Planning***

Finally, the fourth S&OP contributor establishes S&OP as a strategic framework pivotal for enhancing supply chain sustainability beyond its traditional roles in demand-supply integration and risk management. As revealed by senior leadership participants in Head/Director roles, by optimising resource allocation and aligning sales, marketing, and operational strategies, S&OP emerges as a key contributor to reducing waste and enhancing overall business performance. These processes contribute to establishing transparency, stability, and alignment within and outside the supply chain, laying a foundation for the broader integration of business functions.

Central to S&OP's contribution to sustainability performance management, revealed by sustainability leadership participants predominantly based in the Asia-Pacific, is the creation of a single source of truth. This ensures that sustainability efforts are underpinned by accurate and transparent data, thus facilitating informed cross-functional decision-making and enabling precise tracking of sustainability initiatives. Such integration, as supported in literature, is crucial for informed decision-making (Croom et al., 2018), enabling organisations to harmonise their strategic objectives with the financial realities of supply chain operations (Gran & Ismail, 2022a).

Reflecting the principles of the Triple Bottom Line reviewed in Section 3.3.4.1, that is managing business performance based on a broader perspective to include people, profit and planet (Miemczyk & Luzzini, 2019), it was found that S&OP's approach to resource allocation and waste reduction addresses both people and planet concerns (Duarte Azevedo et al., 2021a). It focusses on the importance of long-term vision on sustainable resource use and minimising environmental impacts in operational activities. Moreover, as uncovered in the previous three S&OP contributors, S&OP fosters collaborative stakeholder engagement, sharing sustainability goals and efforts towards achieving environmental objectives. Roscoe et al. (2020) suggests that this process involves anticipating and managing risks proactively, ensuring grounded efforts towards long-term sustainable practices outcomes.

Hence, this finding extends the existing S&OP model by delineating a Sustainable S&OP model (SS&OP). It explains how key S&OP contributors' interplay with supply chain sustainability performance management, emphasising the integration of sustainability initiatives with comprehensive business functions, linking planning, execution, and ongoing assessment of interconnected plans. Furthermore, it contributes to the triple bottom-line approach which encounters challenges to address integration of supply chain and sustainability management, taking into account risk management, resilience, technology integration, data-driven decision-making, and collaborative initiatives across the supply chain (Tundys & Wiśniewski, 2023), as discussed in Section 3.3.4.1.

Considering the above, subsequent sections will delve into the relationship between factors and identified S&OP contributors in influencing the improvement of sustainability performance management.

#### **8.4.2 Relationship Between the Key S&OP Contributors and Key Factors Influencing Sustainability Management Practices**

Key factors influencing sustainability management practices across organisations along with the S&OP contributors identified in this thesis, bring significant insights to unify both practices as a way to share and achieve common goals and transform business supply chain sustainability management.

Business S&OPs aim to align sales, marketing, finance, and operations functions' goals with the overall business strategy (Russel, 2023). This includes emphasis on optimising resource allocation and utilisation as well as projecting the most accurate demand forecasting with the purpose of meeting customer needs, whilst minimising waste and using resources efficiently (Duarte Azevedo et al., 2021a). Furthermore, S&OP promotes effective collaboration and communication across departments, which results in best practice risks and opportunities management (Thomé et al., 2012). Finally, one of the core S&OP principles involves business performance metrics management with a purpose of not only identifying any discrepancies between current and future plans, but additionally track trends, creating a holistic view of organisational performance (Grimson & Pyke, 2007).

The key initiatives revealed to thrive in supply chain sustainability management lead industry to integrate processes to oversee stakeholders and enhance material flows (Azevedo et al., 2012). Nevertheless, despite the growing focus on environmentally friendly and sustainable supply chains, the sector still unveils numerous cases of practices that do not conform to sustainability goals (Menke et al., 2021).

However, addressing this imperative involves navigating through the pivotal factors influencing sustainability management practices, as uncovered in Section 8.2. Sustainability senior leadership participants, particularly those located in the Asia-Pacific region,—a region characterised by its dynamic business environment and swift adoption of innovative practices (Chin et al., 2021), —emphasised the importance of embedding sustainability strategy into a regular cycled and cross-functional business decision-making process. This serves as an alternative solution to systematically align core business activities with the sustainable supply chain mandates. This integration ensures that sustainability elements become inherent in the business ways of working and, ultimately, its culture, thereby avoiding misalignment of priorities and sustainability aspirations.

#### ***8.4.2.1 S&OP Contributors to Sustainability Management Principles***

As discussed in Section 8.2.1, effective S&OP and sustainability management practice relies on robust principles that encompass clear evaluation and comprehension of the present condition of the business, and establishment of a strategic plan using the current state as a baseline to support the achievement of both short and long-term goals (Haessler, 2020b). Senior leadership participants with over 11 years of experience in Head/Director roles revealed that successful and steady performance management is nurtured by ongoing assessment and controlling of business strategic plans through strategic performance metrics management. This refers to the importance of understanding the current and future state of the business to determine the smart goals that will align with the components required to bridge the gap between the referred states, as inherently discussed by participants in Senior Manager roles with some years of experience in the field. Callison (2023) supports this finding, discussing that effective managing performance involves continuous assessment and regulation of organisational strategies through strategic performance metrics, emphasising the need to understand the organisational landscape to establish directions aligned with bridging progressive discrepancies on the plans.

Furthermore, in line with the principles of business management foundations discussed in Section 8.2.2.1, sustainability practices need to be perceived as highly impactful and relevant to overall business functions in order to achieve effective endorsement and as a result, positive outcomes (Rahi et al., 2022). This finding is in line with the key S&OP contributor uncovered in Section 8.4.1.2, which discussed the need to create meaningful collaboration on the basis of solid and common values, priorities and open transparent communication in order to foster commitment for achieving effective process performance (Barker Scott & Manning, 2022b).

Given that effective stakeholder engagement is built upon strong business management foundations (Barker Scott & Manning, 2022b), this thesis identified that business processes need to be governed according to the existing business complexity including its growth rate, organisational structure and future directions led by strategic plans. To enable effective process governance, the senior leadership participants, predominantly in the Asia-Pacific, identified data transparency and accuracy as the key influencing factor, which relies on collecting mature and existing inputs across the end-to-end business operations, allowing for an informed decision basis process, as supported by Goel et al. (2023). Such an approach promotes effective anticipation of potential risks and opportunities which may inhibit the performance of the established business plans process (Dittfeld et al., 2021).

Hence, this finding expands in particular on existing risk management theory by applying principles of S&OP contributors to manage risks across organisations. Risk management theory, as discussed in Section 3.3.4.7, focuses on engagement, commitment, and leadership as prerequisites for achieving transparency in the supply chain sustainability functions, with the need for enhanced visibility and robust partnerships to address challenges arising from supply chain intricacies (Brun et al., 2020). However, transparent communication and endorsement of common values need to be brought together as an integral part of business process governance, where organisations can cultivate a commitment to effective process performance, driving a holistic approach to sustainability (Tang & Higgins, 2022), which is discussed more in the following Section.

#### ***8.4.2.2 S&OP Contributors to Sustainability Management Integrated Decisions***

Effective sustainability management is enabled through synergy of people and operational process into a strong integrated decision-making process, as revealed by sustainability senior leadership participants with over 20 years of experience. Such decision-making integrates the nuances of building collaboration across teams with the purpose of creating value in a customer-centric approach. In the sustainability management context, Ketprapakorn and Kantabutra (2022) confirm that robust integration considers team efforts towards achieving one common goal, aligned with sustainability values and policies.

Moreover, sustainability participants with over 11 years' experience reported that effective integration of sustainability values and policies into the decision-making process ensures decisions are made on a basis of data transparency and ongoing performance assessment, in which outcomes are endorsed into the business strategic plan upon awareness and approval of executives. Thus, this meticulous approach concludes in comprehensive alignment of sustainable practices with an overarching business strategy, which is supported by Gupta and Soni (2021).

Linking the relevance of integrated decisions in effective sustainability management with the S&OP contributors, it is evident that strategic contributors go beyond functions coming together to discuss risks and opportunities to achieve sustainable performance. As discussed in Section 8.4.1.4, the key S&OP contributors focus on performing initiatives grounded in accurate and transparent data which is driven by a single source of truth (Pereira et al., 2020).

A single source of truth approach not only provides a centralised and reliable foundation for all relevant data required in the decision-making process, but additionally fosters productivity by eliminating data silos and duplication, thus ensuring consistency across various business functions (Roddewig, 2023). As discussed in Section 8.4.1, this unified approach is fundamental to realise the full potential of performance metrics management, comprehensive risk management and seamless integration of people, process, and information. Achieving effective performance management, and by extension organisational success, fundamentally hinges on the transparency of operations and the clear comprehension by stakeholders of the influence their efforts have on collective business outcomes (Beck et al., 2017).

Despite process integration (Felzmann et al., 2019) and data transparency (Weiss et al., 2023) being extensively discussed in the literature and in the industry, senior leadership participants with diverse and extensive experience reported that lack of integration and transparency is still present in the sustainability process management area, which impacts the stakeholder ability to influence decisions, and as a result, the business ability to improve its performance. According to them, robust integrated decision-making is the process built on the basis of which decision owners have the autonomy to make regular and quick decisions precisely, as well as share them with the wider business for execution.

In the S&OP contributors context, it is evident that S&OP foster multiple plans integration not only based on artificial technologies that enable agile and accurate information (Ohlson et al., 2021), but additionally relying on strong connections of people (Dumitrescu et al., 2022) and process as the source of relevant inputs for discussions, decisions and consequently, execution (Dittfeld et al., 2021).

Hence, this finding is significant and extends existing literature, in particular risk management theory, which suggests the necessity of a revised sustainability management process that ensures integration is cohesively embedded into cross-functional collaboration through a framework that encompasses the use of reliable data whilst heavily invested in people insights management (L. Wang et al., 2022).

#### ***8.4.2.3 S&OP Contributors to Sustainability Management Flow of Information***

In the realm of sustainability management, according to the senior leadership participants with doctoral degrees, this thesis identified that the drivers required for effective flow of information in influencing decision-making encompass factors associated with exploiting market

opportunities, formulating business strategy, adhering to legislative compliance, gaining economic benefits, enhancing operational efficiency, and employee contentment. Inherently revealed by senior leadership participants with Master and Bachelor degrees, these determinants indicate that for an efficient information flow supporting sustainability within end-to-end business process management, decision-making must consider both extensive and specific factors. This approach shapes a robust supply chain strategy (Fonseca et al., 2021), that balances strategic vision with operational requirements (Ramaswami, 2021).

Effective flow of information in S&OP, as discussed in Section 8.2.3, hinges on the accuracy and integrity of data used in decision-making (Pereira et al., 2020). This encompasses a range of factors, including the maturity and complexity of business processes (Woschank, 2017). The level of S&OP maturity indicates the capability of businesses to promptly identify risk and opportunity scenarios that could influence performance metrics, encompassing the nuanced complexities between various functions (Brajer-Marczak & Gębczyńska, 2020). Subsequently, this maturity is an indication of business ability to collect and analyse the most relevant data required to sustain the flow of information. This involves a structured process with a robust agenda and a targeted audience, driving discussions that contribute to effective decision-making and influences the short to long-term performance of business strategies (Ungureanu et al., 2021).

Another relevant finding revealed in Section 8.2.3.2 is that the S&OP process supports the combination of both top-down and bottom-up approaches to develop and execute strategic plans. The former focuses on determining long-term goals that align with such strategic plans, whilst the latter establishes actions focused on execution horizon, both short and medium-term (Ramaswami, 2021). Thus, this finding contributes to strategically manage and achieve the long-term business sustainable goals as well as drive short-term cross-functional initiatives impacting on the ongoing plans strategies (Ungureanu et al., 2021).

Hence, these findings are relevant as they confirm the contribution that S&OP brings to the flow of information to manage sustainability performance. Furthermore, building on the triple bottom-line approach literature, effective information management through the S&OP process can contribute to achieving sustainability goals by facilitating collaborative efforts, reducing resource requirements, and promoting responsible data governance (Miemczyk & Luzzini, 2019).

#### ***8.4.2.4 S&OP Contributors to Sustainability Management Stakeholders***

it is clear from this research that regardless of geographical location, stakeholders are pivotal in underpinning end-to-end effective supply chain sustainability management practices and are integral to the foundational principles of S&OP, playing a critical role in its success.

Stakeholders possess a deep comprehension of distinct business processes, empowering them to influence an organisation's actions and outcomes significantly (DesJardine et al., 2022). As discussed in Section 3.4.3, stakeholders involved in S&OP represent diverse cross-functional teams, leveraging their ability to influence the demand plans, thereby impacting on the overall performance of strategic plans (Roscoe et al., 2020). Furthermore, senior leadership participants in both the Asia-Pacific and Latin-America regions revealed that stakeholders in S&OP act as cross-functional decision-makers and are involved in contributing to effective performance outcomes. Oliva and Watson (2011) suggest that by aligning the contributions with these factors, they can add to specified inputs and outputs stated in the S&OP meeting agenda and Terms of Reference.

In the context of sustainability performance management, senior leadership participants in the Asia-Pacific region revealed that having the power of influencing the functional business plans—from development and execution to monitoring results—is crucial in identifying the stakeholders required to participate in sustainability processes. As uncovered in Section 8.2.4, expansion of stakeholders engagement management is needed (Siems et al., 2023). This is due to the lack of integration and collaboration of key decision-makers in the decision-making processes (Kujala et al., 2022).

Considering the above, this finding confirms that S&OP can contribute to the stakeholder stream of sustainability management. It facilitates an enhanced understanding not only of ‘who’ is involved, as discussed in stakeholder theory (Freeman et al., 2010), but additionally sheds light on ‘how’ stakeholders can be involved in the management practices.

#### **8.4.3 Relationship Between the Key S&OP Contributors to Supply Chain Sustainability Performance Management and the Key Challenging Factors Impacting Supply Chain Sustainability Performance**

The uncovered key internal and external challenging factors impacting supply chain sustainability performance across organisations, as discussed in 0 and Section 8.3 of this thesis, combined with the S&OP contributors identified in Section 8.4.1, provide valuable insights. These insights contribute to the integration of S&OP and sustainability practices to address the

complexities and vulnerabilities arising from these challenging factors, highlighting the increasing need to adapt supply chain sustainability strategies (Duarte Azevedo et al., 2021b).

#### ***8.4.3.1 S&OP Contributors to Mitigating Internal Challenging Factors Impacting Supply Chain Sustainability Performance***

As discussed in Section 8.3.1, among various key internal challenging factors, lack of integrated collaboration and communication can pose risks in meeting customer demands effectively and align organisational functions objectives, as evidenced by Waitt (2022) and Powell (2020). In the context of sustainability performance management, it significantly impacts sustainability practices towards achieving environmental goals (Kumar et al., 2021) and coordinating business efforts to address environmental challenges (Chauhan et al., 2022).

Organisational misalignments are particularly detrimental in the rapid growth phases of a business, where the complexities and the need for adaptability intensify, requiring ongoing evaluation and adjustment of management approaches to sustain growth (Jan Henrich, 2022); (Dharmayanti et al., 2023).

This thesis additionally uncovered the adverse consequences of siloed organisational structures that constrain the anticipation of risks and the clarity of decision-making processes. Predominantly, female senior leadership participants outlined that misaligned assumptions and an imbalance in workload due to inappropriate roles and responsibilities allocation are shown to contribute to inefficiencies in sustainability performance inefficiency, as discussed in Section 8.3.1.3 and supported by Waal et al. (2019). In addition, Section 8.3.1.4 emphasised that internal challenges arise from that lack of comprehensive insights on unknown factors due to fragmented decision-making, which impedes cross-functional analysis on metrics management, for example cash-flow (Shepherd et al., 2021), thus diminishing the efficiency of sustainability initiatives (Abubakar et al., 2019).

Bringing together the S&OP contributor towards empowering stakeholder discussed in Section 8.4.1.2, with the challenging factors discussed above, this work suggests how the S&OP process can be instrumental in their mitigation. The S&OP framework, through its integrative capabilities, is suggested by Stahl and Wallace (2012), to foster collaboration and clear communication, thereby enabling a unified approach to environmental goals. Such integration is critical for bridging the gap between existing business practices and the environmental

imperatives, which contribute to Green Supply Chain Management (Mohammed Taj Hejazi et al., 2023) reviewed in Section 3.3.4.2.

Moreover, focusing on breaking down siloed operations enabled by the establishment of clearer roles and responsibilities, Goh and Eldridge (2019) suggests that S&OP fosters an environment of transparency and operational synergy, aligning diverse business functions metrics from sales to finance. Thus, in the sustainability context, as uncovered in Section 8.4.1.1, managing sustainability metrics through the S&OP can pave the way for a cohesive strategy that encompasses the entire business, overarching supply chain sustainability management efforts by tracking results and trends, as well as determine and align appropriate long-term initiatives (Giannetto, 2023) that will enable the achievement of sustainability goals.

Additionally, this thesis uncovered, supported by literature, that while the application of robust systems and tools foster a more agile information flow (Goh & Eldridge, 2019), this does not guarantee effective collaboration and the accuracy of decisions to improve process efficiency (Shafiq et al., 2022). Instead, for example, sustainability senior leadership participants in Head/Director roles revealed that mitigation of aspects impacting effectiveness of sustainability performance relies on the quality of information shared, involving a multi-stakeholder approach (Sullivan, 2023), as well as the depth of discussions held cross-functionally (J Schulte & S Knuts, 2022). The focus of the S&OP contributor discussed in Section 8.4.1.4 extends beyond integrating functions and consolidating risks management through agile tools. In fact, supply chain/S&OP senior leadership participants in Head/Director roles uncovered that the essence of S&OP lies in enabling integration by establishing a unified and trustworthy data foundation. This foundation ensures that sustainability decisions and efforts, for instance, are grounded in precise and transparent information.

By optimising resources allocation, S&OP enables operational efficiency, fostering alignment among sales, marketing, operations, and finance (Stahl, 2010). Consequently, this alignment not only promotes transparency and stability but additionally serves as a foundational element for the broader integration of diverse business functions to build a more cohesive plan that overarches the end-to-end business landscape (Stentoft et al., 2022). This finding is relevant as it extends the existing practices outlined in the literature, Triple Bottom-Line approach (Miemczyk & Luzzini, 2019) and Life Cycle Assessment (Yun et al., 2023), providing new insights into assessing meaningful and pertinent data to influence the development of scenario

planning, considering various nuances that influence the strategic business plan, particularly in the context of integrating supply chain sustainability management into the S&OP process.

Finally, unravelling the intricacies and correlations among internal challenging factors is a complex process, ultimately impacting the performance of supply chain sustainability performance, as revealed by Head/Director senior leadership participants. In situations where interconnection of challenging factors exists, a dynamic environment is formed, where each element influences the others. In order to ensure successful and sustained sustainability performance, organisations need to comprehend and navigate the convoluted interconnections resulting from these internal challenging factors (Schlegel et al., 2021). This involves revising and adapting the supply chain and sustainability strategies and frameworks (Pap et al., 2022), with corresponding reflections on the overall business directions and goals. This thesis revealed that the S&OP contributor risk management strategy, discussed in Section 8.4.1.3, can mitigate these interconnected key internal challenging factors. Through robust risk management, organisations can effectively navigate through uncertainties, enhance awareness and adapt to changing conditions which emerge in a dynamic environment (Landi et al., 2022).

Hence, this finding confirms the relationship between the S&OP contributor risk management strategy and its ability to overcome complex situations that affect supply chain sustainability management. The aim is to improve awareness and adaptability within an ever-changing business environment. Furthermore, it extends to risk management theory by providing insights into the integration of sustainability considerations into risk management practices within diverse business frameworks (L. Wang et al., 2022), such as the S&OP process.

#### ***8.4.3.2 S&OP Contributors to Mitigating External Challenging Factors Impacting Supply Chain Sustainability Performance***

As discussed in Section 8.3.2, external challenging factors bring uncertainty to business performance, introducing unpredictability across supply chain and sustainability operations, which in turn results in intensified complexities and vulnerabilities, demanding strategic adaptations (Coşkun & Erturgut, 2023).

This thesis revealed that rethinking management strategies due to unprecedented global crises is the means of achieving success in mitigating impacts on supply chain sustainability performance. Ultimately, unprecedented crises bring instability and uncertainty to business performance management, given that besides intensifying impacts of existing risks, crises

create an additional layer of complexity due to lack of business ability to predict unknown risks as well as opportunities, as revealed by Head/Director senior leadership participants. This finding, in line with literature, outlines that to achieve sustainability goals effectively, for instance, business plans need to adopt agility (Siregar et al., 2023), incorporating emerging uncertainties promptly (Permatasari & Mahyuni, 2022). This proactive approach helps prevent negative consequences (Arriola et al., 2022) that can arise from a reactive strategy (Mekala Krishnan, 2022).

Moreover, senior leadership participants in the Asia-Pacific and Latin-America regions, who disclosed the intricacy of their supply chain networks and the complexity inherent in their market dynamics, revealed supplier dependency as a factor that poses risks to effectively manage sustainability performance. Challenges that suppliers face in delivering the required business plans resulted from disruptions across the supply network, as well as single source of supply, create additional layer of complexity on risks already present in the supplier operations. Lang (2023a) suggests that overcoming challenges associated with supplier dependency requires an agile risk management process that encompasses strategies to not only mitigate current risks but additionally create a contingency plan for any unforeseen scenario in order to endorse proactiveness over reactivity stances.

Finally, aligning business strategies with legal requirements proactively emerged as an external challenging factor, revealed by senior leadership participants located in the Asia-Pacific. Legislation is designed to regulate market competition and ensure a sustainable community. Consequently, this challenge affects the performance of supply chains sustainability initiatives, in which organisations face an ongoing need to adjust their strategies and processes (Seyffarth & Kuehnel, 2022) to align with the evolving global regulatory landscape (Gurzawska, 2020).

In the context of managing sustainability performance, risk management strategy through S&OP, as outlined in Section 8.4.1.3, is essential for developing the awareness and flexibility needed to respond to the ever-changing demands of sustainability (Zhao et al., 2023). This approach requires a detailed analysis of risks across different functions, understanding how they might affect sustainability performance (Jesko Schulte & Sören Knuts, 2022), followed by the ability to quickly adapt strategies (Aman et al., 2023).

Furthermore, Section 8.4.1.4 revealed that S&OP can strategically optimise resources and integrate business planning to improve sustainability outcomes, which are factors required to manage sustainability efficiently and proactively (Roscoe et al., 2020). Noroozi and Wikner

(2017) discuss that this optimisation is enabled through facilitating comprehensive communication across different business functions, fostering active engagement with stakeholders by prioritising data accuracy and transparency to address sustainability challenges more effectively. This proactive approach not only deals with present challenges but additionally identifies and leverages potential opportunities (Dittfeld et al., 2021).

Thus, S&OP contributors are instrumental in guiding organisations in mitigating external challenges impacting sustainability. They combine informed risk management with strategic planning to create a responsive and adaptable business approach. This ensures that the organisation is well-equipped to manage current sustainability demands and adapt to future changes, maintaining performance and compliance.

Hence, these findings extend the existent readiness risk management theory on the necessity of a comprehensive and systematic approach that accounts for managing risks impacting all nuances of the triple bottom-line aspects (L. Wang et al., 2022) overarching the short and long-term vision (Klimczak, 2007).

#### ***8.4.3.3 S&OP Contributors to Mitigating Stakeholder Engagement Challenging Factors Impacting Supply Chain Sustainability Performance***

Two central findings were uncovered in Section 8.3.3 Stakeholder Engagement. First, lack of proactive communication, minimal participation in strategic discussions, and limited understanding of diverse perspectives within cross-functional teams are indicative of passive stakeholder engagement approach. This passive approach limits the achievement of effective performance across functional processes and initiatives (Lyulyov et al., 2023). Consequently, as outlined by Head/Director supply chain/S&OP senior leadership participants, this finding suggests that transforming stakeholder engagement, from passive, isolated and reactive initiatives to a strategic approach, is essential. This change involves incorporating integrated thinking initiatives that adopt a more holistic view of organisational processes and managerial tactics (Devalle et al., 2021). For instance, clarifying the roles and responsibilities for all functions and team members allows each individual to assume appropriate ownership, thereby adopting a more proactive approach (Siems et al., 2023). This, in turn, focuses on responsibilities with specific objectives, effectively guiding efforts towards achieving sustainability goals, thereby reflecting on the overall business directions and goals (Arootah, 2023).

Literature supports this finding outlining that a strategic approach includes the identification and prioritisation of key stakeholders across the end-to-end processes (Vickery et al., 2022a), transparent communication, personalised planning based on stakeholder needs (Brun et al., 2020), risk anticipation and mitigation (Richert & Dudek, 2023), clear goal-setting, and the establishment of a feedback mechanism (Sedmak, 2021). Therefore, building a strong basis for stakeholder engagement involves understanding their interests and influential attributes (Salman et al., 2023).

In addition to the challenging factors resulting from passive stakeholder engagement, another challenging factor uncovered in Section 8.3.3.2 by senior leadership participants with diverse background experience but predominately located in the Asia-Pacific region, is empowering stakeholders in the decision-making process to decentralise cross-functional decision sign-off. According to these participants, obtaining approval from relevant stakeholders not only enhances clarity, ownership, and process execution but additionally aligns decision-makers on a mutually agreed-upon course of action. Moreover, literature supports this finding outlining that obtaining sign-off on cross-functional plans not only strengthens business alignment (Radomska & Kozyra, 2020) but fosters collaboration, offering teams valuable insights into future outcomes and potential changes, ensuring a shared understanding and commitment, aligning all parties with future strategic plans demands (Torgaloz et al., 2023).

Due to the complexities associated with engaging stakeholders to influence the implications that impact the achievement of holistic sustainability results (Salman et al., 2023), empowering stakeholders to take the lead in their own processes is not a straightforward task. It demands meticulous planning and strategic approaches, which includes engaging stakeholders who may not typically assume responsibility for their specific roles, thereby ensuring they feel recognised and valued (Le Loarne Lemaire et al., 2022).

In the context of sustainability decision-making processes, decisions are often overseen in siloed forums, inhibiting a comprehensive overview of all initiatives outcomes (Stritch et al., 2020), hence leading to a neglect of the overall sustainability strategic performance (De Smet et al., 2021). Sustainability senior leadership participants in the Asia-Pacific revealed that the adoption of new working methodologies that actively involve stakeholders emerges as a powerful tool for achieving effective sustainability performance.

As noted in Section 8.4.1.2, effective stakeholder engagement through the S&OP process entails establishing a foundation of common values and priorities (Brun et al., 2020). This, in

turn, facilitates collaboration driven by a shared vision (de Waal et al., 2019). Furthermore, this S&OP contributor advocated for active listening as a way to comprehend diverse perspectives and stakeholder interests (Roscoe et al., 2020). Such an approach contributes to not only engaging stakeholders by conveying the right messages but additionally to shaping a resilient and growth-oriented business landscape (Roscoe et al., 2020).

Hence, these findings, complementing and extending existing stakeholder theory, provide insights into how to practically promote value creation for all business stakeholders in the decision-making process (Siems et al., 2023), particularly within the context of mitigating supply chain sustainability performance.

#### **8.4.4 Relationship Between the Key S&OP Enablers of Success and the Key Criteria to Enable Success in Sustainability Performance Management**

The uncovered S&OP enablers of success, analysed in Section 7.2.2.2, combined with the key criteria to enable success in sustainability performance management across organisations, analysed in Section 7.2.2.2, bring significant insights to unify both practices to overcome challenging factors impacting supply chain sustainability performance. Therefore, there is a need to adapt supply chain sustainability strategies, emphasising the ‘how’ rather than just ‘why’ and ‘what’ of implemented initiatives.

##### ***8.4.4.1 Success Criteria Reflected on Business Values***

The success criteria in S&OP, uncovered in this thesis, are intricately linked to fundamental business values due to the strategic nature posed by S&OP process, as revealed by senior leadership participants with over 20 years of experience.

Given that S&OP influences the alignment of planning activities across diverse functions, including sales, marketing, supply chain operations and finance, it was found that the process changes resulting from S&OP implementation need to be seamlessly integrated into the core values of the business. For these changes to be truly effective, they need to be clearly evident in the strategic plans of the business (Pedroso et al., 2016). Embedding S&OP as a way of doing business involves cultural change as a strategic transformation (Goh & Eldridge, 2022). To drive cultural change, S&OP promotes essential success criteria to address barriers and challenges, with a focus on people and purpose, breaking down silos, building trust, and enhancing employee engagement emphasising change management for continuous improvement (Bower, 2006).

In the context of enabling success in sustainability performance management, business values need to be incorporated into the business strategies (Gupta & Soni, 2021). Reflecting sustainability strategies on business values involves aligning core principles, beliefs, and ethical values with sustainability management, making it a fundamental aspect of a company's identity and culture (Sumanasiri, 2020). However, such integration goes beyond a standard corporate strategy, in fact, it ensures that environmental and social considerations are a central point in the decision-making process. Thus, in line with literature and management practices discussed in Section 8.2.2.2, this finding suggests that embedding sustainability in alignment with business values fosters a commitment to responsible practices (Jesko Schulte & Sören Knuts, 2022) accountability, and a holistic approach, driving long-term success by reverberating with stakeholder involvement (Beattie, 2023).

S&OP success criteria reflected in business values influence cultural behaviour in decision-making. In turn, this contributes to the extent literature Green Supply Chain Management practice, as discussed in Section 3.3.4.2, indicating the opportunity to align business management practices with broader environmental expectations to enable successful sustainability performance (Raman et al., 2023).

#### ***8.4.4.2 Success Criteria Building Collaboration***

Building collaboration is pivotal for the success of S&OP and sustainability performance management, yet it remains an area for ongoing exploration (Goh & Eldridge, 2019). This thesis substantiates—through the inputs from sustainability senior leadership participants in Asia-Pacific—that stakeholder collaboration from various business functions within a single decision-making forum fosters an environment favourable to alignment of overall business objectives with sustainability goals. Such a collaborative approach is integral for nurturing trust, transparency, and mutual support, which are essential for enacting committed plans (Roscoe et al., 2020). In turn, stakeholder engagement enhances idea and resource sharing, employing diverse insights to lead long-term sustainable success and a resilient business model (Fobbe & Hilletoft, 2021).

DesJardine et al. (2022) concurs, emphasising the importance of stakeholder engagement in cultivating a cooperative business setting. Engaging stakeholders early and significantly in decision-making, with their varied perspectives and support, drives collaborative efforts that contribute to lasting and impactful sustainability initiatives (Kujala et al., 2022). According to stakeholder theory, discussed in Section 3.3.4.6, there is a need to integrate sustainability

management within supply chain operations more thoroughly, by clearly defining stakeholder roles and responsibilities (Siems et al., 2023), to better navigate risks and positively influence success factors (Rebs et al., 2018).

Enabling success in S&OP through building collaboration involves maintaining persistent relationship among teams, securing leadership endorsement to support and direct the collaborative efforts are leveraged, and ensuring stakeholders accountability to mitigate and sustain an uninterrupted flow of information (Roscoe et al., 2020). Those factors are present in the principles of integrated decision-making influencing effective business performance management (Schlichter, 2020), as discussed in Section 8.2 to answer research question 1 of this thesis.

Hence, this finding confirms the influence of S&OP success criteria in fostering a collaborative environment to enhance decision-making and formulating strategic plans, crucial for achieving successful sustainability performance.

#### ***8.4.4.3 Success Criteria Targets Embedded into Employee Performance Management Review***

The third success criteria in S&OP and sustainability performance management are associated with employee performance management embedded with clear targets which provide foundations guidance, as revealed by Head/Director senior leadership participants.

By incorporating targets into the performance management review (Ambrose & Rutherford, 2016), S&OP team members can overcome functional biases and actively engage in planning, resulting in improved business performance (Farro, 2023).

The senior leadership participants in Head/Director roles revealed that integrating sustainability objectives into performance management review is essential for organisations to monitor their sustainability progress as well as promoting employees' accountability and transparency. This strategy establishes a systematic framework for evaluating and enhancing sustainability performance, encouraging a culture of continuous improvement and motivating employees at all levels to align their behaviours with sustainability goals (Benmamoun et al., 2023).

This finding emphasises the relationship between enabling success in S&OP and sustainability performance management through embedding targets into employee performance management

review. In essence, this finding aligns with the principle that what gets measured gets managed and achieved, and as a result, gets sustained. It extends the literature, specifically Green Supply Chain management practices, which encounters challenges to foster continuity on improvements made in the processes (Saini et al., 2023).

#### ***8.4.4.4 Success Criteria Endorsement and Ownership***

This fourth success criterion identified by senior leadership participants with tenure experience in sustainability, and underpinned by Kristensen and Jonsson (2018) is the significance of assigning clear ownership aligned with individual's capabilities for each step of the S&OP to ensure effective implementation and ongoing results. For instance, delegating ownership for final decision approvals to a designated decision-maker, ideally executive-level, is advisable for efficient management (Dunn, 2019).

Giving teams and stakeholders the power to include sustainable practices in their decision-making leads to better sustainability endorsement (Fry & Egel, 2021). However, empowerment alone does not ensure success; it must be reinforced by a solid, supportive leadership approach (Suriyankietkaew et al., 2022). Participants revealed that a combination of empowerment and supportive leadership is essential for integrating sustainability into business decisions.

While available literature acknowledges the importance of strategic collaboration (DesJardine et al., 2022) through stakeholder empowerment to make independent, yet cross-functional decision (Kujala et al., 2022), it has not extensively explored the interactive effect of this empowerment with leadership endorsement (Modha, 2021). Therefore, this thesis reveals the interplay between these two factors, offering novel insights into their combined influence.

The central finding of this thesis additionally uncovered that clear roles and responsibilities are imperative for strategic alignment within the business, requiring an organised arrangement of functions and clearly defined individual roles. This alignment is instrumental for efficiently leveraging expertise to navigate complex sustainability challenges and capitalise potential opportunities (Ambrose & Rutherford, 2016).

In S&OP, explicit roles and responsibilities cultivate clarity within team structures, fostering the contribution of distinct functional expertise towards a unified strategic vision (Kelwig, 2023). When integrating S&OP with sustainability performance management, literature indicates that involving the right people (Blokland & Reniers, 2021) and defining clear responsibilities are key (Duarte Azevedo et al., 2021b). This involves deep understanding of

the roles required for the S&OP process, ensuring alignment with sustainability objectives (Blokland & Reniers, 2021).

These findings confirm the connection of S&OP success criteria with the appropriate allocation of roles and responsibilities to facilitate sustainable performance management (Pedroso et al., 2016). Furthermore, this finding extends the significant impact of role clarity on breaking down silos and aligning stakeholders with strategic and operational objectives (de Waal et al., 2019), as discussed in Section 8.3.1.3.

#### ***8.4.4.5 Success Criteria Performance Indicator Management***

The fifth success criterion identified in this thesis is that integration of targets into performance management aligns S&OP activities with the organisation's broader strategic goals, fostering a unified approach to business planning and execution.

To maintain operational alignment, breaking down core KPIs into supporting metrics provides a detailed performance perspective, facilitating the identification of improvement and risks areas and strengthening accountability among stakeholders. This finding validates the balanced scorecard approach, which emphasises the importance of smart targets across four key perspectives— financial, customer, internal processes, and learning and growth (Kaplan & Norton, 2015). This involves a proactive approach to recognise, manage, and close performance gaps, which is crucial for adapting to changes in the business environment and sustaining competitiveness (Bhagwat & Sharma, 2007). However, research discussed by Watson (2021) indicates that a balanced scorecard approach often disregards risks, sustainability factors and the internal stakeholders' concerns, hence this finding is significant.

As a successful performance management indicator in sustainability, organisations need to integrate sustainability metrics within their general performance evaluation framework as fundamentally as they do with conventional KPIs (Stanitsas et al., 2021). The balanced scorecard approach, which has been widely recognised and applied since development by Kaplan and Norton (2015), supports this methodology.

The success criteria lie in the ongoing monitoring, measurement, and application of these sustainability KPIs, as noted by Hristov, Appolloni, et al. (2022) which must be carried out with precision. Ultimately, strategic actions taken to manage these metrics need to genuinely instigate transformation towards achieving successful performance outcomes (Steinert, 2023).

This finding brings together the influencing aspects of establishing grounded consensus on both strategic and operational performance indicators for a successful S&OP as well as sustainability performance.

#### ***8.4.4.6 Success Criteria Tools for Governance***

Although tools for governance alone do not ensure the effective flow of information, as uncovered in Section 8.3.1.4 and outlined by senior leadership participants irrespective the geographic location, it is identified as the sixth criterion to enable success in S&OP and sustainability performance management.

S&OP success is governed by specific tools and criteria that ensure effective governance of its execution (Pedroso et al., 2017). These tools encompass advanced data collection and analysis through systems, dashboards and processes, a collaborative planning framework to information and decision channels, and continuous improvement mechanisms through maturity assessment framework, as explained by a senior leadership participant in the Asia-Pacific. In turn, tools for governance facilitates informed decision-making through robust data analysis, fostering teamwork across departments, and allowing for ongoing enhancements to optimise performance (Pedroso et al., 2016).

In the context of sustainability performance management, senior leadership participants in North America revealed the need for tools is linked with sophisticated systems that suggest all-encompassing solutions for reevaluating performance metrics and among changing business scenarios. Furthermore, Trisyulianti et al. (2022) suggest that these tools are instrumental in merging diverse factors including measurement and management of sustainable practices, underpinned by reliable data, streamlined processes, and analytical capability. Consequently, tools provide business with the ability to not only assess and improve sustainability metrics performance but additionally to liberate stakeholder's time, enabling them to reconsider strategic directions and project sustainable plans for the future (Hristov & Chirico, 2019).

Therefore, the attainment of high-performance outcomes is indeed facilitated by sophisticated tools; however, the sustained efficacy of these outcomes hinges critically on the process of data collection, specifically the precision and integrity of the data sources (Morris et al., 2022). This observation aligns with the findings discussed in Section 8.3.1.4, which recognise the contribution of advanced tools to performance management while also detailing the essential inputs for maximising tool efficacy (Neher & Maley, 2019). Furthermore, this insight builds

upon risk management theory highlighting how tools used can be pivotal in the meticulous collection and analysis of data (L. Wang et al., 2022), thereby fostering success in sustainability performance management and S&OP.

Thus, complementing and expanding available literature, this finding explains both the advantages and the required inputs for the effective application of tools for governance within the ambit of supply chain sustainability management and S&OP.

#### ***8.4.4.7 Success Criteria Risks and Opportunities Management***

This thesis revealed that the success of S&OP hinges on its ability to manage risks and capitalise on opportunities through a structured framework, the seventh success criterion distinguished by senior leadership participants with varied tenure of experience and advanced educational qualifications. This framework incorporates scenario planning, a pivotal tool that extends beyond mere demand forecasts to embrace a foresight-driven approach (Dittfeld et al., 2021) and risk-treat scenarios that allow for a reactive approach yet fostering alignment to mitigate factors impacting effective performance of the plans (Buchanan, 2023). Through this lens, scenario planning employs the balanced scorecard to guide comprehensive and informed decision-making, proactively considering all events that can potentially impact on the discourse performance of business plans (Kaplan & Norton, 2015). Furthermore, effective communication, a recurring theme stressed in Sections 8.4.1.2 and 8.4.4.2, is vital for effective scenario planning as it ensures that multiple future situations are considered, enhancing decisions that all stakeholders can gather, thereby promoting collective understanding and cooperative action for effective risk and opportunity management (Buchanan, 2023).

Risks and opportunities management serves as a strategic tool, in the context of sustainability performance management, enabling the identification and mitigation of environmental, social, and economic risks, while concurrently leveraging opportunities for sustainable growth (Landi et al., 2022). The senior leadership participants revealed that this approach facilitates the implementation of meaningful changes by directing focus towards the root causes of impacting factors, promoting lasting resilience and contributing to successfully achieving the sustainability goals.

This finding confirms the interconnections between risk and opportunity management, contributing to the success of S&OP and sustainability performance. It extends existing literature on readiness and risk management theory, addressing the challenges posed by

overlaying sustainability risks on supply chain risks (L. Wang et al., 2022). The integration of both management practices is essential for systematically incorporating the long-term performance aspect into the overall strategic framework.

#### ***8.4.4.8 Success Criteria Current State Mapping***

The eighth success criterion uncovered in this thesis underpins the role of current state mapping in assessing business maturity and resilience in S&OP and supply chain sustainability performance.

To effectively manage sustainability performance, senior leadership participants with varied tenure of experience and advanced educational qualifications outlined the crucial role of comprehending the impacts on Triple Bottom Line aspects—environmental, economic and social. This comprehension requires a nuanced understanding of how business activities influence these aspects, as discussed in literature by Miemczyk and Luzzini (2019). Subsequently, measures and strategic initiatives should be identified and implemented to align the current state with the projected ideal business state (Hristov, Chirico, et al., 2022). Furthermore, through current state mapping a business can effectively allocate resources and identify potential flaws throughout the end-to-end processes (Wilden et al., 2022), as discussed in Section 8.2.1.1.

In S&OP, the practice of current state mapping is essential and strategic for assessing the efficiency of involved processes. It is critical to establish benchmarks for collaboration across different functions, which substantiates the alignment and involvement of leadership across various departments. Gran and Ismail (2022b) assert that excluding any department from the S&OP framework can disrupt its effectiveness. Moreover, Lewis (2022) highlights the importance of comprehensive functional participation.

Effective current state mapping is enabled through clear communication through appropriate tools, fostering collaborative engagement, and conducting cross-functional skills evaluations. These measures are pivotal for merging different skill sets, thereby fostering an environment that leads to effective performance management (Kozlowski & Ilgen, 2006).

In addition to explaining the interconnections between success criteria current state mapping contributing to S&OP and sustainability performance, these findings expand on the Circular Economy approach. They explain the significant benefits of enabling current state mapping to through S&OP, for instance, to bring awareness of potential internal and external risks and

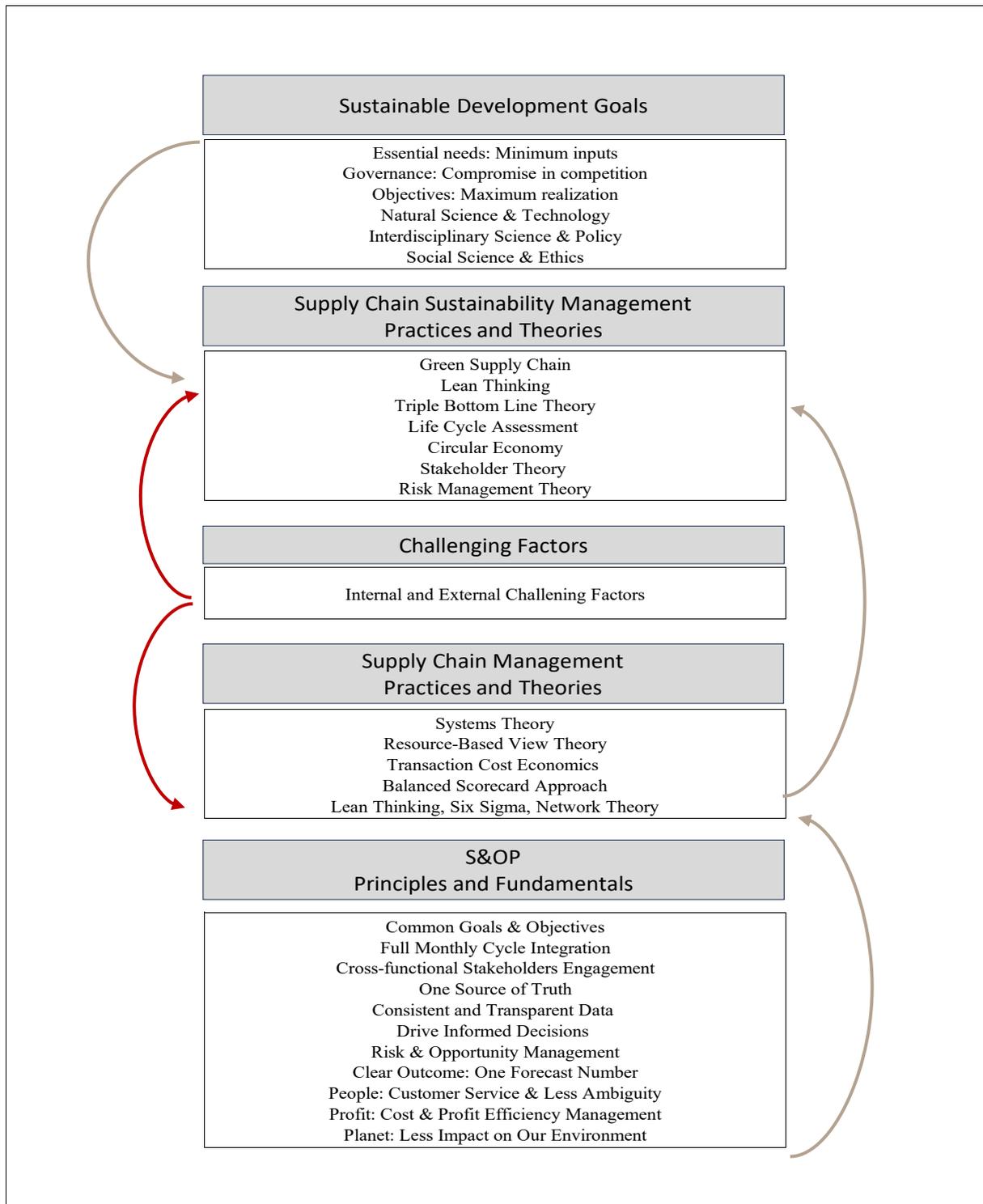
opportunities, hindering the efficient implementation and management of products life cycle (Serna-Guerrero et al., 2022).

In summary, relationships between criteria to enable success in S&OP and sustainability performance are intertwined as extensively explained through the uncovered findings of this thesis and literature. However, in regard to the specific concept of improving supply chain sustainability performance through the S&OP process, research into the relationship between these factors remains absent (Roque Júnior et al., 2023).

## **8.5 Revised Conceptual Framework**

This thesis identifies the determinants influencing the effective management practices of organisational supply chain and sustainability processes, as well as the key factors challenging the performance of these practices. Additionally, it has elucidated the specific key S&OP contributors that enhance the aforementioned areas.

The initial research framework, as detailed in Section 3.5 and visualised in Figure 8.2 Initial Theoretical Framework was developed based on related literature theories and concepts correlating 1) supply chain management, 2) supply chain sustainability management, and 3) S&OP process principles and fundamentals.



**Figure 8.2 Initial Theoretical Framework** (Author)

This initial theoretical framework, intertwined with the relevant literature theories, highlights that the key S&OP principles and fundamentals can influence the improvement of supply chain sustainability management performance and specify the attributes detailed in Table 8.1 as constituting the respective aspects.

**Table 8.1 NVivo—Attributes of Factors Identified in the Initial Conceptual Framework**

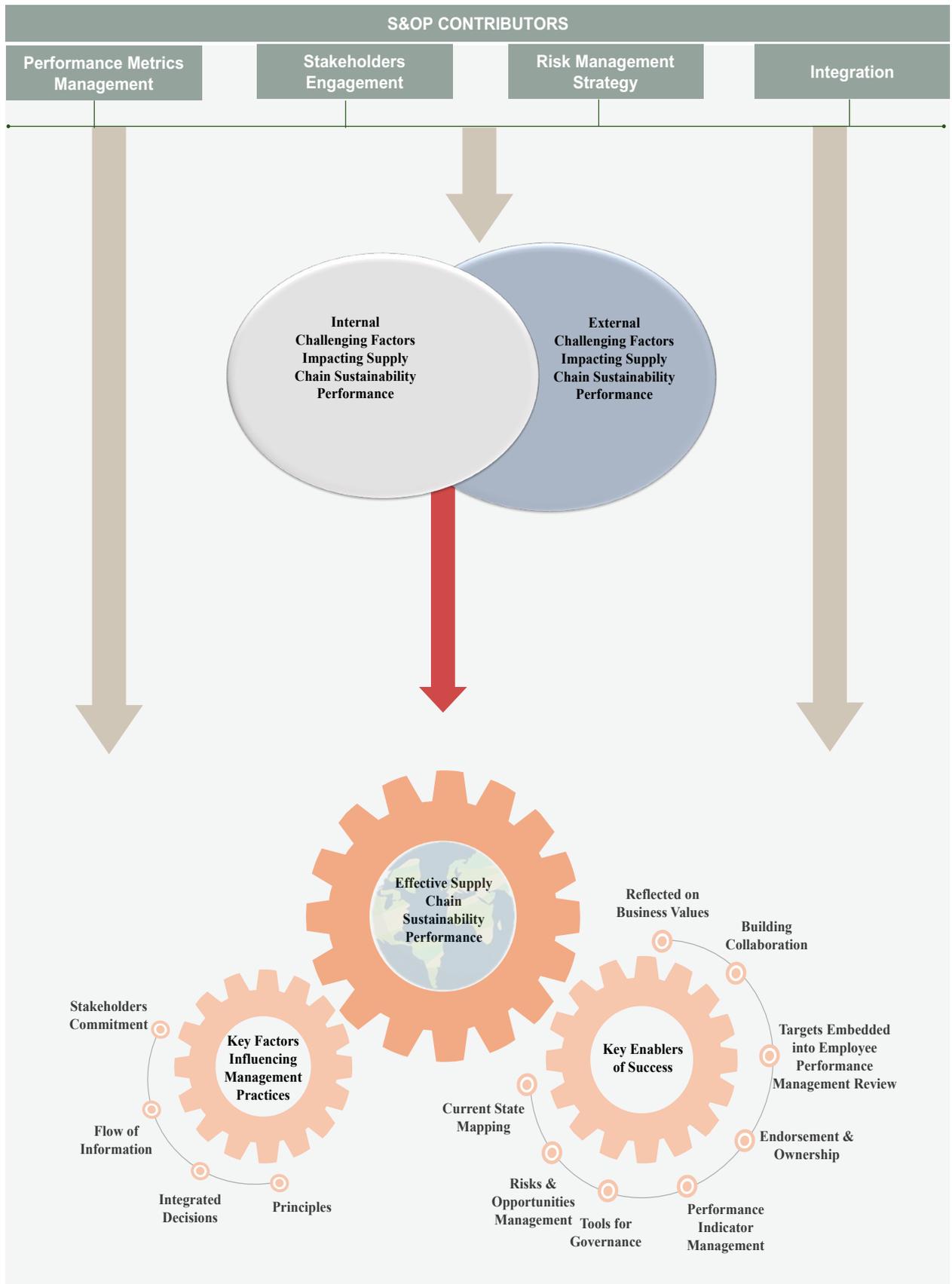
Business Management Area	Overall Focus	Overall Attributes
<p><b>Supply chain management</b></p>	<p>Analysis, decision-making, and process improvement, which contribute to understanding and optimising supply chain interactions, reducing waste, improving efficiency, and enhancing overall performance</p>	<p>Interconnects systems comprising organisations, processes, and resources</p>
		<p>Identifies and leverages key resources to create a sustainable competitive advantage</p>
		<p>Costs transaction analysis between entities to underpin decision-making process</p>
		<p>Optimises supply chain interactions, reduce waste, improve efficiency</p>
<p><b>Supply chain sustainability management</b></p>	<p>Improve transparency, reduce environmental impact, ensure ethical practices, and create long-term value for stakeholders</p>	<p>Integrates environmental thinking and principles into the end-to-end network</p>
		<p>Optimises the process to reduce costs across the end-to-end process</p>
		<p>Evaluates performance based on social, environmental, and economic aspects, aiming to create greater business value beyond financial profit</p>
		<p>Evaluates the environmental impacts of product or process throughout its entire life cycle</p>
		<p>Emphasises sharing, leasing, reusing, repairing, refurbishing, and recycling existing materials and products for as long as possible</p>
		<p>Recognises and addresses the interests of various individuals and groups impacted across the business</p>

		Systematically identifies, assesses, and prioritises risks, followed by coordinating application of resources to minimise, monitor, and control the probability or impact of negative events, while maximising the realisation of opportunities
<b>S&amp;OP principles &amp; fundamentals</b>	Aligns an organisation's diverse functions while balancing supply and demand, allowing executives to continuously match high-level financial strategy with day-to-day operational tactics in all departments and keep everything in balance	Common goals & objectives
		Full integration monthly cycle
		Involvement from cross-functional stakeholders that drives decision-making process
		One source of truth = Consistent data & transparency
		Drive informed decisions and risks & opportunities
		Clear outcome = One system, one process, one forecast number
		People: Better customer service & reduces ambiguity across business - Profit: Provide efficiency and better cost & profit management - Planet: Less impact on the environment

Although broad, the identified concepts used for the initial conceptual framework provided insights for further investigation. The revised conceptual framework brings together the ideas of extant literature and the findings of this thesis, specifying how the key S&OP contributors, uncovered in Section 8.4.1, and the enablers of success, uncovered in Section 8.4.4, could influence mitigating challenging factors and as a result, improve performance of supply chain sustainability management. Figure 8.3 demonstrates the revised conceptual framework.

The revised framework suggests a mutual relationship between the influencing and impacting, indicated by the brown and red arrows respectively. Demonstrated in Figure 8.3, this framework incorporates:

- Key S&OP contributors to successful business performance: performance metrics management, stakeholder engagement, risk management strategy, integration.
- Key internal and external challenging factors that impact the effective supply chain sustainability performance.
- Key factors explaining the complex but fundamental process to achieve effective supply chain sustainability performance:
  - Key enablers of success of business supply chain sustainability processes
  - Key factors influencing effective management practices



**Figure 8.3 Revised Conceptual Framework (Author)**

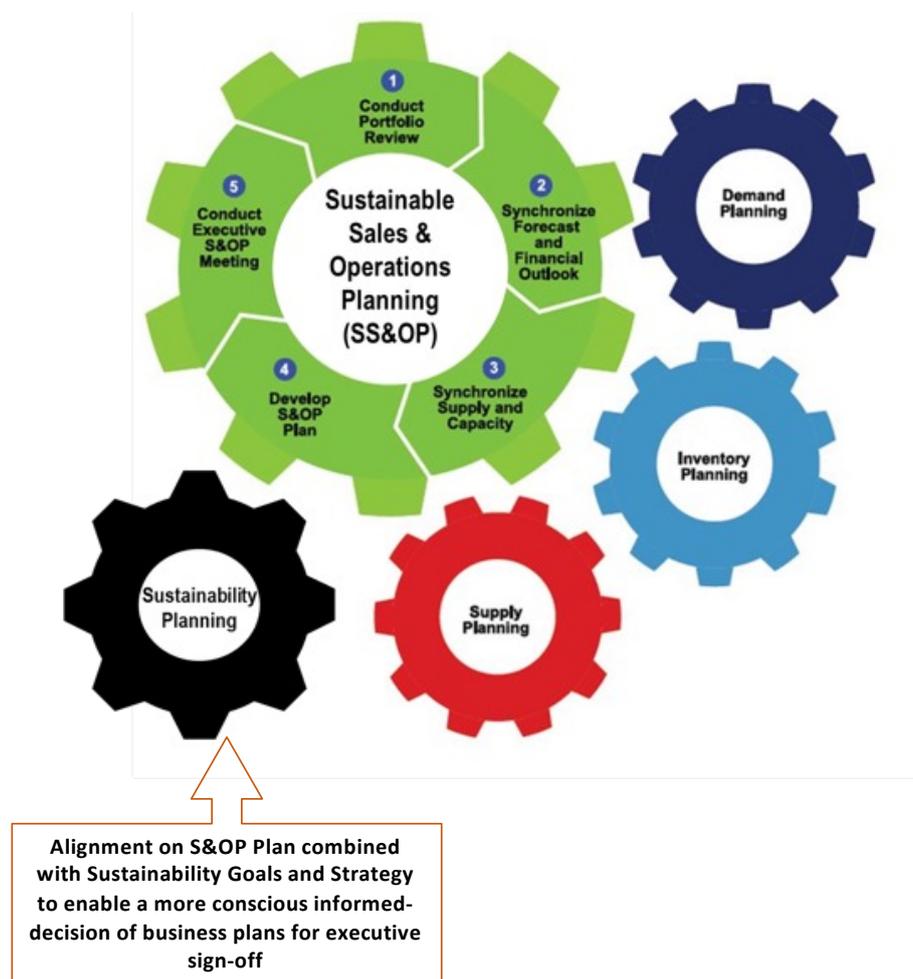
The initial framework suggests theoretical relationships between key factors, indicating interdependencies that, however, are not further explained as to how they can be related to one another. The revised framework, on the other hand, is based on an in-depth investigation into S&OP and supply chain sustainability management areas through senior leadership participants' experiences and insights. It differentiates between influencing and impacting factors uncovered in this thesis and identifies all existing relationships hence, in contrast to the initial broad conceptual framework, the revised framework is more detailed.

Finally, the literature does not address the practical nature of improving supply chain sustainability performance through the application of the S&OP process. However, existing literature, conducted through SLT only, indicates a positive relationship between integrating management of sustainability with other business areas, such as financial performance. For instance, to improve financial performance organisations' sustainability metrics and reports management, as well as improvement of sustainable growth rate, requires continuous improvement (Pham et al., 2021). This thesis, thus, shed light on the complex process of supply chain sustainability management through a consolidated process that integrates processes, stakeholders and tools. Consequently, the revised conceptual framework includes the findings, incorporating the practical nature of the S&OP process to manage supply chain sustainability performance. In essence, it includes identified 1) key factors influencing effective management practices, 2) key enablers of success that influence supply chain sustainability management, 3) key internal and external challenging factors impacting success of management practices, and 4) key S&OP contributors to enable successful performance in supply chain sustainability management.

The revised framework, therefore, provides a general perspective on how the S&OP could contribute to improving the supply chain sustainability performance by identifying and defining influencing factors, uncovering the challenging factors, and conceptualising the process involved in gaining awareness of an organisations current and future state. Furthermore, it makes a significant contribution to the literature, by identifying limitations and opportunities of available literature on both S&OP and supply chain sustainability management, whilst providing theory and an empirical framework to practically develop knowledge for practice.

### **8.5.1 The SS&OP Process**

Guided by the revised conceptual framework and the preceding discussions in Chapter 8, it is proposed to implement the SS&OP process (Sustainable Sales & Operations Planning). The SS&OP is a strategic approach to integrate customer service focused on business plans, demand, supply, financials and sustainability plans. Furthermore, this approach creates visibility of a long-term horizon into the executional plan, based on strategic inputs that drive and influence the sustainable demand forecast plan fostering cross-functional alignment of goals and strategies including risks and opportunities management of factors that create variances across demand, supply, finance, and sustainability management, as illustrated in Figure 8.4 adapted from Guerovich (2020).

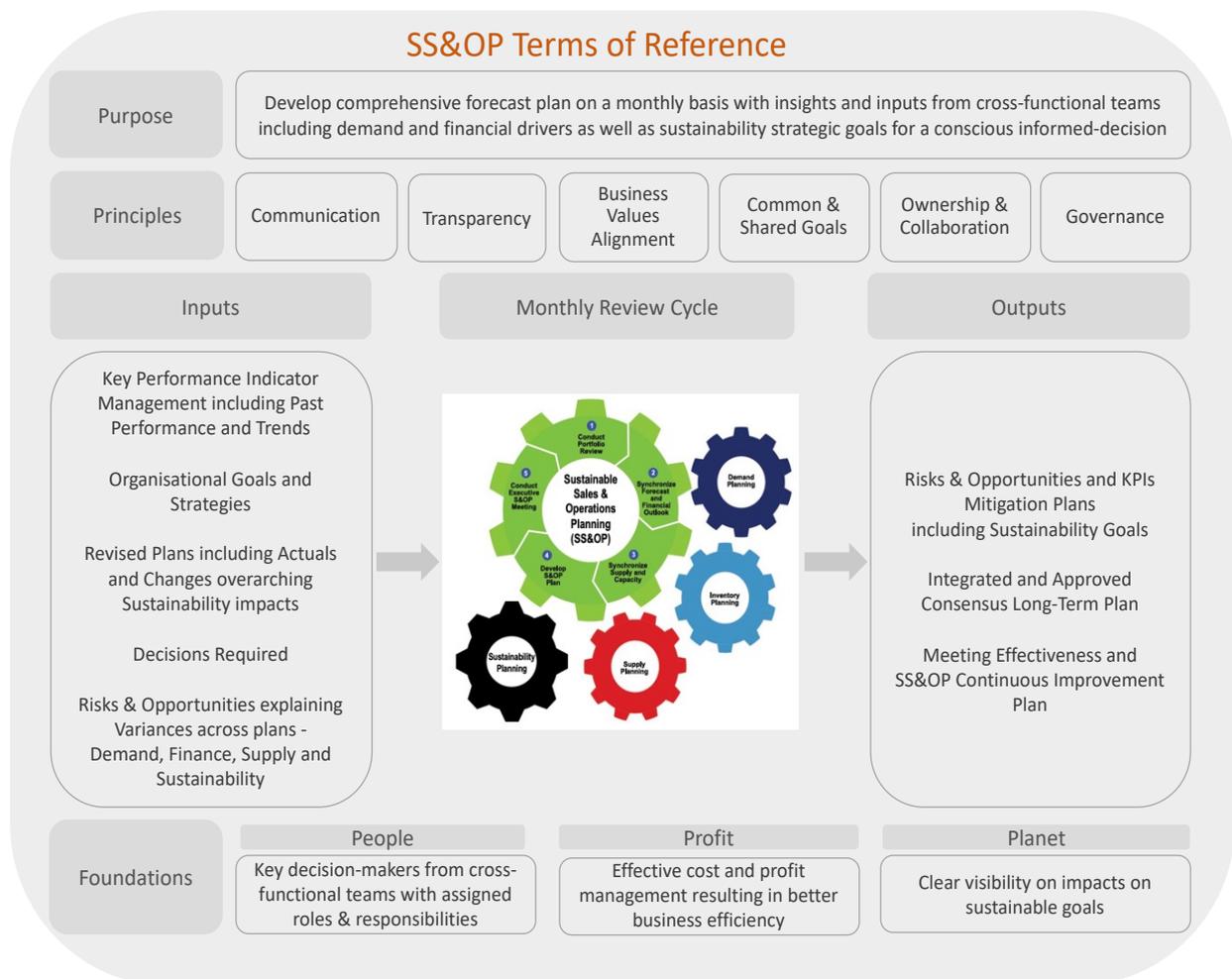


**Figure 8.4 SS&OP Process** adapted from Guerovich (2020)

By aligning the cross-functional business plans through a unified monthly frequency decision-making process, the suggested SS&OP enables robust conversations for a more conscious informed decision of business strategies with the appropriate executive endorsement and sign-off.

Another aspect enabled through the SS&OP process is culture and behaviour change by fostering consensus decisions, unlocking collaboration and focusing on risks and opportunities, which in turn, lead to the development of a robust clear strategic plan. Furthermore, the result of the cross-functional SS&OP team ensures that the decisions made have been in-depth explored, challenged, and understood not only from the customer service and business profitability perspective, but additionally leveraging their effects on sustainability goals and strategies.

Considering the above, the SS&OP brings together terms of reference grounded in principles and fundamentals, thereby improving its theoretical understanding as well as its practical applicability. It encompasses a cohesive monthly decision-making process, focusing on a long-term horizon, cultivating behavioural changes that enable complete transparency through a set of standardised language, consistent data, and integrated processes across all business functions. This culminates in an enhanced and single consolidated business strategic plan, supported by clear stakeholder ownership, efficient cost and profit management, and a clear visibility of the implications for achieving sustainable business goals, as demonstrated in Figure 8.5.



**Figure 8.5 SS&OP Terms of Reference** (Author)

### 8.5.1.1 Purpose

The fundamental purpose of the SS&OP process is to develop a comprehensive demand forecast plan by integrating insights and inputs from cross-functional teams. This inclusive approach ensures a well-rounded perspective, leveraging the collective expertise of diverse stakeholders and functions. Particularly, the involvement of sustainability team members broadens the scope of strategic sustainable goals scenarios, introducing a vital dimension to the forecasting process. By incorporating sustainability objectives into the planning framework, conscious and informed decisions are made, aligning with commitment to environmental, social, and economic responsibility.

### 8.5.1.2 Principles

The principle of the SS&OP is grounded in enabling clear communication channels and process transparency to effectively guide the planning process. Transparent processes, communication

and ownership ensure that all functions are on the same page to enable cross functional alignment of objectives and goals and therefore, fostering stakeholder accountability to develop a sustainable forecast plan.

SS&OP emphasises alignment of business values with planning processes. That is, reflecting sustainability strategies and goals including its beliefs and ethical values into the decision-making process. This, in turn, promotes a culture of shared goals, common ground for collaboration, and optimisation of team efforts.

Finally, governance in SS&OP process is promoted through mechanisms that facilitate transparency and multi-functional engagement such as data collection and analysis through systems, dashboards and processes, collaborative planning framework for information and decisions channels, and continuous improvement mechanisms through maturity assessment framework.

### ***8.5.1.3 Foundations***

The SS&OP is founded on Triple Bottom Line aspects, encompassing people, profit and planet.

Addressing ‘people’, the model assigns cross-functional decision-makers with clear roles and responsibilities to each forum. The decision-makers are the ones accountable for bringing the appropriate level of inputs to generate meaningful discussions and are empowered to make decisions. This level of accountability and empowerment promotes an organisational culture that values each individual's contribution to sustainability, cultivating a work environment that prioritises ethical practices and social equity.

Profit aspect refers to effectively aligning all inputs that drive the SS&OP into a financial outlook. It encapsulates the broader economic impacts of sustainable operations, including long-term value creation influenced by the business plans. The SS&OP’s commitment to aligning operational inputs with financial forecasts is underpinned by a strategic vision that integrates sustainable profitability with corporate responsibility. This ensures that potential risks and opportunities captured are scenario-planned at the highest level of business efficiency. Scenario planning, in this context, becomes a tool for navigating economic complexities, ensuring that the organisation's financial health contributes to, and benefits from, its sustainability objectives.

Considering addressing the ‘planet’, the model innovates beyond financialisation of forecast plans; it embeds environmental reconciliation into every layer of the business strategy. The reconciled plans incorporate not only cost implications but also the ecological footprints of decisions, advocating for strategies that reduce environmental impacts and promote resource conservation. This involves gaining clear visibility and quantification of sustainability outcomes, facilitating informed decision-making that aligns operational success with the sustainable goals.

#### ***8.5.1.4 Inputs***

The foundational inputs required to influence decision-making in SS&OP are key performance indicators and metrics, organisational goals and strategies, revised forecast plans, decisions required, risk and opportunity outlook.

KPIs refers to review actual business performance and trends, including forecast accuracy and forecast bias, sales performance, customer service level, carbon emission, waste and cost of operations, meeting attendance.

Organisational goals and strategies refer to business pillars and values sustaining long-term strategy through a high-level assessment to bridge the gap between current and future state.

Revised forecast plans encompass the updated long-term plan, outlining variances between actuals and adjustments made to the previous month’s consensus plan. This overarching analysis explains the root cause of variances and explores their cascading impacts on financials and sustainable goals.

Decisions required refer to the identification and documentation of the key decisions that need to be made during the SS&OP process. These decisions revolve around issues such as risks and opportunities on production waste generation, inventory policy management, freight allocation for carbon footprint management, people inclusion and engagement management. Furthermore, it ensures that relevant decision-makers are aware of the specific choices that need to be addressed through use of a scenario planning tool, facilitating a more streamlined and effective informed decision.

Finally, risk and opportunity (R&O) Outlook refers to the aggregation of identified and analysed demand and supply risks and opportunities, which may influence the effective execution of the SS&OP process. It involves all elements that could pose risks to the successful

implementation of the plan or offer opportunities for optimisation. Moreover, the evaluation includes the assessment of projected financial R&O as well as sustainability-related R&O.

#### ***8.5.1.5 Monthly Review Cycle***

The SS&OP process is suggested to undergo a monthly cycle review. This review encompasses a comprehensive examination of the business KPIs and plans, guided by inputs from cross-functional stakeholders, with a specific emphasis on the long-term horizon to ensure alignment of a unified set of numbers and plans.

#### ***8.5.1.6 Outputs***

The foundational outputs refer to the outcomes generated throughout the SS&OP process. The outputs encompass an aggregated and approved mitigation plan, addressing R&O, improving the performance of KPIs, and integrating the consensus and approved long-term SS&OP plan, overarching demand, finance and sustainability aspects. Additionally, it involves an evaluation of the effectiveness of the review cycle, along with the implementation of a continuous improvement plan to advance the maturity level of the SS&OP process.

### **8.6 Summary**

Guided by the three research questions, this chapter discussed the findings of this thesis in light of extant literature and senior leadership participant research. The discussion addressed 1) the key factors influencing effective management practices in supply chain sustainability processes, 2) how the current key challenging factors impact supply chain sustainability performance, and 3) how the key S&OP contributors can influence improvement of effective supply chain sustainability performance. Finally, the chapter concluded with a revision of the conceptual framework, initially derived from the thematic literature in Chapter 3. Discussing the findings of this thesis in relation to extant literature, it highlighted the significance of the findings of this thesis and outlined their contribution to the theoretical body of knowledge and industry.

# CHAPTER 9 CONCLUSION

## 9.1 Objective

This chapter provides an overview of the key findings, outlines the contributions to the body of knowledge, and implications for practice. Furthermore, limitations of this thesis are identified and directions for future research are presented.

## 9.2 Significant Findings

Investigating how the S&OP process influences an organisation's supply chain sustainability performance, the thesis identified that key S&OP contributors Performance Metrics Management, Stakeholders Engagement, Risk Management Strategy, and Integration all play a significant role.

In recent times, managing supply chain sustainability to achieve impactful performance outcomes has been considered challenging yet rewarding for both economy and society. The central finding of this thesis identified that end-to-end supply chain operations significantly impact sustainability performance. Although various practices and theoretical frameworks exist to manage every organisation's process, management structures still appear siloed. This segmentation creates further complexity in planning, actioning and monitoring initiatives that contribute towards more effective results of sustainable goals and strategies. Furthermore, the data collected and analysed from senior leadership participants revealed that although every organisation has their own way to adapt and transform processes, the foundations and goals upon which such initiatives are notably similar.

The thesis findings provide an important context regarding the factors that create challenges to unlock successful management performance. The criteria to enable success entails connections between 1) business awareness of their current and future desired state through effectively managing their performance metrics, targets and trends, 2) clarity and engagement of key decision-makers responsible and accountable to raise relevant inputs for discussions, decisions and execution, 3) proactiveness to mitigate uncertainties and potential risks arising from diverse environments which can impact the effective performance of a business strategic plan, and 4) integration of people, processes, and tools into one consolidated decision-making based process where business principles and foundations are ensured at all times.

Exploring the process, this thesis identified that the S&OP process presents the relevant contributors towards enabling success of business process performance from a cost and profit management perspective, resulting in enhanced customer service, hence better business efficiency.

These significant findings make a distinctive contribution to the extant literature across several key areas of business and management theory. Firstly, this study enriches stakeholder theory by elucidating the role of stakeholder engagement and accountability within S&OP processes and demonstrating how inclusive decision-making processes enhance organisational outcomes. Secondly, the proactive identification and mitigation of risks revealed in the findings advance risk management theory by showcasing how S&OP can be leveraged to effectively navigate complex and uncertain business environments. The research also extends the Triple Bottom Line approach by providing empirical evidence on how businesses can operationalise economic, social, and environmental considerations within the S&OP framework to drive sustainable performance. In the realm of Green Supply Chain Management, this thesis highlights how S&OP processes can integrate sustainability practices, supporting the transition towards environmentally responsible business operations. Furthermore, by aligning S&OP with the principles of the Circular Economy, the work demonstrates the process's potential to foster resilience and resource efficiency, paving the way for more regenerative business models. Overall, the thesis provides new insights into the interplay between S&OP and these critical theoretical frameworks, underscoring the importance of S&OP as a promoter for sustainable, risk-aware, and stakeholder-inclusive business practices.

Subsequently using all these findings, a framework of a Sustainable Sales and Operations Planning process (SS&OP) to enable effective management and improvement of supply chain sustainability performance through following the application of the S&OP fundamentals was developed.

### **9.3 Contribution to the Body of Knowledge**

Existing research allow researchers to infer certain aspects regarding the application of S&OP principles and fundamentals to enhance the sustainability performance of supply chains; however, the veracity, degree of transposability, and pragmatic applicability of these principles remain a subject of debate. The convergence of S&OP and sustainability is an escalating area in process operations management. Despite the growing interest, their connection remains

underexplored in both academic research and industrial implementations (Duarte Azevedo et al., 2021b). Only a few publications explore existing theories such as stakeholders theory and life cycle theory (Roscoe et al., 2020) to emerge with an SS&OP process. Furthermore, such publications were developed through a critical literature review and case study exploring the conventional S&OP fundamentals as enablers to improve sustainability (Sirviö, 2023), rather than additionally investigating the relationship between existing theories with practical evidence from the industry to in fact bring the sustainability strategies and goals into the monthly frequency S&OP, ensuring an ongoing better informed decision for business decision-makers and executive awareness and therefore, sign-off.

The essential nature of the S&OP process as a tactical planning approach makes integration with sustainability crucial. This integration not only links short and long-term strategic and operational activities but additionally showcases an integrative capacity across diverse functional areas within the organisations and its supply chain. While S&OP may not serve as the only solution for improving supply chain sustainability, its emphasis on effective planning, collaboration, risk management, and resource optimisation can significantly contribute to an organisation's sustainability goals and strategies. This is achieved by reducing waste, enhancing resource efficiency, and fostering a culture of responsible decision-making through grounded process governance and transparency.

### **9.3.1 Contribution 1 – Framework of SS&OP Process for Enhancing Supply Chain Sustainability Performance Management**

Building upon extant readiness research and incorporating the empirical findings of this thesis, a framework of improving supply chain sustainability performance through the S&OP process (SS&OP) in the context of beauty and personal care industry has been developed. This comprehensive framework is the main contribution of this thesis to supply chain management, S&OP management and sustainability management theoretical frameworks. It presents a structured approach to the complex process of managing supply chain sustainability performance.

The framework extends research on supply chain sustainability performance management through the S&OP process. Evolving understanding on the topics is particularly relevant as academic debates intensify the intersection of sustainability and S&OP. The focus is particularly perceptive as it addresses current and future challenges faced by the beauty and

personal care industry, which has seen heightened examination and demands for sustainable practices (Seeling et al., 2021).

Additionally, this framework serves as a blueprint for industry practitioners who want to escalate the maturity level of the conventional S&OP and transform their supply chain sustainability performance outcome, as well as for researchers who want to further explore this topic, shaping the trajectory for sustained organisational success and environmental stewardship.

### **9.3.2 Contribution 2 – S&OP Factors Extending on Existing Theories and Practices of Supply Chain and Sustainability Management**

This thesis enriches theoretical understanding by integrating stakeholder and risk management theories with practical frameworks in sustainability and supply chain management—namely, the Balanced Scorecard, Green Supply Chain, Lean Six Sigma, Life Cycle Assessment, Triple Bottom Line, and Circular Economy. The transition to a Sustainable Sales and Operations Planning (SS&OP) process is positioned as a paradigm that encapsulates this confluence.

Grounded in stakeholder theory and risk management principles, this thesis constructs a narrative that sustainability management processes, when harmonised with traditional S&OP, catalyse the evolution towards SS&OP. This transformation is facilitated by identifying effective engagement strategies for cross-functional stakeholders and evaluating the risks and opportunities intrinsic to sustainability performance within the decision-making framework. A systematic approach delineating clear roles and responsibilities underpins this model, enhancing cross-functional collaboration and risk navigation pertinent to the Triple Bottom Line, whilst guiding the strategic orientation towards sustainable objectives.

The synergistic application of Stakeholder and Risk Management Theories within this thesis not only bridged theoretical gaps but also provided a comprehensive framework for analysing the strategic and operational dimensions of supply chain sustainability in the beauty industry. This integration facilitated a deeper understanding of how organisations can effectively balance stakeholder expectations with potential risks, thereby enhancing the efficacy of S&OP processes. This dual-theoretical approach has enriched the academic discourse, offering a more holistic perspective that underscores the necessity of integrating these theoretical insights into practical business strategies, thus driving forward the agenda of sustainable development.

Additionally, incorporating sustainability into the S&OP dialogue empowers organisations to develop comprehensive strategies that equally consider environmental, social, and financial impacts. This integrated stance not only reinforces an organisation's commitment to sustainability but also fortifies its resilience (Negri et al., 2021) and positions it for sustained success in a market increasingly adjusted to ethical considerations (Hariram et al., 2023).

### **9.3.3 Contribution 3 – Beauty and Personal Care Industry-Specific Insights**

The beauty and personal care industry stands at the connection of consumerism and sustainability, embodying the tension between the commercial imperatives of product demand and the ethical mandates of environmental stewardship. This thesis contributes to industry-specific insights by providing a granular exploration of how the S&OP process can be leveraged to advance sustainability goals within this sector. The SS&OP framework developed on inputs from senior leadership participants based in this industry delves into the unique attributes of the global beauty market, uncovering the evolutionary trajectory of S&OP and sustainability practices. Additionally, it reveals that while there have been significant technological advances in sustainability, the beauty and personal care industry is now at a pivotal point where integrating these sustainability efforts with the S&OP process is not just an added advantage but a commercial necessity. This integration, as detailed in Chapter 2, is crucial for organisations aiming to stay relevant in a market increasingly driven by consumer awareness and rigorous regulatory landscapes.

In the Australian context, this thesis emphasises the country's role as a proponent of sustainable practices within the industry. By elucidating the experiences of industry experts, this work illustrates how S&OP serves as a strategic facilitator, harmonising the supply chain and sustainability objectives in the beauty and personal care industry. It delineates the strategies that have enabled the Australian market to not only recover post-pandemic but also position itself for robust growth by tapping into the consumer's sensitive sustainability consciousness. Through its empirical investigation, the thesis serves as a guide for other markets, demonstrating how sustainable transformation within the S&OP framework can foster both commercial success and contribute to the planet's well-being. The insights collected thus provide actionable guidance for industry leaders seeking to balance profit with planet in the dynamic landscape of beauty and personal care.

### **9.3.4 Contribution 4 – United Nations Policy Implications**

This thesis contributes to the United Nations Policy Implications by conceptualising the Sales and Operations Planning (SS&OP) process through a sustainability lens, demonstrating how integrated supply chain management practices can align with and advance the achievement of sustainable development goals (Scavarda et al., 2023). Furthermore, it illustrates that the SS&OP is not just an operational tool but a strategic framework that reinforces and drives the global sustainability agenda. Through this framework, supply chains can transition from merely reactive to proactively embracing the SDGs, thus making significant strides in responsible consumption, production patterns, and climate action.

The thesis provides a blueprint for operationalising the SDGs within organisational strategy, highlighting the necessity for an integrated approach to manage resources efficiently and promote ethical practices across supply chains. By establishing connections between the goals and tangible supply chain actions, the framework supports the United Nations' call for immediate and transformative measures across all sectors (Fu et al., 2019). The SS&OP model advocates for comprehensive risk management and stakeholder engagement, ensuring that corporate sustainability governance not only supports but also accelerates the achievement of the SDGs (Fritz, 2022). Hence, this thesis represents a pivotal step towards redefining the role of supply chain management in achieving a sustainable future, marking a path for others to follow in the drive towards global sustainability and resilience.

### **9.3.5 Contribution 5 – Bridging Theory and Practice**

The thesis presents a novel advancement in bridging the theoretical understanding and practical application of S&OP with sustainability, thereby developing the concept of Sustainable Sales and Operations Planning (SS&OP). It goes beyond academic theories to provide concrete insights into how the principles of stakeholder theory, risk management theory and life cycle theory, for instance, can be pragmatically connected within an organisation's operational structure.

Through a meticulous fusion of existing theoretical frameworks and empirical industry data, the work validates the practical relevance of integrating sustainability into the S&OP process. The thesis findings expound upon the transformative potential of SS&OP, not as a siloed theoretical framework but as an active, adaptable process that guides decision-makers and executives towards sustainability-centric, strategic choices (Haessler, 2020a). This transcends mere compliance with sustainability agendas, embodying an operational attitude that interconnects informed decision-making with tangible actions, thus interpreting SS&OP as a

promoter for operational excellence and environmental stewardship within contemporary supply chain management (Negri et al., 2021).

## **9.4 Implications**

This thesis demonstrates that the integration of S&OP and sustainability is not unidirectional or sequential process, but rather a symbiotic convergence that nurtures mutual enhancement and benefits both the businesses and broader society contexts. Implementing the framework outlined offers a novel contribution to academic discourse by presenting an integrated model that merges the strategic objectives of supply chain operations with sustainability imperatives. It invites academics to reassess the interplay between S&OP and sustainability within the operational management field, emphasising the value of a synchronised approach. Following academic exploration, this framework empowers practitioners to adopt a comprehensive and well-rounded strategy in operational management, whilst contributing towards achieving the business supply chain goals.

For a business to be able to engage in better sustainability performance, its management process should perceive a need for transformation and transit into a more integrative decision-making basis, so they enable the connection of management principles and fundamentals (people, process and tools for governance) into one source of truth, which leads to building robust business foundations, that is people, profit and planet.

Furthermore, this thesis identified the need to break down business silos to integrate sustainability strategies into cross-functional teams targets with a more holistic approach. As such, the criteria for achieving this begin with aligning sustainability goals and strategies with business and team values, ensuring relevance and meaningfulness. Second, it involves understanding current business processes to set realistic long-term goals and promote continuous improvement. Finally, it requires endorsing and taking ownership of these goals across all functions, fostering collaboration, transparency, and better-informed decisions.

In a practical sense, this study enhances comprehension of the existing management practices, challenges and outcomes associated with managing Sustainability into the S&OP. Practitioners can derive value from these insights by implementing the steps and tools employed in this study to tackle diverse systems within extensive transformation initiatives.

## **9.5 Limitations and Directions for Future Research**

While paying particular attention to academic rigour, the limitations of this thesis serve as an agenda for future research.

Due to the limited research on improving organisation supply chain sustainability performance through the S&OP process, this thesis employed a qualitative research approach. This approach involved interviewing carefully chosen senior leadership participants who hold extensive knowledge and skills on the subject matter which allowed the researcher to access a greater depth of analysis (Creswell & Creswell, 2017), especially when exploring the complex nuances of the topic. However, its findings may not be representative of all experts in S&OP and sustainability management.

Although this thesis collected data from 20 senior leadership participants from organisations based in the beauty and personal industry across all global regions, this single industry as a sample size is relatively small considering other larger industries in which S&OP and the sustainability agenda play a significant role. Consequently, future researchers may examine the validity of the thesis findings by gathering data from other industries economies such as Fast-Moving Consumer Goods (FMCG) or Pharmaceutical as well as conduct comparative cross-industry studies to further widen the knowledge on industry peculiarities and lead to other exciting findings about the transition to an SS&OP process.

The geographical concentration of senior leadership participants, with 70% based in the Asia-Pacific region, represents a certain limitation of this thesis, as it may influence the generalisability of the findings. This regional focus offers a snapshot that is rich in context but might not encapsulate the full spectrum of global practices. Similarly, the predominance of senior leadership participants, with 85% holding Head or Director roles, presents a limitation in terms of perspective diversity within this thesis. While this elite sampling focused has provided valuable insights into strategic decision-making processes, it may not fully represent the operational challenges and solutions perceived at different organisational levels. This drive towards higher management perspectives could be seen as a limitation, as it potentially overlooks the nuanced understandings of middle management and frontline employees. Acknowledging this, future research could benefit from a more diverse participant base, thereby capturing a more holistic view of the S&OP and sustainability practices across the hierarchical strata of organisations in diverse global contexts, to enhance the transferability of the findings.

This thesis has comprehensively investigated the dynamics of the Triple Bottom Line in influencing and impacting S&OP and supply chain sustainability processes, yet the exploration from a system software applicability perspective remains limited. The findings emphasise that while systems play a crucial role in enhancing business planning, they do not singularly address all organisational challenges; the true efficacy stems from the synergistic integration of people and processes. Additionally, it was revealed that currently, there is no system platform capable of encompassing and managing the multifaceted requirements essential for the robust implementation of the SS&OP model proposed in this study. This unexplored area presents a fruitful foundation for future research, which could investigate the potential of various existing platforms. Future studies might explore how these systems can be integrated effectively into business planning to make SS&OP processes more agile and, consequently, yield superior outcomes. This approach not only promises to advance theoretical frameworks but also to enhance practical applications in the field of business planning management.

Moreover, the trustworthiness of the thesis is contingent upon its credibility, transferability, dependability, and confirmability. Despite efforts to underpin these elements through various methodological precautions, the nature of qualitative research means that the findings are inherently interpretive. Therefore, while this thesis offers significant contributions, its limitations must be acknowledged, and its findings can be considered as a component of an ongoing, expansive academic conversation that aims to interlace sustainability processes into the framework of S&OP management.

## **9.6 Summary**

In summary, this chapter synthesises the pivotal findings of this thesis, articulates its academic and practical contributions, recognises its limitations, and suggests avenues for future inquiry. At its core, the thesis has explored the relationship between S&OP and supply chain sustainability performance, unveiling key factors influencing effective management.

The thesis posits that managing supply chain sustainability is a complex yet vital endeavour for sustainable economic and societal development. It sheds light on the siloed nature of organisational structures and advocates for a more cohesive approach to planning and executing sustainability initiatives. The gathered insights from senior leadership participants underline the universal nature of these challenges and the foundational goals that support sustainability efforts across various organisations.

A notable contribution of this thesis is the development of a Sustainable Sales and Operations Planning (SS&OP) framework, tailored to the beauty and personal care industry. This framework significantly advances academic discussions at the intersection of sustainability and S&OP, offering both a theoretical and practical blueprint for integrating sustainability into S&OP processes. It aligns with the contemporary academic focus on sustainability within operational management, providing a robust approach to navigating the evolving challenges of industry.

This thesis enriches existing theoretical frameworks by harmonising stakeholder and risk management theories with supply chain and sustainability practices, contributing a novel perspective on the transformation to from S&OP to SS&OP. It advocates for inclusive and informed decision-making processes that consider environmental, social, and financial impacts, supporting organisations' sustainability agendas and fostering resilience in the market.

While the thesis has made substantive contributions, it also acknowledges its limitations. Future research could thus expand on this thesis by incorporating a more varied sample across different industries and organisational levels, enhancing the generalisability and richness of the insights on SS&OP.

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